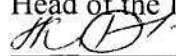


**National Pirogov Memorial Medical University, Vinnytsia**

«APPROVE»

Higher Educational Institution  
Vice-Rector for Scientific,  
Pedagogical and Academic Affairs  
Inna ANDRUSHKO  
"29" August 2025 year

«AGREED»

Head of the Department of Pharmacy  
 Olena KRYVOVIAZ  
"29" August 2025 year

✓

**SYLLABUS**

of academic discipline

**BIOPHARMACEUTICAL ASPECTS OF COSMETOLOGY AND  
AESTHETIC MEDICINE**

Specialty	226 Pharmacy, Industrial Pharmacy
Specialization	226.01 Pharmacy
Educational level	the second (master`s) level
Educational programme	<i>EPP «Pharmacy», 2023</i>
Academic year	2025-2026
Department	Pharmacy
Lecturer (if lectures are given)	Prof. Olena KRYVOVIAZ, Ass. Prof. Yulia TOMASHEVSKA, Ass. Prof. Hanna KRAMAR
Contact information	<i>pharmacy@vnmnu.edu.ua</i>
Syllabus compiler	Ass. Prof. Yulia TOMASHEVSKA

### Status and structure of the discipline

Discipline status	optional courses
Discipline code in EPP/ discipline place in EPP	EC 51// optional courses, optional components of EP
Course / semester	4 th course
The amount of discipline ( the total number of hours / number of credits ECTS)	90 hours /3,0 credits ECTS
Number of content modules	1 modules
The structure of the discipline	Lectures – 10 hours Practical classes - 30 hours Independent work – 50 hours
Language of study	English
Form of education	Full - time (or remote/mixed according to the order)

#### 1. Description of the course

##### Brief annotation, actuality.

The elective course "Biopharmaceutical aspects of cosmetology and aesthetic medicine" belongs to the cycle of disciplines for the professional-oriented training of specialists in specialty 226 "Pharmacy, Industrial Pharmacy".

The course covers biological and pharmaceutical aspects of cosmetology and aesthetic medicine, skin condition diagnosis and the relationship between skin condition and cosmetics selection, and the selection of products according to the structural and functional characteristics of the skin.

As a result of studying the optional course, students of higher education will acquire knowledge about:

##### Know:

- Classification of cosmetology industries
- Ingredients of cosmetic products: classification and functions.
- Methods of chemical peels, hydrotherapy and thermotherapy.
- Biopharmaceutical aspects and types of injection cosmetology

##### Be able to:

- select cosmetic products depending on skin type and condition.
- analyse cosmetic formulations.
- determine the functions of cosmetic ingredients; select them taking into account their interaction and purpose.
- select skincare and decorative cosmetics and provide advice on their use at home and in salons.
- Predict the effect of individual ingredients in cosmetic and aesthetic medicine products on the skin and its appendages.

##### Prerequisites

The discipline is based on the study of the classification of branches of cosmetology, ingredients of cosmetic products, analysis of cosmetic formulations, and also uses as prerequisites such disciplines of the curriculum as anatomy and physiology, introduction to pharmacy, pharmaceutical chemistry, and pharmacognosy.

##### The purpose of the course and its significance for professional activities.

The aim of teaching this discipline is to deepen professional knowledge in the field of cosmetology and aesthetic medicine. To familiarise higher education students with methods for determining skin types and the effect of various cosmetic ingredients on the skin. To understand

the impact of auxiliary ingredients, the rational selection of components, and the technology of manufacturing cosmetic formulations. To inform about the latest methods in the field of cosmetology and aesthetic medicine.

#### **Postrequisites**

The discipline is the basis for studying the following disciplines: Drug technology:ITD, technology of medicinal cosmetics, clinical pharmacy and pharmaceutical care, pharmaceutical chemistry, pharmacotherapy with pharmacokinetics. This involves integrating teaching with the above disciplines and developing the ability to apply knowledge in further education and professional activities.

## **2. Learning outcomes.**

### **Integral (IC)**

The ability to solve complex problems and critically analyse and solve practical problems in professional pharmaceutical and/or research and innovation activities using the provisions, theories and methods of fundamental, chemical, technological, biomedical and socio-economic sciences; integrate knowledge and solve complex issues, formulate judgements with insufficient or limited information; clearly and unambiguously convey one's knowledge, conclusions and their validity to professional and non-professional audiences.

- **General competencies (GC):**

GC 02. Ability to think abstractly, analyze and synthesize.

