



MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY
Faculty of Pharmacy
Department of Social Pharmacy

PHARMACEUTICAL INFORMATION

(name of academic educational component)

WORKING PROGRAM
of educational component

training for _____ second (master's) level
(Higher Educational Level Name)
field of knowledge _____ 22 Healthcare
(Code and Knowledge Field Name)
in specialty _____ 226 Pharmacy, industrial pharmacy
of educational program _____ (Code and Specialty Name)
Pharmacy
(Educational Program Name)
specialization _____
(Specialization Name)

2022 year

Work program of a course Pharmaceutical Information in specialty 226 Pharmacy, Industrial pharmacy of educational program Pharmacy specialization _____ for applicants for higher education 3 year of study.

Educational course team:

KOTVITSKA Alla, professor of the Social Pharmacy department, Doctor of Pharmacy, Professor;
VOLKOVA Alina, head of the Social Pharmacy department, Ph.D., Associate Professor;
KORZH Yuliya, Associate professor of the Social Pharmacy department, Ph.D., Associate Professor;
KUBARIEVA Inna, Associate Professor of the Social Pharmacy department, Ph.D., Associate Professor;
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GAVRYSH Natalia, Associate Professor of the Social Pharmacy department, Ph.D., Associate Professor;
NOZDRINA Almira, assistant of the Social Pharmacy department

Work program has been considered and approved at the Social Pharmacy Department Meeting
Record from "29" August 2022 year №1

Head of the Department

(signature)

assoc.prof. Alina VOLKOVA

(name and surname)

Work program has been considered and approved at meeting of the profile Methodical
Commission on economic and managerial disciplines
Record from «30» August 2022 year № 1

Head of Specialized Committee

(signature)

prof. Alla NEMCHENKO

1. Description of the educational component

The language of the study: English

Status of the educational component: selective

Prerequisites for studying the educational component: is based on the study of the educational component Introduction to the speciality; the educational component is the basis for studying the organization and economy of pharmacy, pharmaceutical marketing and management, pharmaceutical law and legislation, pharmaceutical and medical commodity science, pharmacoeconomics of social pharmacy, which involves the integration of teaching with the above-mentioned educational components for the formation of the ability to apply knowledge in the process of further education and in professional activity.

The purpose statement of studying the course «Pharmaceutical information» is a pharmaceutical information system, modern national and global information resources in the field of health care, algorithms for finding the necessary industry information in databases, registers and directories of medicinal products, etc. sources, as well as theoretical and practical aspects of the functioning of pharmaceutical information in the pharmaceutical sector of the health care industry.

Information content of the educational component. 3 ECTS credit 90 hours are assigned to the study of the educational component.

2. Objectives and tasks of the course

The purpose of teaching the educational component "Pharmaceutical information" is the formation of the foundations of modern information culture in students of higher education, their assimilation of the main theoretical approaches to the study of basic categories of pharmaceutical information, the formation of knowledge, skills and abilities in the organization of information support of pharmaceutical activities, providing future specialists with the opportunity to perform functional tasks in a high-quality manner responsibilities

The **main tasks** of the educational component "Pharmaceutical information" is mastering the main questions of the general theory adapted to pharmaceutical practice, which are considered when studying the educational component:

- acquisition of system knowledge on the theoretical foundations of information support of pharmaceutical activity;
- acquisition of system knowledge regarding the organizational structure of the domestic pharmaceutical information system;
- understanding of communication processes as a key element of pharmaceutical information transfer;
- understanding of the functioning of pharmaceutical information (modern information processing technologies) in pharmacies;
- acquisition of knowledge on the legislative bases of regulating the functioning of the pharmaceutical information system in Ukraine;
- understanding of pharmaceutical information as a component of the professional activity of practical pharmacy specialists and public awareness;
- assimilation of basic issues of pharmaceutical information as a component of scientific activity in the pharmaceutical sector of health care.

3. Competence and planned educational outcomes

The course «Pharmaceutical information» provides acquisition of competencies by applicants for higher education:

- *integral* :

Ability to solve typical and complex specialized tasks and critically comprehend and solve the practical problems in the professional pharmaceutical and/or research and innovation activity using provisions, theories and methods of the fundamental, chemical, technological, biomedical, socio-economic science; integrate knowledge and solve complex issues, formulate judgments in the presence of incomplete or limited information, clearly and unambiguously to convey their conclusions and use their knowledge, reasonably substantiating them, to professional and non-professional audience.

