

# Odesa National Medical University

## Medical faculty

### Department of Pharmacology and Pharmacognosy

#### Syllabus of elective discipline

#### "ADVERSE EFFECTS OF MEDICINES"

<b>Scope</b>	1,5 credits ECTS, 45 hours
<b>Semester, year of study</b>	IX semester, V year of study
<b>Days, time, place</b>	According to the schedule in the classrooms № 1-5 of the Department of Pharmacology and Pharmacognosy (cycle of pharmacology): Odessa, Olgievskaya 4 str.
<b>Teachers</b>	Rozhkovsky Ya.V., Head of the Department, Doctor of Medical Sciences, Professor; Kresyun V.Y., Member-correspondent of AMSU, Honored scientist of Ukraine, Professor; Antonenko P.B., Doctor of Medical Sciences, Professor ; Lobashova K.G., Candidate of Medical Sciences, Associate Professor; Shemonaeva K.F., Candidate of Medical Sciences, Associate Professor; Timchishin O.L., Candidate of Medical Sciences, senior teacher; Ostapchuk K.V., Candidate of Medical Sciences, senior teacher; Sokolik O.P. , Candidate of Medical Sciences, Assistant; Antonenko K.O., Candidate of Biological Sciences, assistant; Paniotova G.P., assistant; Al-Nadawi N.D., assistant.
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<b>Workplace</b>	Odessa, <b>Olgievskaya 4 str.</b> , Department of Pharmacology and Pharmacognosy (cycle of pharmacology)
<b>Consultations</b>	Consultations are conducted by teachers of the department according to the schedule: Face-to-face consultations: Thursday from 14.30 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 <a href="https://moodle.odmu.edu.ua/">https://moodle.odmu.edu.ua/</a> or via Microsoft Teams / Telegram / viber / Zoom

#### 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 e-mail [pharmacology@onmedu.edu.ua](mailto:pharmacology@onmedu.edu.ua) and programs: Microsoft Teams, Zoom, Telegram, Viber.

## **COURSE ANNOTATION**

**The subject** of study of the selective discipline are the characteristic side effects of drugs that are observed when used in the range of therapeutic doses; mechanisms of development of side effects; measures to reduce or prevent side effects.

**Prerequisites:** based on students' study of normal and pathological clinical anatomy, histology, cytology and embryology, clinical chemistry, general and clinical pathological physiology, microbiology, virology and immunology, pharmacology, general pharmacy and clinical pharmacology, propaedeutics of internal medicine and therapy internal medicine, which provides integration with these disciplines.

**Post-requisites:** lays the foundations for the formation of skills to apply knowledge about the side effects of drugs in the process of further study and in professional activities.

**The purpose of the course:** to master a set of knowledge, skills, skills of rational and safe for human health use of drugs, which should reduce the frequency or prevent the occurrence of side effects during pharmacotherapy for the treatment and prevention of diseases.

**The main objectives** of the elective course are to provide students with theoretical knowledge about the types, mechanisms of development, causes and clinical manifestations of side effects; signs of drug poisoning, mechanism of action, probable course and ways of prevention and correction of side effects when prescribing drugs; predicting drug-drug interactions, assessing the risk / benefit ratio when using drugs of different pharmacological groups.

### **Expected results:**

As a result of studying the elective discipline, students **should know:**

- Classification and mechanisms of side effects;
- Methods for evaluating the effectiveness and safety of pharmacotherapy;
- Structure and management of the pharmaceutical service in Ukraine;
- Side effects that occur with the use of drugs that affect the CNS, cardiovascular system, blood system, immunity.

Students **must be able to:**

- Assess the risk / benefit ratio for drugs;
- Choose safe pharmacological therapy during pregnancy;
- Report the side effects of drugs;
- Recognize the picture of poisoning by drugs from different groups and prescribe appropriate pharmacotherapy of poisoning.

## **COURSE DESCRIPTION**

### **Форми і методи навчання**

#### **Forms and methods of teaching**

The course will be presented in the form of lectures (6 hours) and practical classes (26 hours), organization of independent work of students (15 hours).

During the teaching of the discipline the following teaching methods are used: lectures, explanations, multimedia presentations, situational learning,

simulation learning, oral examination, testing, individual tasks, self-preparation with the textbook.

### **The content of the discipline**

Topic 1. Pharmacotoxicodynamics. Classification of adverse drug reactions. Factors influencing their occurrence. Methods for evaluating the effectiveness and safety of pharmacotherapy.

Topic 2. Pharmaceutical service in Ukraine. Legal aspects of pharmaceutical activity in Ukraine. The system of pharmacological supervision of drug side effects in the world and in Ukraine. Implementation of pharmacovigilance by doctors.

Topic 3. Adverse reactions that occur with the use of drugs that suppress the CNS. Methods of their prevention.

Topic 4. Adverse reactions that occur with the use of drugs that stimulate the CNS. Methods of their prevention.

Topic 5. Adverse reactions of drugs that affect blood pressure and microcirculation, their prevention.

Topic 6. Adverse reactions with the use of cardiotonics, antiarrhythmic and antianginal drugs. Methods of prevention and treatment of poisoning.

Topic 7. Adverse reactions of drugs that affect erythro-, leukopoiesis and circulating blood volume. Methods of their prevention.

Topic 8. Side effects of hormonal and antiallergic drugs.

Topic 9. Antiadrenergic drugs.

Topic 10. Adverse reactions when using anti-inflammatory drugs.