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

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

GC 06. Skills in using information and communication technologies.

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

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

- **Special (Professional, subject) competencies (PC):**

PC 01. Ability to collect, interpret and apply data necessary for professional activity, conduct research and implement innovative projects in the field of pharmacy.

PC 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.

PC 04. Ability to use knowledge of regulatory and legislative acts of Ukraine and recommendations of good pharmaceutical practices in professional activity.

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

PC 06. The ability to clearly and unambiguously convey one's own knowledge, conclusions and reasoning in the field of pharmacy to specialists and non-specialists, in particular to students.

PC 07. The ability to conduct sanitary and educational work among the population in order to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to promote timely detection and maintenance of adherence to the treatment of these diseases in accordance with their medical and biological characteristics and microbiological features.

PC 09. Ability to provide advice on prescription and non-prescription medicines and other pharmacy products and aspects of healthy eating, pharmaceutical care during the selection and sale of medicines of natural and synthetic origin by assessing the risk/benefit ratio, compatibility, taking into account their biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical and chemical characteristics, indications/contraindications for use, guided by data on the health status of a particular patient.

PC 11. Ability to ensure proper storage of medicines and other pharmacy products in accordance with their physicochemical properties and the rules of Good Storage Practice (GSP) in healthcare institutions.

PC 18. Ability to organize and carry out production activities of pharmacies for the manufacture of medicines in various dosage forms according to doctors' prescriptions and orders of medical institutions, including justification of technology and selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).

**Learning outcomes:**

**Integrative final program learning outcomes, the formation of which is facilitated by the academic discipline:**

- Identification of future professional activity as socially significant for human health.
- Implementation of professional activities based on general knowledge of the main stages of the formation and development of pharmaceutical science and practice in Ukraine and the countries of the world, practical approaches to the organization of providing medicines to the population and health care institutions, regulatory and legal acts of Ukraine and recommendations of proper pharmaceutical practices.
- Argumentation of decision-making in standard professional situations.
- Formation of basic knowledge and acquisition of practical skills for further study of professional educational disciplines.

**• Program learning outcomes for the discipline:**

PLO 01. Apply specialized knowledge and skills from general and professional disciplines in professional activities.

PLO 02. Critically reflect on scientific and applied problems in the field of pharmacy.

PLO 03. Evaluate and ensure the quality and efficiency of activities in the field of pharmacy.

PLO 04. Comply with sanitary and hygienic standards and safety requirements when performing professional activities.

PLO 05. Plan and implement professional activities based on the regulatory legal acts of Ukraine and recommendations for good pharmaceutical practices.

PLO 07. Demonstrate the ability to independently search, analyze and synthesize information from various sources, including professional literature, patents, databases; evaluate it, in particular, using statistical analysis, as well as apply these results to solve typical and complex specialized tasks of professional activities, including the development and production of medicines.

PLO 09. 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 10. Conduct sanitary and educational work in professional activities in the event of outbreaks of infectious, viral and parasitic diseases.

PLO 12. Promote health preservation, in particular disease prevention, rational prescription and use of medicines. Perform their professional duties conscientiously, comply with the norms of legislation on the promotion and advertising of medicines. Possess

psychological communication skills to achieve trust and mutual understanding with colleagues, doctors, patients, consumers.

PLO 14. Identify the advantages and disadvantages of medicines of different pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic and pharmacodynamic features. Recommend over-the-counter medicines and other pharmacy products to consumers, providing advisory assistance and pharmaceutical care.

PLO 15. Formulate, argue, clearly and specifically convey to specialists and non-specialists, including higher education students, information based on their own knowledge and professional experience, the main trends in the development of world pharmacy and related industries.

PLO 16. Record cases of side effects when using medicines of natural and synthetic origin; evaluate factors that may affect the processes of absorption, distribution, deposition, metabolism and excretion of medicines and are determined by the state and characteristics of the human body and the pharmaceutical characteristics of medicines.

PLO 18. Ensure competitive positions and effective development of pharmaceutical organizations, including taking into account the results of marketing research and market processes at the national and international levels.

PLO 22. Develop technological documentation for the manufacture of medicines, choose rational technology, manufacture medicines in various dosage forms according to doctors' prescriptions and requirements (orders) of medical and preventive institutions, and prepare them for release.

### 3. Content and logistics of the discipline

<b>Module 1</b> «Biopharmaceutical aspects of cosmetology and aesthetic medicine»	V semester 90 hours /3 credits ECTS	Lectures №5 Practical classes №15 Extracurricular work №12
--------------------------------------------------------------------------------------	----------------------------------------	------------------------------------------------------------------

The discipline includes 14 topics, which are divided into 1 module.