- *general :*

GC 2. Ability to apply knowledge in practical situations, make reasonable decisions.

GC 4. Ability to abstract thinking, analysis and synthesis, to learn and be modernly trained.

GC 9. Skills in the use of information and communication technologies.

- *specialized (professional, subject):*

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

Integrative final program learning outcomes (PLO), the formation of which is facilitated by the educational component:

PLO 2. To apply knowledge of general and professional disciplines in professional activities.

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

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

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

PLO 12. To analyze the information obtained as a result of scientific research, summarize, systematize and use it in professional activities.

As a result of studying the course, students will be able to

know:

- general key concepts of pharmaceutical information;
- elements and basic functions of the modern pharmaceutical information system;
- sources of pharmaceutical information, their classification and types;
- requirements for pharmaceutical information;
- information and communication technologies used in professional pharmaceutical activity;
- the main components of the pharmaceutical information system in the activity of pharmacies;
- regulatory legal acts regulating the activity of the pharmaceutical information system in Ukraine;
- the role and functions of pharmaceutical information in the professional activity of pharmacists;
- an algorithm for searching the necessary industry information in databases and drug registers;
- forms and methods of informing about medicinal products;
- evidence and reliability of pharmaceutical information for consumers.
- national and global health information resources (domestic websites and international health websites for consumers);
- definitions, signs, types and forms of scientific information;
- scientific resources containing the results of pharmaceutical research;
- principles and fundamental values of academic integrity and ethics of academic relationships.

to be able to:

- analyze professional information, acquire modern knowledge on the development of the domestic pharmaceutical information system;
- independently navigate information flows;
- use information and communication technologies in professional activities;

- analyze legislative acts regulating the functioning of the pharmaceutical information system in Ukraine;
 - demonstrate basic skills in working with the Internet and pharmaceutical resources;
 - search, store and distribute information about medicinal products;
 - search for the necessary industry information in national and global databases, registers of medical devices;
 - use scientific resources for pharmaceutical research;
- possess:*
- skills of processing professional information, be able to make informed decisions, acquire modern knowledge on the development of the domestic system of pharmaceutical information in the field of health care and pharmacy.

4. The educational component structure

Names of content modules and topics	The amount of hours				
	full time study				
	the whole amount	including			
l		p.c.	sem.	self-study	
Content module 1. Theoretical and applied principles of information use in pharmaceutical activity					
Topic 1. Theoretical foundations of information support of the pharmaceutical activity.	11	2	-	2	7
Topic 2. The organizational structure of the pharmaceutical information system.	10	1	-	2	7
Topic 3. Communication process as a key element of information transfer.	10	1	-	2	7
Control of CM 1	9	-	-	2	7
The whole amount of hours for the content module 1	40	4	-	8	28
Content module 2. Practical principles of information application in pharmaceutical activity.					
Topic 4. Pharmaceutical information in pharmacies.	10	2	-	2	6
Topic 5. Pharmaceutical information as a component of the professional activity of practical pharmacy specialists.	10	2	-	2	6
Topic 6. Pharmaceutical information as a component of public awareness.	11	2	-	2	6
Topic 7. Pharmaceutical information as a component of scientific activity in the pharmaceutical sector of health care.	11	2	-	2	7
Control of CM 2	7	-	-	1	7
The whole amount of hours for the content module 2	49	8	-	9	32
Semester credit	1	-	-	1	-
The whole amount of hours for the course	90	12	-	18	60

5. Contents of the educational component

Content module 1. Theoretical and applied principles of information use in pharmaceutical activity.

Topic 1. Theoretical foundations of information support of pharmaceutical activity

Information: concepts, types, classification, function, characteristics. Concept of pharmaceutical information. Basic terms and concepts: information flow, information support, information system, information literacy, information security, information carriers. The role of information in pharmacy and medicine.

Topic 2. Organizational structure of the domestic pharmaceutical information system

Sources of pharmaceutical information, their classification and types. Elements and basic functions of

the modern pharmaceutical information system. Requirements for pharmaceutical information. Classification and coding.

