Odesa National Medical University
Pharmaceutical Faculty
Full-time education
Department of Pharmacology and Pharmacognosy

Sullabus course

PHARMACOLOGY

Scope	255 hours, 8,5 credits ECTS
Semester, year of study	5-6 semester, III year of study
Days, time, place	According to the schedule in the classrooms № 1-5 of the Department of Pharmacology and Pharmacognosy (cycle of pharmacology): Odessa, Olgievskaya 4 str.
Teachers	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.
Contact phone	(048) 717-35-45
E-mail	pharmacology@onmedu.edu.ua
Workplace	Odessa, Olgievskaya 4 str., Department of Pharmacology and Pharmacognosy (cycle of pharmacology)
Consultations	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 https://moodle.odmu.edu.ua/ 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 and programs: Microsoft Teams, Zoom, Telegram, Viber.

COURSE ANNOTATION

The discipline "Pharmacology" is studied in accordance with the educational-professional program "Medicine", training of specialists of the second (master's) level of higher education in the specialty 226 "Pharmacy, industrial pharmacy" in the field of knowledge 22 "Health".

The subject of study of the discipline is a set of processes that occur in the interaction of drugs (drugs) with biological systems (human body); regularities between chemical structure, physicochemical and quantum chemical properties and pharmacological action of drugs; the use of drugs for the treatment of patients and for prophylactic purposes, the conditions of rational use of modern drugs, knowledge of symptoms of overdose and the use of antidotes, the rules of prescribing drugs according to the order of the Ministry of Health of Ukraine.

Prerequisites: pharmacology as a discipline is based on the study of Latin by students (knowledge of terms), ethics (formation of ethical attitude to patients), philosophy (correct approach to the study of the subject), ecology (influence on the pharmacological action of drugs), medical biology , medical chemistry, pharmaceutical chemistry (dependence of effects on the structure and characteristics of the patient), biological and bioorganic chemistry (knowledge of biochemical processes in the body), biophysics, human anatomy (knowledge of the structure of the human body), physiology (knowledge of physiological processes), pathological physiology (knowledge pathological processes that occur during the disease), microbiology (knowledge of the types of pathogens), pharmaco-gnosis (knowledge of the properties of medicinal raw materials), technology of drugs (knowledge of the rules of manufacture of drugs).

Postrequisites: lays the foundations for students to study clinical pharmacy and pharmacotherapy and the formation of skills to apply knowledge of pharmacology in the process of further study of disciplines and in future professional activities;

Course objective: to master the knowledge and skills of forming elements of professional competencies in the field of pharmacy, to improve skills and competencies acquired in the study of previous disciplines. To master a complex of knowledge, skills, abilities of rational and safe for human health use of medicines for the purpose of treatment and prevention of diseases.

The main tasks of studying the discipline "Pharmacology" are:

1. To form the ability and skills to prescribe drugs in different dosage forms.
2. To form skills: to determine the group affiliation of drugs according to modern classifications, to give pharmacological characteristics (from the standpoint of pharmacokinetics, pharmacodynamics, pharmacotoxicodynamics), to determine the main indications for use, side effects, contraindications.

3. Master the ability to identify symptoms of overdose, choose antidotes and drugs to help with overdose.
4. To form the ability to determine the measures that prevent the occurrence and contribute to the elimination of adverse reactions, to understand the possible interaction of drugs in combination pharmacotherapy.

Expected learning outcomes. As a result of studying the discipline the student must:

Know: group affiliation of drugs according to modern classifications, pharmacokinetics, pharmacodynamics, pharmacotoxicodynamics, main indications for use, side effects and symptoms of overdose, methods of their prevention and treatment, contraindications, routes of administration, drug interactions, rules for prescribing drugs in different dosage forms.

Be able to:

1. To determine the group affiliation of essential drugs.
2. Provide pharmacological characteristics of traditional and new drugs.
3. Logically link pharmacodynamics with indications, and the main side effects with contraindications to the use of drugs, evaluate the benefits / risks of using basic drugs.
4. To determine the dependence of the action of drugs on their dosage form, to justify the choice of adequate dosage form according to age, severity of the disease, routes of administration.
5. To anticipate the interaction of drugs in combination pharmacotherapy, to make judgments about the possibility of side effects of drugs in order to prevent them
6. To determine the symptoms of overdose of potent and poisonous drugs, to create an algorithm to help patients with acute poisoning, to apply antidotes.
7. Search for pharmacological information in modern directories, scientific and professional periodicals.

