Odessa National Medical University
Faculty of Pharmacy
Department of Pharmacology and Pharmacognosy

Syllabus course

INFORMATION TECHNOLOGIES IN PHARMACY

Amount	5 credits / 150 hours
Semester, year of study	III-IV semester, II year of study
Days, time, place	According to the schedule in the classroom 112 of the Department of Pharmacology and Pharmacognosy (pharmacognosy cycle). Street Malinowski - 37
Teacher (s)	Prystupa Bogdan Volodymyrovych, Ph.D., senior lecturer Kovalchuk Iryna Viktorivna, Candidate of Pharmaceutical Sciences, Assistant Razkevich Olesya Stepanovna, Candidate of Pharmaceutical Sciences, Assistant
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Workplace	Office № 110 (Prystupa B.V) and № 107 (Kovalchuk I.V and Razkevich O.S) of the Department of Pharmacology and Pharmacognosy. Street Malinowski - 37
Consultations	*Eye consultations* : Thursday from 15.00 to 17.00; Saturday from 9.00 to 13.00 *Online consultations:* Thursday from 15.00 to 17.00; Saturday from 9.00 to 13.00 https://moodle.odmu.edu.ua/ or via *Telegram / viber*

COMMUNICATION

Communication with students will be through face-to-face meetings. In case of transition to distance learning, communication with students will be carried out by means of E-mail and programs: Microsoft Teams, Telegram and Viber.

COURSE ANNOTATION

The subject of study of the discipline

The subject of the discipline "Information Technology in Pharmacy" is information processes in the field of pharmacy (receipt, storage, conversion, transmission of pharmaceutical information) using modern software and hardware and the latest information technology.

Prerequisites and postrequisites of the course (Place of discipline in the educational program):

- is based on the study by students of academic disciplines: medical and biological physics, European standard of computer literacy, higher mathematics, morphological disciplines and integrates with these disciplines;

- lays the foundations for the study of disciplines of biostatistics and computer modeling in pharmacy; contributes to the study of clinical, hygienic and social disciplines by students.

The purpose of the course.

The purpose of studying the discipline "Information Technology in Pharmacy" is the formation of theoretical knowledge and practical skills of using the latest information technologies and modern applications in the field of pharmacy, training in processing pharmaceutical and medical-biological information using information and communication technologies (ICT). competence of future pharmacists (pharmacists).

Tasks of the discipline :

- formation of basic skills in working with a personal computer (PC) and searching for medical information using information technology;

- development of the ability to independently master software for various purposes and update and integrate the acquired knowledge;

- formation and development of knowledge, skills and abilities necessary for effective use of modern programs of general and special purpose in the field of health care;

- acquainting students with the importance and capabilities of new information and communication technologies in the field of health care, with the prospects for the development of computer technology;

- explanation of the principles of formalization and algorithmization of medical problems, the principles of modeling in biology and pharmacy;

- use of methods of medical and biological data processing.

Expected results

According to the study of the discipline, students must

know:

- principles of application of the newest information and communication technologies;
- functionality of general and special applications for solving professional problems;
- basic principles of building electronic documents;
- basic methods of statistical data analysis; • basics of using DBMS in creating and maintaining a pharmaceutical database;

be able:

- to use computer equipment and information technologies in the daily activities of a specialist;
- work with peripherals, control the input and output of information;
- use the tools of office programs to perform calculations, organize and group data, visualize information, to process statistical information in pharmacy;
- use information resources to search, process and present medical, biological and pharmaceutical information;
- create, edit and print professional texts, draw up reports on work performed with the inclusion of graphics.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of lectures (10 hours) and practical work (60 hours), organization of independent work of students (80 hours).

The study of the discipline should be implemented on the basis of methods of problem statement, heuristic, research, interactive (project method).

The content of the discipline

Section 1. Basic concepts of medical informatics. Computer in the activities of the future pharmacist.

Topic 1. Safety. Initial level. Management and structure of medical informatics.
Topic 2. Transfer of information. Network technologies. Basics of telemedicine.
Topic 3. Basics of working with the Windows operating system
Topic 4. Creation of complex text documents.
Topic 5. Computer data: data types, processing and management.

Section 2. Medical data. Methodology of information processing and analysis.

Topic 6. Coding and classification.
Topic 7. Analysis of biosignals. Methods of processing biosignals.
Topic 8. Visualization of medical and biological data. Processing and analysis of medical images.
Topic 9. Methods of decision support. Strategies for obtaining medical knowledge.
Topic 10 Formal logic in solving problems of diagnosis, treatment and prevention of diseases.
Topic 11 Formalization and algorithmization of medical problems.
Topic 12. Methods of biostatistics.

