

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

Syllabus course

DRUG TOXICOLOGY

Amount	3 credits / 90 hours
Semester, year of study	VII semester, IV 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)	Rozhkovsky Yaroslav Vladimirovich, Doctor of Medicine, Professor Prystupa Bogdan Volodymyrovych, Ph.D., senior lecturer Bogatu Svitlana Ihorivna, Candidate of Medical Sciences, Assistant Kovalchuk Iryna Viktorivna, Candidate of Pharmaceutical Sciences, Assistant Razkevich Olesya Stepanovna, Candidate of Pharmaceutical Sciences, Assistant
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Workplace	Office № 110 (Prystupa BV), № 107 (Razkevich OS, Bogatu SI, Kovalchuk IV) № 105 (Rozhkovsky YV) of the Department of Pharmacology and Pharmacognosy. Street Malinowski - 37
Consultations	<i>Eye consultations</i> : Thursday from 15.00 to 17.00; Saturday from 9.00 to 13.00 <i>Online consultations</i> : Thursday from 15.00 to 17.00; Saturday from 9.00 to 13.00 https://moodle.odmu.edu.ua/ or via <i>Telegram / viber</i>

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 study of the discipline "Medical Toxicology" is: determining a set of toxicometric parameters that characterize the degree of toxicity and risk of

poisoning, studying the mechanisms of toxic effects of drugs (toxicodynamics) and studying the distribution in organs and tissues, biotransformation and excretion of drugs (toxicokinetics).

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

- is based on the study by students of physical and chemical properties of inorganic and organic substances (courses of inorganic, organic and analytical chemistry), biochemical transformations occurring in the body (biochemistry course), structure of organs, body systems and their disorders (anatomy, physiology, pathology) and pharmacology) and integrates with these disciplines;

- the discipline provides training for further activities in the field of forensic examination, analytical toxicology and clinical pharmacy.

The purpose of the course.

The purpose of teaching the discipline "Medical Toxicology" is the formation of skills and abilities to recognize the degree of safety of potent drugs.

Tasks of the discipline :

– mastering by students of the basic principles and theoretical provisions of drug toxicology;

– acquaintance with some concepts of toxicology, to study the basic signs of exogenous poisoning and to learn to calculate a quantitative assessment of toxicity of substances;

– to get acquainted with the possible ways of getting the poison into the body and the phenomena of biotransformation, detoxification at the level of the system of organs and cells.

Expected results

According to the study of the discipline, students must

know:

- Basic concepts, theories of clinical toxicology and milestones of its development;
- The body's reactions to the poison and the group of signs of acute poisoning;
- Threshold concentration, minimum and lethal dose. Average and absolute lethal dose and ways of its establishment;
- Characteristics of the ways of getting the poison into the body;
- The main periods of acute poisoning;
- The scheme of entry, transformation and excretion of toxic drugs in the body;
- Consequences of the impact of toxic drugs on the body;
- The course of poisoning and first aid;
- Principles of medical therapy in case of poisoning by pharmacological drugs;
- Fundamental and modern toxicological literature.

be able:

- substantiate the adequate dosage form in accordance with the routes of administration of drugs;
- predict the consequences of drug interactions in their combined administration, drugs and food components, drugs and alcohol;
- search for information on the safe use of drugs in modern directories, scientific and professional periodicals;

- provide comparative characteristics of medicines in terms of safety.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of lectures (10 hours) and practical (30 hours), organization of independent work of students (50 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

PART 1. General drug toxicology (toxicological alphabet)

Topic 1. Subject, goals and objectives of drug toxicology. The concept of basic terms of drug toxicology.

Topic 2. Classification of drugs by their toxic effects. Toxicometry. Toxicokinetics.

Topic 3. Mechanisms of toxic action of drugs. General principles of poisoning diagnosis. Principles of detoxification of the body in case of poisoning. Antidotes.

PART 2. Private drug toxicology

Topic 4. Toxicological characteristics of narcotic and non-narcotic analgesics, nonsteroidal anti-inflammatory drugs and CNS inhibitors.

Topic 5. Toxicological characteristics of CNS depressants and anesthetics.

Topic 6. Toxicological characteristics of antihistamines and drugs for the treatment of allergies.

Topic 7. Chemical and toxicological analysis of drugs - derivatives of barbituric and salicylic acids, pyrazolone5, alkaloids (derivatives of purine).

Topic 8. General scheme of chemical and toxicological analysis of alkaloids.

Topic 9. Chemical and toxicological analysis of alkaloids derived from pyridine, piperidine and tropane.

Topic 10. Chemical and toxicological analysis of opiates and opioids.

Topic 11. Chemical and toxicological analysis of alkaloids derived from quinoline and indole.

Topic 12. Chemical-toxicological analysis of alkaloids of phenylalkylamine derivatives and hallucinogens of different chemical groups.

Topic 13. Chemical and toxicological analysis of drugs derived from 1,4-benzodiazepines.

Topic 14. Chemical and toxicological analysis of drugs derived from phenothiazine and n-aminobenzoic acid.

Topic 15. Chemical and toxicological analysis of distillates for alcohols, phenol, acetone and acetic acid. The use of the GC method in the chemical-toxicological analysis of volatile substances.

List of recommended reading

1. Poisoning and Drug Overdose, Seventh Edition (Poisoning & Drug Overdose) / Kent Olson, Ilene Anderson, Neal Benowitz, Paul Blanc, Richard Clark, Thomas Kearney, Susan Kim-Katz, Alan Wu - :Mcgraw-Hill Education. Medical, 2017. - 960 p

2. Analytical toxicology: teach. manual for college students. teach shut up / S.V. Baurka [and others] - Kharkiv: NFaU: Golden Pages, 2017. - 384 p.
3. Drug toxicology / ed. prof. SM Drogovoz, prof. V. D. Lukianchuk, prof. B. S. Sheiman. - X.: Title, 2015. - 592 p.
4. Lectures on drug toxicology / SM Drogovoz, [and others] - X. NFaU, 2012. - 56 p.
5. Medical toxicology of drug abuse : synthesized chemicals and psychoactive plants / Donald G. Barceloux, John Wiley & Sons, Inc., Hoboken, New Jersey. – 2012. – 1068 p.
6. Ali Said Faqi, A comprehensive guide to toxicology in nonclinical drug development second edition, - Elsevier Inc. All rights reserved. – 2017. – 988 p.
7. Toxicology Studies: Cells, Drugs and Environment / Ana Cristina Andreatza, Gustavo Scola. - AvE4EvA MuViMix Records. – 2015. – 236 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 test.

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 seminars). 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.