MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
Department of Pharmaceutical Chemistry and Drug Technology

Syllabus of the educational discipline
« Chemistry of cosmetics »

Scope of the educational discipline	Total number of hours per discipline: 90 hours, 3 credits. Semester: X. 4th year.
Days, time, place of the education discipline	According to the schedule of classes. Department of Pharmaceutical Chemistry and Drug Technology. Odesa, st. Marshal Malinovskyi, 37. Pharmaceutical faculty
Teacher (-s)	Assistant Shyshkin Ivan
Contact Information	Help by phones: Nikitin Olexii, head teacher of the department 067-485-11-06 Klyvniak Iryna, senior laboratory assistant 048-777-98-28 E-mail: pharmchemistry@onmedu.edu.ua Face-to-face consultations: from 2:00 p.m. to 5:00 p.m. every Thursday, from 9:00 a.m. to 2:00 p.m. every Saturday. Online consultations: from 4:00 p.m. to 6:00 p.m. every Thursday, from 9:00 a.m. to 2:00 p.m. every Saturday. The link to the online consultation is given to each group during the classes separately.

COMMUNICATION

Communication with applicants will be conducted in the classroom (face-to-face).

During distance learning, communication is carried out through the Microsoft Teams platform, as well as through e-mail correspondence, Viber messengers (through groups created in Viber for each group, separately through the head of the group), Telegram.

ABSTRACT OF THE EDUCATIONAL DISCIPLINE

The subject study is general theoretical provisions of pharmaceutical chemistry with a description of general theoretical ways of identification of organic compounds of plant origin.

Prerequisites: builds on and integrates with students' study of inorganic, organic, analytical chemistry, human anatomy and physiology, medical biology, physical and colloid chemistry, dermatology.

Postrequisites: lays the foundations for students to study drug technology, pharmaceutical chemistry, general and clinical pharmacology, toxicology, cosmetology.

Goal – formation of students of higher education theoretical knowledge about the chemical nature of various cosmetics and their ingredients, mechanisms of their influence on the human body and acquisition of practical skills in various methods of preparation of cosmetic products and analysis of active and auxiliary components. The cosmetic chemistry course is also a component of some aspects of the chemical technology, pharmaceutical chemistry, and drug technology courses and includes a description of classes of organic compounds, including biologically active organic compounds and their effects on the human body.

Tasks of the discipline: acquiring skills in using chemical and reference literature, studying the theoretical foundations of organic chemistry, establishing the relationship between the structure and properties of organic compounds to the extent necessary for further study and understanding of the main chemical processes occurring at the molecular level, forming a complete system of modern cosmetic products and their effects on the human body;

Expected results

As a result of studying the educational discipline, the applicant must

Know:

- anatomy and physiology of the skin from the point of view of cosmetology;
- classification of cosmetics;
- classification and mechanism of action of main and auxiliary ingredients used in cosmetics;
- physico-chemical, chemical properties of the main and auxiliary ingredients in cosmetics;
- functional purpose of the ingredient in the cosmetic product.

Be able:

- analyze the composition of cosmetic products from a chemical point of view and correctly prescribe cosmetic products based on knowledge of the mechanism of action of the main ingredients;
- choose the most specific and informative method of analysis to determine the main and/or auxiliary ingredients of cosmetic products;
- apply knowledge of general and specialized disciplines in professional activities;
- use the results of independent search, analysis and synthesis of information from various sources to solve typical tasks of professional activity;
- carry out professional activities using reference scientific literature, information technologies, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

Master the skills:

- determine the class of chemical compound to which one or another cosmetic ingredient belongs;

- on the basis of physical and chemical properties, determine the possible role of an ingredient in a cosmetic product;
- based on the chemical structure of the substance, predict its possible effect on human skin;
- select analytical reactions depending on the functional group.

DESCRIPTION OF THE EDUCATIONAL DISCIPLINE

Forms and methods of education.

The discipline will be taught in the form of practical classes (30 hours) and organization of students' independent work (60 hours).

Consultations are individual.

When conducting practical classes, teaching methods are used: educational and methodological materials, situational tasks, individual tasks, laboratory equipment, test and calculation tasks to test acquired knowledge and skills, a list of necessary literary sources is provided for independent work.

Content of the education discipline

Topic 1. State regulation of the development, production and sale of perfumery and cosmetic products in Ukraine.

Topic 2. Morphology and physiology of the skin and its appendages. Methods of determining skin types and other clinical characteristics. Cosmetic preparations, their classification and characteristics.

Topic 3. Chemical classification of cosmetic ingredients. Alcohols and phenols. Carboxylic acids. Esters (fats). Polysaccharides. Amino acids and proteins. Inorganic compounds (silicon dioxin, titanium oxide and others).

Topic 4. Classification according to the direction of cosmetic action. SPF products. Dyes Surfactants. Emulsifiers. Flavorings.

Recommended literature list

***Basic**:*

1. Сучасні інгредієнти для косметичних засобів: навч.посібник / О.Г.Будішевська, С.А. Воронов; за ред. О.Г.Будішевської. – Львів: Видавництво Львівської політехніки, 2022. – 256 с.
2. Технологія та застосування лікувально-косметичних засобів: навч.посібник / О.В. Федорова, Р.О. Петріна, Н.Л. Заярнюк, В.В. Гавриляк, А.О. Миланич, В.П. Новіков. – Львів: Видавництво Львівської політехніки, 2019. - 244 с.
3. Технологія косметичних засобів : підручник для студ. вищ. навч. закладів / О. Г. Башура, О. І. Тихонов, В. В. Россіхін [та ін.] ; за ред. О. Г. Башури і О. І. Тихонова. — Х. : НФаУ ; Оригінал, 2017. — 552 с.