Section 3. Medical knowledge and decision making.

Topic 13. Clinical decision support systems. Forecasting tools. Modeling of decision support system.
Topic 14. Evidence-based medicine.
Topic 15. Types of information systems in the field of health care. Hospital information systems and their development.
Topic 16. Individual medical cards. Structuring the content of electronic medical records (EMC).
Topic 17. Information resources of the health care system.
Topic 18. Protection of calculation and graphic work.
Topic 19. Ethical and legal principles of information management in the health care system.
Topic 20. Linear programming.
Topic 21. Modeling of medical and biological processes.
Topic 22. Automated workplace of a pharmacist
Topic 23. Automated control systems. in pharmacy
Topic 24. Optimization of the characteristics of drug mixtures by the method of linear programming.

List of recommended reading

1 Medical Informatics : textbook / I.Ye. Bulakh, Yu.Ye. Liakh, V.P. Martseniuk, I.Yo. Khaimzon. — 4th edition. — Kyiv : AUS Medicine Publishing, 2018. — 368 p.

Additional

2. Eric Frick. Information Technology Essentials Volume 1: Introduction to Information Systems / Kindle Edition. 2019. – 288 p.
3. Eric Frick. Information Technology Essentials Volume 2: The Beginner's Guide to C / Kindle Edition. 2020. – 277 p.

EVALUATION

Methods of current control: Evaluation of the success of the study of each topic of the discipline is performed on a traditional 4-point scale.

Current performance is calculated as the average current score, ie the arithmetic mean of all grades obtained by the student on a traditional scale, rounded to 2 (two) decimal places , for example 4.75.

Assessment of current control in the discipline:

The value of the assessment is **"excellent** ": the student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use acquired knowledge and skills to make decisions in unusual situations, convincingly argues answers.

The value of the grade **"good** ": the student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standard situations, independently corrects mistakes, the number of which is insignificant.

The value of the assessment is **"satisfactory** ": the student reproduces a significant part of the theoretical material, shows knowledge and understanding of the basic provisions; with the help of the teacher can analyze the educational material, correct mistakes, among which there are a significant number of significant ones.

The value of the assessment is **"unsatisfactory** ": the student has the material at the level of individual fragments that make up a small part of the study material.

Only those students who do not have academic debts and have an average score of at least 3.00 for their current academic activity are allowed to take the final attestation.

Assessment of the current test control in the discipline:

- "5" - 100-91% of correct answers;
- "4" - 90-71% of correct answers;
- "3" - 70-60.5% of correct answers;
- "2" - less than 60% of correct answers.

Forms and methods of final control:

The form of final control of knowledge in the discipline is a differential test.

The grade for the discipline is 50% current grade (arithmetic mean of all current student grades) and 50% - grade for diff. offset.

The average score for the discipline is translated into the traditional grade from the discipline on a 4-point scale and is regarded as the ratio of this arithmetic mean to the percentage of mastering the required amount of knowledge in this subject.

GPA for discipline	The ratio received by the student average score for the discipline to the maximum possible value of this indicator	Score from discipline on a 4-point scale (traditional assessment)
4.45 - 5.0	185-200	5
3.75 - 4.44	151-184	4
3.0 - 3.74	120-150	3

Independent work of students .

Students' independent work, which is provided by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked at the last lesson.

COURSE POLICY ("rules of the game")

Deadline and recompilation policy: tasks to be completed on time according to the deadline. For late performance of the task the student receives an unsatisfactory grade. Rearrangement is carried out according to the approved schedule.

Academic Integrity Policy :

Observance of academic integrity by students of education provides:

- independent performance of educational tasks, tasks of current and final control of learning outcomes (for persons with special educational needs this requirement is applied taking into account their individual needs and opportunities);
- links to sources of information in the case of the use of ideas, developments, statements, information.

Policy attendance and tardiness . To obtain a satisfactory grade, it is mandatory to attend and work in classrooms (lectures and practical classes). The student is allowed to be late for no more than 10 minutes.

Mobile devices: You can use mobile devices in class with the permission of the teacher.

Audience behavior:

While in the audience are important: respect for colleagues; tolerance for others; susceptibility and impartiality; the ability to disagree with the opinion, but to respect the personality of the opponent (during discussions); careful argumentation of the opinion; adherence to the ethics of academic relations.