Master the skills:

1. Communication with patients, checking the correctness of prescribing drugs (doses, frequency of administration, age, sex, etc.);
2. Orient in the basic and latest dosage forms in each pharmacological group of drugs and the possibility of their replacement in the absence;
3. Possession of information about modern drugs in each pharmacological group of drugs and the possibility of their replacement by analogues;
4. Possession of information on modern directions of drug development and international standards of drug quality assurance.

*** Pharmacological characteristics** include the group affiliation of the drug, its mechanism of action, pharmacological effects (main, side), indications and contraindications to use.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of lectures (30 hours), seminars (50 hours) and practical classes (90 hours), organization of self-preparation of the students (85 hours).

Practical classes: conversation, solving pharmacotherapeutic and situational problems with substantiation of the answer, practice of skills of writing prescriptions, discussion of test tasks.

Self-preparation work: independent work with a textbook, independent search of knowledge on a certain topic, work with methodical developments, recommendations, instructions, independent work with a bank of test tasks Step-1, independent writing of recipes according to tasks, drawing up schemes, tables, algorithms of actions their analysis and conclusions, participation in the work of the scientific student group of the department, preparation (speech) with reports at conferences of any level,participation in competitions on the profile of the department.

The content of the discipline

Topic 1. Introduction to prescription. Rules for writing prescriptions. The concept of dosage forms.
Topic 2. Solid dosage and non-dosage dosage forms: powders, tablets, pills, capsules, powders
Topic 3. Soft dosage forms: suppositories, patches, ointments, pastes, liniments.
Topic 4. Liquid dosage forms: infusions, decoctions, tinctures and liquid extracts, potions.
Topic 5. Liquid dosage forms: solutions, drops, suspensions for oral administration, aerosols for inhalation, dosage forms for injection
Topic 6. Checking off practical skills in the section "Prescription"
Topic 7-8. General pharmacology. Pharmacokinetics
Topic 9-10. General pharmacology. Pharmacodynamics.
Topic 11. Cholinergic drugs. Cholinomimetics.
Topic 12. Cholinoblockers.
Topic 13. Adrenergic drugs. Adrenomimetics.
Topic 14. Antiadrenergic drugs. Sympatholytics.
Topic 15. Dopaminotropic, serotoninotropic, histaminotropic, GABAergic agents (seminar).
Topic 16. Drugs that irritate receptors (seminar).
Topic 17. Drugs that protect receptors (seminar).
Topic 18. Checking off practical skills in the section "Drugs acting on afferent and efferent innervation".
Topic 19. Drugs for anesthesia. Alcohol (seminar).
Topic 20. Hypnotics and anticonvulsants (seminar).
Topic 21. Nonsteroidal anti-inflammatory drugs Antipyretics. Non-cat analgesics.
Topic 22. Psychotropic drugs. Psychosleptics. Narcotic analgesics
Topic 23. Neuroleptics. Tranquilizers. Psychosedatives