Topic 3. Communication process as a key element of information transfer

Communication: concepts, definitions, functions. Peculiarities of communications in the field of health care. Mechanisms of information transmission in the pharmaceutical and medical spheres. Subjects of the communication process in health care. Regulatory regulation of pharmaceutical and medical information.

Content module 2. Practical principles of information application in pharmaceutical activity.

Topic 4. Pharmaceutical information in pharmacies

Characteristics of the main components of the pharmaceutical information system in the activity of pharmacies. Regulatory component of pharmaceutical information. Information and analytical systems of health care in pharmacies. Pharmaceutical information as a component of the economic and financial activity of pharmacies. Information function of pharmacies. Modern approaches to implementation and directions of development. The pharmacist's role in disseminating pharmaceutical information to the public.

Topic 5. Pharmaceutical information as a component of the professional activity of practical pharmacy specialists

The role and functions of pharmaceutical information in the professional activity of pharmacists. Information about medicines and medical products: sources and practical application. Pharmaceutical information as a component of continuous professional development of a practical pharmacy specialist.

Topic 6. Pharmaceutical information as a component of public awareness

Classification of the population as consumers of pharmaceutical information. Strategic development of providing information about medicinal products for the benefit of patients and drug users. Forms and methods of informing about medicinal products. Information leaflet on consumer medicines as an important element of information. Evidence and reliability of pharmaceutical information for consumers. Domestic websites as a source of pharmaceutical information for the public. Experience in distribution and use of pharmaceutical information in countries around the world. International consumer health websites.

Topic 7. Pharmaceutical information as a component of scientific activity in the pharmaceutical sector of healthcare

Scientific information: definitions, signs, types and forms. Scientific resources on pharmaceutical research. International and domestic databases for scientific research: access and use. Principles and fundamental values of academic integrity and ethics of academic relationships. Regulatory and legal support for the use of pharmaceutical information in scientific research. Types of analytical and synthetic processing of scientific documents and information: bibliographic description; indexing; annotation and abstracting; translation; compilation of literature reviews.

6. Topics of lectures

№	Name of topic	The amount of hours
1.	Theoretical foundations of information support of pharmaceutical activity	2
2.	Organizational structure of the domestic pharmaceutical information system.	1
3.	Communication process as a key element of information transfer.	1
4.	Pharmaceutical information in pharmacies.	2
5.	Pharmaceutical information as a component of the professional activity of practical pharmacy specialists.	2
6.	Pharmaceutical information as a component of public awareness.	2
7.	Theoretical foundations of information support of pharmaceutical activity	2
	The whole amount of hours	12

7. Topics of seminars

№	Name of topic	The amount of hours
1.	Theoretical foundations of information provision of the pharmaceutical sphere	2
2.	Organizational structure of the domestic pharmaceutical information system	2
3.	Communication process as a key element of information transfer	2
4.	Control of acquisition of ZM 1	2
5.	Pharmaceutical information in pharmacies	2
6.	Pharmaceutical information as a component of the professional activity of practical pharmacy specialists	2
7.	Pharmaceutical information as a component of public awareness	2
8.	Pharmaceutical information as a component of scientific activity in the pharmaceutical sector of healthcare	2
9.	Control of acquisition of CM 2	1
10.	Semester credit	1
	The whole amount of hours	18

8. Topics of practical lessons

Not provided for in the working curriculum

9. Topics of laboratorial lessons

Not provided for in the working curriculum

10. Self-study work

№	Name of topic	The amount of hours
1	Theoretical foundations of information support of pharmaceutical activity	7
2	Organizational structure of the domestic pharmaceutical information system.	7
3	Communication process as a key element of information transfer.	7
4	Control of acquisition of CM 1	7
5	Pharmaceutical information in pharmacies.	6
6	Pharmaceutical information as a component of the professional activity of practical pharmacy specialists.	6
7	Pharmaceutical information as a component of public awareness.	6
8	Pharmaceutical information as a component of scientific activity in the pharmaceutical sector of health care	7
9	Control of acquisition of CM 2	7
	The whole amount of hours	60

Tasks for self-study work

1. Tasks for independent work are presented in the form of test tasks, tables and diagrams to be filled in by students and designed as a workshop for classroom and independent work in the disciplines "Pharmaceutical information".

11. Criteria and evaluation order of educational outcomes

During the study of the educational component, all types of student activities are subject to control: current (at each lesson and when performing tasks for independent work of students), and content modules (checking the mastery of content modules).