4. Органічна хімія: у 3-х кн./ Черних В.П., Зименковський Б.С., Гриценко І.С.; за ред. В.П. Черних - Харків.: Вид-во НфаУ; Оригінал, 2008. – 752 с.
5. Державна фармакопея України: в 3 т. / ДП "Український науковий фармакопейний центр якості лікарських засобів". – 2-е вид. – Харків : Державне підприємство " Український науковий фармакопейний центр якості лікарських засобів ", 2015.

Additional:

1. Гіалуронова кислота: біосинтез та використання / І. В. Лич, А. О. Угрин, І. М. Волошина // Український біофармацевтичний журнал. - 2019. - № 2. - С. 6-13.
2. Дедишина Л. Космецевтика в аптеці: престижно та прибутково. Фармацевт Практик. 2015. № 12. С. 28-29
3. Технологія лікувально-косметичних засобів: навчальний посібник / упоряд.: Борисюк І. Ю., Фізор Н. С., Валіводзь І. П., Акішева А. С.. Одеса, ОНМедУ, 2020.-52 с.
4. Навчальний посібник з органічної хімії для студентів фармацевтичного факультету / під ред. Б.С. Зіменковського. – Львів, ЛНМУ, 2013. – 316 с.

Information resources:

1. Офіційний сайт Міністерства охорони здоров'я України: www.moz.gov.ua.
2. Компендиум: лекарственные препараты: − [Електроний ресурс]. – Режим доступу: http://compendium.com.ua/.
3. Щотижневик Аптека: https://www.apteka.ua/
4. Фармацевтична енциклопедія / голова ред. ради В. П. Черних. К.: Моріон, 2016. URL: www.pharmencyclopedia.com.ua

ASSESSMENT

Control measures include *current control*. The current educational activity of the applicants is monitored in practical classes. The following tools are used to diagnose the level of training of applicants: oral survey, testing, evaluation of the performance of practical skills, problem solving. Current assessment of students takes place at each practical session (at least 50% of students must be interviewed). The current educational activity of the recipient is evaluated on a 4-point (traditional) scale: "5", "4", "3", "2".

Criteria for assessing students' knowledge during practical classes:

– the grade "excellent" is assigned to a student of higher education who worked systematically during the semester, showed versatile and deep knowledge of the program material during the assessment, is able to successfully perform the tasks provided for in the program, mastered the content of basic and additional literature, showed creative abilities in understanding and the use of educational program material, showed the ability to independently update and replenish knowledge; level of competence - high (creative);

- the grade "good" is assigned to a student of higher education who has demonstrated complete knowledge of the curriculum material, successfully performs the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further training and professional activity; the level of competence is sufficient (constructive and variable);
- the grade "satisfactory" is assigned to a higher education applicant who has demonstrated knowledge of the main curriculum material to the extent necessary for further education and subsequent work in the profession, copes with the tasks provided for in the program, has made individual errors in answering questions and in completing assessment tests tasks, but has the necessary knowledge to overcome the mistakes made under the guidance of a scientific and pedagogical worker; level of competence - average (reproductive);
- an "unsatisfactory" grade is assigned to a student of higher education who did not demonstrate sufficient knowledge of the main curriculum material, made fundamental mistakes in the performance of tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; the level of competence is low (receptive-productive).

The work program of the course does not provide for the *individual independent work of the applicant* (IIW).

Forms and methods of final control: applicants who have completed the training program in the discipline in full, have no academic debt, set their current grade point average to 3.00 or more, receive credit in the last lesson, which is presented as "passed" / "failed".

If the student has received a minimum grade point average of 3.00 for the current performance, even in the case of unworked unsatisfactory grades, he receives credit for the discipline.

The possibility and conditions of obtaining additional (bonus) points: not provided.

INDEPENDENT WORK OF HIGHER EDUCATION ACQUIRES

Independent work of the acquirer, which is provided by preparation for each practical lesson.

EDUCATIONAL DISCIPLINE POLICY

Deadlines and Rescheduling Policy: corresponds to the general rules of ONMedU. Absences of classes for non-respectable reasons will be worked out according to the schedule of the teacher on duty. Absences for valid reasons are worked out according to an individual schedule with the permission of the dean's office.

Observance of academic integrity by students of education involves: independent performance of educational tasks. The use of prohibited auxiliary materials or technical means during control measures is unacceptable in educational activities for participants of the educational process. For violations of academic integrity, students may be held academically liable: reduction of assessment results; retaking the assessment.

Attendance and Tardiness Policy:

Uniform: medical gown.

Equipment: notebook, pen.

State of health: applicants suffering from acute infectious diseases, including respiratory diseases, are not allowed to attend classes.

A student who is late for a class can attend it, but if the teacher has put "nb" in the journal, he must complete it in the general order.

Use of mobile devices:

Mobile devices may be used by students with the permission of the instructor if they are needed for the assignment.

Behavior in the audience:

The behavior of applicants and teachers in the classrooms should be working and calm, strictly comply with the rules established in accordance with the Code of Academic Ethics and Relations of the University Community of Odesa National Medical University.