Topic 24. Antidepressants. Normotymics. Psychostimulants. Actoprotectors
Topic 25. Nootropics. Adaptogens. Analeptics. Substances that cause abuse (seminar).
Topic 26. Checking off practical skills in the section "Means that affect the CNS".
Topic 27. Cardiotonic drugs. Cardiac glycosides. Non-glycosidic cardiotonics. Pacemakers.
Topic 28. Antiarrhythmic drugs
Topic 29 -30. Antianginal drugs. Complex therapy of myocardial infarction
Topic 31. Diuretics. Complex therapy of chronic heart failure.
Topic 32-33. Drugs that regulate blood pressure. Antihypertensive, antihypertensive drugs
Topic 34. Angioprotectors. Hypolipidemic drugs.
Topic 35. Drugs that affect the cerebral and peripheral circulation (seminar).
Topic 36. Checking off practical skills in the section "Drugs that affect the cardiovascular system."
Topic 37. Hormonal drugs of polypeptide and amino acid structure. Antihormonal drugs
Topic 38. Hormonal drugs of steroid structure, mineralocorticoids and glucocorticoids.
Topic 39. Hormonal drugs of steroidal structure. Preparations of male and female sex hormones. Contraceptives (seminar).
Topic 40. Pharmacology of water-soluble vitamins. Pharmacology of fat-soluble vitamins. Enzymes are enzyme inhibitors. Amino acid preparations (seminar).
Topic 41. Drugs that affect phosphorus-calcium metabolism (seminar).
Topic 42. Drugs that affect erythropoiesis. Blood and plasma substitutes. Electrolyte preparations.
Topic 43. Drugs that affect leukopoiesis, blood clotting. Antineoplastic agents and radioprotectors.
Topic 44. Immunotropic and antiallergic drugs
Topic 45. Checking off practical skills in the section "Drugs that affect metabolism, blood system and immune processes."
Topic 46. Disinfectants and antiseptics (seminar).
Topic 47. Antibiotics. Classification. Mechanism of action. Application
Topic 48. Antibiotics (II) (continued).
Topic 49. Side effects of antibiotics.
Topic 50. Sulfanilamide drugs (seminar).
Topic 51. Antimicrobials of different chemical structure
Topic 52. Antitubercular, antispirochetic drugs.
Topic 53. Antiprotozoal drugs (seminar).
Topic 54. Anthelmintic, antifungal drugs.
Topic 55. Antiviral drugs.
Topic 56. Checking off practical skills in the section "Antimicrobial, anti-viral and anti-parasitic drugs".
Topic 57-58. Drugs that affect the function of the gastrointestinal tract (seminar).
Topic 59. Drugs that affect the functions of the respiratory system (seminar).

Topic 60. Drugs that affect the myometrium. Contraceptives. (seminar).
Topic 61-62. Pharmacotherapy of acute poisoning and extreme conditions
Topic 63. Combined use and interaction of drugs (seminar).
Topic 64. Compatibility and incompatibility of drugs and food (seminar).
Topic 65-66. Pharmacotoxicodynamics (seminar).
Topic 67. Pediatric and geriatric pharmacology (seminar).
Topic 68. Pharmacotherapy during breast-feeding. (seminar).
Topic 69. Pharmacologic safety. (seminar).
Topic 70. The role of the pharmacist in preventing the negative consequences of the use of drugs. (seminar). Test control.

Recommended literature

1. Pharmacology: a textbook for students. medical and dental faculties of higher med. textbook institutions of Ukraine: ed. 4th correction. and reworked. / [I.C. Chekman, V.M. Bobyr′ov, V.J. Kresyun and others]. - Vinnytsia: New book, 2020. - 472 p.

2. Pharmacology: a textbook for the medical stud. of higher medical institutions of Ukraine: view. 4th edition corrected and reworked. / [I.C. Chekman, V.J. Kresyun, V.V. Godovan and others]. - Vinnitsa: The New Book, 2017. - 784 pp.

Pharmacology: textbook. for students. honey. f-tiv higher. honey. textbook institutions / ed. IS Chekman; IS Chekman, NO Gorchakova, LI Kazak and others. - 4 types. - Vinnytsia: Nova Kniga, 2017. - 783 p.

3. Drug formulation with general pharmacology: teach. manual: 2nd edition corrected and reworked / [V.J. Kresyun, V.V. Godovan]. - The Odessa National Medical University, 2017. - 280 p.

4. Pharmacology on pictures and schemes: textbook manual / V. V. Godovan ; ed. By V. I. Kresyun. Vinnitsa: The New Book, 2019. - 462 pp

EVALUATION

Current control: oral examination, testing, assessment of practical skills (prescribing), solving situational and pharmacotherapeutic tasks orally and with prescriptions, assessment of activity in class.

Final control: oral exam, testing, prescribing pharmacotherapeutic tasks with justification of the answer.

The structure of the current assessment in the practical lesson:

1. Assessment of theoretical knowledge on the topic of the lesson:
- methods: surveys (drug classifications, pharmacokinetics, pharmacodynamics, pharmacotoxicodynamics, indications for use, side effects, contraindications, drug interchangeability, peculiarity of use), solution of situational and pharmacotherapeutic problems;
- maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.