Topic 11. Adverse reactions caused by antibiotics. Methods of their prevention.

Topic 12. The procedure and algorithm for presenting information about adverse drug reactions. Medical errors in providing information on adverse drug reactions. Credit lesson.

### **Recommended literature**

1. Pharmacology [Text] : a textbook for students of higher medical educational establishments of the IV level of accreditation with English as the language of instruction / V. M. Bobyrov, O. M. Vazhnicha, T. O. Devyatkina, N. M. Devyatkina ; Ukrainian Medical Stomatological Academy. - 4th ed., updated. - Vinnytsia : Nova knyha, 2018. - 551 p.
2. Pharmacology [Text] / K. Whalen; contributor: Sh. Anderson, A. K. Birnbaum, N. Carris [et al.] ; ed.: R. Finkel, Th. A. Panavelil, 2015. - 664 p.
3. Betram G Katzung Basic and Clinical Pharmacology, 14th Edition. - McGraw-Hill Medical, 2018.- 1235.
4. Godovan V.V. Pharmacology in pictures and schemes [Text] : in 2 vol. Vol. 1, 2011. - 270 p.; Vol. 2, 2011. – 242 p

### **Information resources:**

1. Resource for predicting drug interactions (based on FDA guidelines) URL: <http://www.drugs.com>

2. Resource-directory of medicines and forecasting of interpharmaceutical interactions .URL: <http://www.medscape.org>

3. Resource of medicines "Compendium" <http://compendium.com>

## EVALUATION

### Current control

Carried out at each practical lesson with the help of: oral examination, testing, written work on prescribing, solving situational (pharmacotherapeutic) problems; written control of practical skills test after each section of the discipline.

The current assessment of students on relevant topics is carried out according to the traditional 4-point system (excellent, good, satisfactory, unsatisfactory).

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 the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations.

The value of the assessment is "**good**". The student is fluent in the studied amount of material, applies it in practice, freely solves 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 principles; 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, which are an insignificant part of the study material.

At the end of the course, the current performance is calculated as the average score of all grades received by the student on a traditional scale, rounded to 2 (two) decimal places.

### Final control

The study of the discipline ends with a differential test. Students who do not have omissions of lectures and seminars or have completed missed classroom classes and have an average score of not less than 3.0 are admitted to the differential test.

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

Average score for the discipline	The ratio of the obtained average score to the maximum possible value	Grade on the discipline on a 4-point scale (national)
4.45- 5.00	90-100 %	5
3.74- 4.44	75-89 %	4

3.00- 3.74	60-74 %	3
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The traditional grade from the discipline is converted into a grade on a 200-point scale and then ranked on a rating scale (ECTS).

### **Self-preparation of the students**

#### ***Control of self-preparation of the students:***

The control of self-preparation of the students, which is provided by the topic along with the classroom work, is carried out during the current control of the topic in the relevant classroom.

#### **Topics of self-preparation of the students:**

1. Clinical aspects and the causal relationship of adverse reactions as a basis for their objective assessment. Features of drug interaction.
2. Drugs that cause abuse. Medical and social aspects of drug and drug addiction.
3. Legislation regulating the system of pharmacological supervision of adverse drug reactions in the world and in Ukraine.
4. Adverse reactions to vasotropic drugs and agents that regulate blood pressure.
5. Adverse reactions when using hypoglycemic drugs.
6. Adverse reactions of drugs used in increased and decreased thyroid function.
7. Adverse reactions when using steroidal and nonsteroidal anti-inflammatory drugs, as well as slow-acting anti-inflammatory drugs.
8. Side effects of anti-tuberculosis therapy. Status and ways to overcome drug resistance to the causative agent of tuberculosis.

## **COURSE POLICY**

The policy of studying a selective discipline is determined by the system of requirements that the teacher imposes on the student when studying the discipline. Requirements apply to attendance of all types of classes (inadmissibility of absences, delays), rules of conduct in the classroom (active participation, compliance with the required minimum of educational work), incentives and penalties. The policy of the academic discipline is built taking into account the norms of the legislation of Ukraine on academic integrity, the Statute and provisions of ONMedU, other normative documents.

### **Deadline and recompilation policy**

Students who have attended all types of classes (lectures, seminars) and have an average score of at least 3.0 are allowed to the final lesson (differential test). Reassignment of unsatisfactory grades and absences is allowed for 2 weeks without the permission of the dean on the days of consultations and rehearsals, later - with the permission of the dean; in case of distance online learning - in the terms determined and agreed with the teacher.

### **A policy of academic integrity**

independent performance of all types of work, tasks, forms of control provided by the work program of this discipline; providing reliable information

about the results of their own educational (scientific) activities, used research methods and sources of information; copying and plagiarism are not allowed.

#### **Attendance and lateness policy**

Attendance at lectures and practical classes is mandatory, exceptions are possible only if an individual study schedule is approved for an individual student. Late classes are not allowed. The omission of classes, regardless of the reason for the omission, the student of higher education works for the teacher in accordance with the schedule of consultations and practice of missed classes.

#### **Mobile devices**

The use of a mobile phone, tablet or other mobile devices during the lesson is not allowed (except in cases provided by the curriculum and guidelines of the teacher).

#### **Behavior in the audience**

Keeping quiet among students in lectures, exceptions - students' questions to the teacher regarding the explanation of the material; working discussion atmosphere in practical classes during the survey; adherence to the ethics of academic relations.