Current control is carried out at each practical lesson in accordance with the specific

objectives of the topic, during the individual work of the teacher with the student for those topics that the student develops independently.

The system of assessment of knowledge of higher education students in the course "Pharmaceutical law and legislation"

Rating system for assessing students' knowledge

Ongoing assessment and independent work								
Content Module 1				Content Module 2				
T1	T2	T3	Control of CM 1	T4	T5	T6	T7	Control of CM 2
6-10	6-10	6-10	9-15	6-10	6-10	6-10	6-10	9-15
27-45				33-55				
100								

T1, T2 ... T8 – Topics

The current control of content modules (CM1, CM2) totals a **maximum of 100 scores, a minimum of 60 scores.**

Incentive (additional) points: performance of an individual task, participation in competitions, contests, student scientific conferences, active participation in lectures, etc. – up to **10 scores.**

The overall rating of the module (educational component) **does not exceed 100 scores.**

The module is considered completed if the applicant has scored **from 60 to 100 scores.**

Assessment of current educational activities (performed at each seminar session), control of theoretical knowledge, practical skills and abilities.

When mastering each topic of the content module for the current educational activity, the students of higher education are awarded points for all types of activities, which are added up at the end of studying the content module.

The acquisition of theoretical knowledge and practical skills is assessed at the practical session. For topics 1-7, the minimum number of points is 6, the maximum is 10.

Distribution of points for each seminar session:

- Evaluation of theoretical knowledge (oral survey) – 5 points (50% of the grade for the class)
- Assessment of practical abilities and skills (solving practical situational tasks) - 5 points (50% of the grade)

Evaluation of theoretical knowledge, practical skills and abilities takes place according to the following criteria

Assessment of theoretical knowledge	
Points (%)	Evaluation criteria
more than 75%	awarded to a higher education applicant who, when answering questions orally or in writing, has demonstrated comprehensive, systematized, in-depth knowledge of the program material, is able to competently interpret the obtained results; demonstrate knowledge of the main and additional literature provided for at the level of creative use
51% – 75%	is presented to the student of higher education, if during the oral or written answer to the question, the student of higher education showed full knowledge of the program material provided for at the level of similar reproduction, but made some insignificant errors
26% – 50%	issued if, during an oral or written answer to a question, the applicant of higher education revealed insufficient knowledge of the main program material, to the extent necessary for further study and work provided for by the program at the level of reproductive reproduction
up to 25%	is issued if, during an oral or written answer to a question, the student of higher education revealed serious gaps in knowledge of the basic material, made fundamental mistakes

Assessment of practical skills and abilities:	
Points (%)	Evaluation criteria
75%-100%	The practical task (situational task) was completed by the student of higher education independently without errors.
50%-75%	The practical task was completed independently, however, mistakes were made in

	calculations, principles of preparing multimedia materials, etc.
25%-50%	The practical task was completed independently, however, significant errors were made in calculations, principles of preparing multimedia materials, etc.
up to 25%	The student of higher education was unable to complete practical and situational tasks, did not issue a work journal.

Control of mastery of content modules (CM) is carried out at the last seminar classes for studying the topics of content modules. Only those applicants for higher education who have completed all types of work provided for in the curriculum (completed missed seminar classes, lectures, etc.) are admitted to the control of the M.E.

Controls of content modules 1 and 2 are evaluated: minimum - 9, maximum 15 points according to the following criteria

№	Type pf work	Minimum	Maximum
1	Theoretical part: 5 comparison test questions (1 question – 2 points) 5 test questions with one correct answer (1 question – 1 point)	6 3	10 5
	Total	9	15

Grade A, B, C, D, E is given only to students who have enrolled in all modules of the educational component. The number of points that the student scored in the educational component is defined as the arithmetic mean of the number of points from the modules of the course.

COURSE EVALUATION SCALE

The sum of points for alltypes of educational activities	ScoreECTS	Score on a national scale
90 – 100	A	Credited
82-89	B	
74-81	C	
64-73	D	
60-63	E	
35-59	FX	Unsatisfactory with the possibility of reassembly
0-34	F	Unsatisfactory with compulsory re-study of the educational component

12. Forms of progress and final tests of academic academies

Semester control is carried out in the form of a semester credit.