#### **Module 1 «Biopharmaceutical aspects of cosmetology and aesthetic medicine»**

Topic 1. Cosmetology and aesthetic medicine: definitions, differences between them. Classification of cosmetology branches.

Topic 2. Structure and types of skin. Skin appendages. Care for different skin types.

Topic 3. Diagnosis of skin condition and the relationship between skin condition and the choice of cosmetics.

Topic 4. Classification and composition of cosmetics. Analysis of cosmetic formulations.

Topic 5. Classical cosmetology: selection of products in accordance with the structural and functional features of the skin.

Topic 6. Classical cosmetology: manual methods. Chemical peels. Hydro- and heat therapy.

Topic 7. Classification and methods of hygienic facial cleansing.

Topic 8. Biopharmaceutical aspects and mechanisms of various types of hardware cosmetology.

Topic 9. Biopharmaceutical aspects and types of injection cosmetology (contouring, botulinum therapy, mesotherapy, biorevitalization, cell therapy).

Topic 10. Biopharmaceutical aspects of aesthetic medicine. Invasive and minimally invasive techniques. Non-surgical procedures in aesthetic medicine.

Topic 11. Kinesiological taping in aesthetic cosmetology

Topic 12. Lasers in dermatocosmetology.

Topic 13. Hair care products

Topic 14. Features of care and decorative cosmetics and their home and salon use

The topics of the lecture course reveal problematic issues of the relevant sections of the discipline.

Lecture methods: not taught in class, materials are posted on the department's information resources.

Practical classes provide theoretical substantiation of the main issues of the topic and contribute to the formation of skills:

*theoretically oriented, which include:*

- entrance test control of knowledge of the student of higher education on the topic of the lesson;
- discussion and systematization of normative documents, material of the main and auxiliary literature;
- solving theoretical problems related to the lesson topic;
- solving situational tasks related to the specifics of the development and use of personalized medicinal and cosmetic products;
- conducting initial knowledge control using theoretical questions, situational and calculation problems, recipe prescriptions;

*or practically oriented, which include:*

- conducting a test entry control of the readiness of higher education applicants for the manufacture of a certain type of medicinal forms;
- discussion of the step-by-step technology of prescriptions related to the topic of practical training;
- production of personalized medicinal and cosmetic products, or their components;
- solving individual situational tasks;
- a teacher's check of the quality of work performed by students of higher education using an oral survey;
- carrying out initial control of learning the material using theoretical questions, situational and calculation problems, recipe prescriptions.

Practical classes provide theoretical substantiation of the main issues of the topic and contribute to the formation of skills:

- Provide the client with basic personalized pharmaceutical care
- Use professional knowledge to solve practical situations.
- Use online resources of centers of personalized pharmacy
- Analyze professional information, make informed decisions, acquire up-to-date knowledge.
- Provide pharmaceutical care to patients in need of personalized medical care
- To carry out professional activities that require updating and integration of knowledge.
- Apply a personalized approach in cosmetology
- Make confectionary dosage forms
- Prepare basic cosmetic products
- To use normative legal acts regulating pharmaceutical activities in Ukraine and abroad.
- Take pharmaceutical factors into account when selecting personalized medicinal and cosmetic products.

The student's independent work involves preparation for practical classes and intermediate tests, studying topics for independent extracurricular work, writing essays, preparing presentations, tables. The control of mastering the topics of independent extracurricular work is carried out at the intermediate control classes and the final control of the discipline.

Individual work includes the study of scientific literature, preparation of reviews of topics for presentation at meetings of the student scientific group, the implementation of scientific and practical research, participation in specialized competitions, scientific and practical conferences, competitions of student research papers.

Thematic plans of lectures, calendar plans of practical classes, thematic plan of independent extracurricular work, the volume and directions of individual work are published on the website of the department.

The route for obtaining materials: Department of Pharmacy / for students / Full-time education / Pharmacy, industrial pharmacy / 4 course / Educational materials / or through the link <https://www.vnmua.edu.ua/кафедра-фармації#..>. Access to the materials is carried out through the student's corporate account [s000XXX@vnmua.edu.ua](mailto:s000XXX@vnmua.edu.ua).

#### 4. Forms and methods of monitoring academic performance

Current control in practical studies	Methods: <i>oral or written survey, testing, electronic survey, solving situational problems, conducting laboratory studies, interpreting them and evaluating their results (drawing up a protocol in a workbook)</i>
Final control of the discipline (credit) at the end of the 5th semester	Methods: <i>oral questioning</i> (according to the Regulation of the Academic process in VNMU named after M.I. Pirogov (link <a href="https://www.vnmua.edu.ua/General information">https://www.vnmua.edu.ua/General information</a> ))
Learning success diagnostic tools	Theoretical questions, tests, tasks, practical tasks, practical skills, demonstration

#### 5. Assessment criteria

Knowledge assessment is carried out in accordance with the Regulations of the Academic process in VNMU named after M.I. Pirogov ( link <https://www.vnmua.edu.ua/General information>)

Continuous assessment	On a four point system of traditional assessments: 5 «excellent», 4 «good», 3 «satisfactory», 2 «unsatisfactory»
Credit	On a 200-point scale (the arithmetic average grade for the semester is converted into points) Credited: 122 to 200 points Not credited: less than 122 points (See Grading Scale)

**Discipline assessment scale: national and ECT**

The sum of grades for all types of Educational activities	Score ECTS	Score on a national scale	
		For exam, course project (work), practice	for credit test
180-200	A	excellent	credited
170-179,99	B	good	
160-169,99	C		
141-159,99	D	satisfactory	
122-140,99	E	satisfactory	
0-121,99	FX	unsatisfactory with the possibility of reassembly	is not credited with the possibility of reassembling
	F	unsatisfactory with a mandatory reexamination of discipline	is not credited with mandatory reexamination of discipline

**6. Policy of discipline / course**

The student has the right to receive high-quality educational services, access to contemporary scientific and educational information, qualified advisory assistance during the study of discipline and mastering practical skills. The policy of the department during the providing of educational services is a student-centered, based on normative documents of the Ministry of Education and the Ministry of Health of Ukraine, the Statute of the University and the Procedure for the Providing of Educational Services regulated by the main principles of the organization of the educational process in VNMU named after M.I. Pirogov and the principles of academic integrity ( link <https://www.vnmua.edu.ua/General> information).

**Adherence to the rules of VNMU, safety techniques in practical classes.**

Safety instruction is given at the first practical lesson by the teacher. The briefing is registered in the Safety Briefing Journal. A student who has not been instructed is not allowed to practice.

In the event of the announcement of the "Air Alert" signal or other warning signals, the teacher stops the class, informs the students of the need to go to the civil defense shelter and stay there until the signal is canceled. The teacher informs higher education students of further actions after the signal is canceled: to continue the class or to recommend that they independently finalize the material with a subsequent survey at the next class (Order No 92 of 03.09.2024).

**Requirements for preparation for practical classes.** The student must be prepared for a practical lesson, tasks to prepare for the current topic must be completed.

A student should come to class on time, without delay. A student who is late is not allowed to study and must work it in the prescribed manner.

In practical classes, the student must be dressed in a work uniform. Students who do not have a work uniform are not allowed to study.

The student must follow the rules of safety in practical classes and during the stay in the department.

When discussing theoretical issues, students should demonstrate tolerance, courtesy and respect for their colleagues and the teacher; when performing practical tasks, the workplace should be kept in order and be cleaned after performing practical work.

**Usage of mobile phones and other electronic devices.** The use of mobile phones and other electronic devices in the classroom is allowed only on the instructions of the teacher.

**Academic integrity.** When studying the discipline, the student must be guided by the Code of Academic Integrity and Corporate Ethics of VNMU named after M.I. Pirogov (link : [https://www.vnmue.edu.ua/General information/](https://www.vnmue.edu.ua/General%20information/) Code of Academic Integrity). In case of violation of the norms of academic integrity during the current and final controls student receives a grade of "2" and must work it out to his teacher in the prescribed manner within two weeks after receiving an unsatisfactory assessment).

**Missed classes.** Missed classes are working out in the manner prescribed by Regulations of the Academic process in VNMU named after M.I. Pirogov (link [https://www.vnmue.edu.ua/General information](https://www.vnmue.edu.ua/General%20information/)) at the time of work out schedule to the teacher on duty.

**The procedure for admission to the discipline final control** is given in the Regulations of the Academic process in VNMU named after M.I. Pirogov (link [https://www.vnmue.edu.ua/General information](https://www.vnmue.edu.ua/General%20information/)). To the final control allowed students who do not have missed practical classes and lectures and received an average traditional grade of at least "3".