13. Methodological support

1. Lecture material (multimedia presentations, lecture texts).
2. Plans of seminar classes.
3. Questions for students' independent work.
4. Methodological recommendations for classroom and independent work of students.

14. Reading suggestions

The main reading suggestions

1. Methodological developments for classroom work (multimedia materials, lecture texts), which are posted on the website of distance learning technologies of the National Pharmaceutical University: Access mode: <https://pharmel.kharkiv.edu/moodle/course/view.php?id=1526>

Supplementary reading suggestions

1. Артамонова Н. О. Система інформаційного забезпечення медичної науки в Україні / Н. О.Артамонова . – Х. : Міськдрук, 2010. – 371 с.

2. Білоус М. В. Роль інформаційних технологій в фармації / М. В. Білоус // Економічний дискурс : міжнародний зб. наук. праць. – № 3. – 2014. – С. 278-280.
3. Бойко А. І. Фармацевтична інформатика / А. І. Бойко А. І. – Львів, 2009. – 160 с.
4. Гала Л. О. Поширення достовірної інформації про лікарські засоби – вимога належної аптечної практики // Фармацевтичний часопис. – 2015. – № 3.– С. 57-62.
5. Етичний кодекс фармацевтичних працівників України. – Харків: Золоті сторінки. – 16 с
6. Інформаційні технології у фармації : підруч. / Л. П. Булах, І. Є. Войтенко, Л. О. Кухар та ін. – К. : Медицина, 2008. – 224 с. 16
7. Котвіцька А.А. Оцінка стану забезпечення фахівців фармацевтичної галузі інформацією про лікарські засоби: методичні рекомендації / А. А. Котвіцька, О. О. Суріков. – К., 2008. – 28 с.
8. Рев'яцький І. Ю. Реляційна база даних із фармацевтичною інформацією: проблеми створення та первинного наповнення для забезпечення якісної статистичної обробки // Фармац. журн. – 2019. – № 4. – С. 23–31. <https://doi.org/10.32352/0367-3057.4.19.03>
9. Рев'яцький, І. Ю. Методологія створення єдиної комп'ютерної системи обміну фармацевтичною інформацією в Україні: єдині фармацевтичні реєстри стандартизованої інформації / І. Ю. Рев'яцький, А. І. Бойко // Фармац. журн. – 2020. – N 5. - С. 3-14
10. Professional Standards for Public Health Practice for Pharmacy, 2014. URL: <http://www.rpharms.com/support-pdfs/professionalstandards-for-public-health.pdf>.
11. Pardo ML, Speciale A. The Community Pharmacist: Perceived Barriers and Patient-Centered Care Communication. Int J Environ Res Public Health. 2020 Jan 15;17(2):536. doi: 10.3390/ijerph17020536. PMID: 31952127; PMCID: PMC7013626.
12. R Hunashal, B Kudagi, M Kamadod, S Biradar. Drug Information Center. The Internet Journal of Medical Informatics. 2007 Volume 4 Number 1.
13. Vermeir P, Vandijck D, Degroote S, Peleman R, Verhaeghe R, Mortier E, et al. Communication in healthcare: a narrative review of the literature and practical recommendations. International Journal of Clinical Practice 2015;69(11):1257-67
14. WHO. (2017). WHO Strategic Communications Framework for effective communications. Отримано з https://cdn.who.int/media/docs/default-source/documents/communication-framework.pdf?sfvrsn=93aa6138_0

16. Electronic resources

1. Наукова бібліотека НФаУ: Режим доступу : <http://dspace.ukrfa.kharkov.ua>; <http://lib.nuph.edu.ua>
2. <http://www.drlz.com.ua/> – офіційна інформаційно-пошукова система «Державного реєстру лікарських засобів України»
3. <https://compendium.com.ua/uk/> – довідник лікарських засобів
4. <https://www.apteka.ua> – офіційний сайт щотижневика «Аптека»
5. <https://www.fip.org/> – офіційний сайт Міжнародної фармацевтичної федерації
6. <https://www.who.int> - офіційний сайт Всесвітньої організації охорони здоров'я
7. <https://zakon.rada.gov.ua> – офіційна інформаційно-пошукова система «Законодавство України»
8. nuph.edu.ua – офіційний сайт Національного фармацевтичного університету
9. www.moz.gov.ua – офіційний сайт Міністерства охорони здоров'я України.