**Additional points.** Individual points in the discipline (from 1 to 12) that student can receive for individual work, the amount of which is published on the website of the department in the educational methodical materials of the discipline, the number of points is determined by the results of IRS according to Regulation of the Academic process in VNMU named after M.I. Pirogov.

**Conflict resolution.** In case of misunderstandings and complaints to the teacher because of the quality of educational services, knowledge assessment and other conflict situations, student should submit his / her claims to the teacher, in VNMU named after M.I. Pirogov.

Politics in terms of remote learning. Distance learning regulated by the Regulations of the elements of remote learning in VNMU named after Pirogov M.I. The procedure for conducting practical classes and lectures, practicing and consultations during distance learning is published on the department's website.

**Feedback from teachers** carried out through a distance learning platform (Microsoft Teams) is via messengers or e-mail (at the teacher's choice) during working hours.

Higher education applicants have the right to receive quality educational services, access to up-to-date scientific and educational information, qualified advisory assistance in the study of the discipline and mastery of practical skills. The policy of the department in the provision of educational services is student-centered, based on the regulations of the Ministry of Education and the Ministry of Health of Ukraine, the university charter and the procedure for the provision of educational services, regulated by the basic provisions of the organization of the educational process at the Pirogov National Medical University and the principles of academic integrity.

#### 7. Educational resources.

Educational and methodological support of the discipline is published on the website of the department ([https://www.vnmue.edu.ua/кафедра-фармації#](https://www.vnmue.edu.ua/кафедра-фармації/) / for students). Consultations are held twice a week according to the schedule.

**8. The timetable and distribution of groups with assigned teachers are published** on the web page of the department ([https://www.vnmue.edu.ua/кафедра-фармації#](https://www.vnmue.edu.ua/кафедра-фармації/) / for students).

**9. Questions to the intermediate and final semester control (credit)** of the discipline are published on the web page of the department ([https://www.vnmue.edu.ua/кафедра-фармації#](https://www.vnmue.edu.ua/кафедра-фармації/) / for students).

### Recommended literature

1. Pharmacy – based technology of drugs: the manual for applicants of higher education / O.I.Tykhonov, O.A. Yarnykh, O.A. Rukhmakova, G.B. Yuryeva: Edited by O.I. Tykhonov and T.G. Yarnykh. – Kharkiv:NUPh:Golden Pages, 2019. – 488 p.
2. Remington: The Science and Practice of Pharmacy, Twenty Third Edition/ Remington J. P. – Academic press: An imprint of Elsevier, 2020. – 1000 p. <https://doi.org/10.1016/C2018-0-04991-9>
3. Elder, A, Ring, C, Heitmiller, K, Gabriel, Z, Saedi, N. The role of artificial intelligence in cosmetic dermatology—Current, upcoming, and future trends. J Cosmet Dermatol. 2021; 20: 48– 52.
4. Erat, A., & Addor, G. (2025). Advancements in Cosmetic Science: A review of Ingredients and Technologies for Holistic health and Longevity. Cosmetics, 12(5), 202.
5. Gomes, C., Silva, A. C., Marques, A. C., Lobo, J. S., & Amaral, M. H. (2020). Biotechnology applied to cosmetics and aesthetic medicines. Cosmetics, 7(2), 33.
6. European Pharmacopoeia, 10th Edition 2020, English
7. The International Pharmacopoeia / – [8-th ed.]. – Geneva : World Health Organization, 2019. – 2532 p. – ISBN: 9241545364.
8. British pharmacopoeia. London: Medicines and Healthcare products Regulatory Agency; 2018.

### Information resources

1. E-mail address of the university website: <http://vnmuedu.ua>
2. E-mail address of the university library website: <http://library.vnmuedu.ua>
3. E-mail address: Department of Pharmacy, Pirogov National Medical University: <http://www.vnmuedu.ua>
4. World Health Organization <http://www.who.int/en/>
5. Testing center <https://www.testcentr.org.ua/uk/>
6. Ministry of Health of Ukraine <https://moz.gov.ua/>
7. Center for Public Health of the Ministry of Health of Ukraine <https://phc.org.ua/kontrol-zakhvoryuvan>

The syllabus of the discipline "Biopharmaceutical aspects of cosmetology and aesthetic medicine" was discussed and approved at the meeting of the department Department of Pharmacy  
(record № 1, dated August "26" 2025)

Responsible for the academic discipline  
(signature)



Yulia TOMASHEVSKA

The Head of the Pharmacy Department  
(signature)



Olena KRYVOVIAZ