2. Assessment of practical skills on the topic of the lesson:
- methods: assessment of the correctness of practical skills (prescribing)
- maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2;

3. Assessment of work with test tasks on the topic of the lesson.
- methods: assessment of correctness of answers and time of performance of the test task;
- maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2;

Criteria for current assessment in a practical lesson:

«5»	The student is fluent in the material, takes an active part in the discussion and solution of situational or pharmacotherapeutic problems, confidently demonstrates practical skills in prescribing, can justify the choice of drug, freely expresses his opinion on the topic of the lesson, demonstrates pharmacological thinking.
«4»	The student is well versed in the material, participates in the discussion and solution of situational or pharmacotherapeutic problems, demonstrates practical skills in prescribing with some errors, justifies the choice of drug with some errors, expresses his opinion on the topic of the lesson, demonstrates pharmacological thinking, where the characteristics of the drug.
«3»	The student does not have enough material, uncertainly participates in the discussion and solution of situational or pharmacotherapeutic problems, demonstrates practical skills in prescribing significant errors, can not properly justify the choice of drug, the characteristics of the drug is quite superficial.
«2»	The student does not have the material, does not participate in the discussion and solution of situational or pharmacotherapeutic problems, does not demonstrate practical skills in prescribing, can not justify the choice of drug, can not give a pharmacological description of the drug.

The student is admitted to the exam if he meets the requirements of the curriculum and if for the current academic activity, he received at least 3.00 points and passed the test control for the tests "Step-1" by at least 90% (50 tasks). Test control is carried out in the Training and Production Complex of Innovative Technologies of Teaching, Informatization and Continuing Education of ONMedU at the last lesson on the eve of the exam.

Exam structure

The content of the evaluated activity	Number
Solving the pharmacotherapeutic problem with prescribing drugs and justifying the choice of drug.	3
Prescription of given drugs and their pharmacological characteristics	2

Answer to theoretical questions.	3

Criteria for assessing the learning outcomes of students in the exam::

«5»	It is presented to a student who systematically worked during the semester, showed during the exam versatile and deep knowledge of the program, is able to successfully perform the tasks provided by the program, mastered the content of basic and additional literature, realized the relationship of individual sections of the discipline, their importance for future profession. showed creative abilities in understanding and using educational material, showed the ability to independently update and replenish knowledge; level of competence - high (creative);
«4»	It is presented to a student who has shown full knowledge of the curriculum, successfully performs the tasks provided by the program, mastered the basic literature recommended by the program, showed a sufficient level of knowledge in the discipline and is able to independently update and update during further study and professional activities; level of competence - sufficient (constructive-variable)
«3»	Exhibited to a student who has shown knowledge of the basic curriculum in the amount necessary for further study and further work in the profession, copes with the tasks provided by the program, made some mistakes in answering the exam and when performing exam tasks, but has the necessary knowledge to overcoming mistakes under the guidance of a research and teaching staff; level of competence - average (reproductive)
«2»	Exhibited to a student who did not show sufficient knowledge of the basic curriculum, made fundamental mistakes in performing the tasks provided by the program, cannot without the help of the teacher to use the knowledge in further study, failed to master the skills of independent work; level of competence - low (receptive-productive)

Distribution of points received by applicants for higher education

The grade for the discipline consists of 50.0% of the grade for the current performance and 50.0% of the grade for the exam.

The average score for the discipline is translated into a national grade and converted into scores on a multi-point scale.

Conversion of the traditional grade for the discipline in the 200-point is carried out by the information and computer center of the university program "Contingent".

Table for conversion of traditional assessment into multi-point:

National assessment for the discipline	The sum of points for the discipline
«5»	**185 – 200**
«4»	**151 – 184**

«3»	**120 – 154**

Points from the discipline are independently converted into both the ECTS scale and the four-point scale. ECTS scale scores are not converted to a four-point scale and vice versa. Further accounts are carried out by the information and computer center of the university.

Independent work of students: independent work with the textbook, the directory of medicines, independent work with bank of test tasks Step-1, independent writing of recipes according to tasks in the notebook for check by the teacher.

COURSE POLICY

Deadline and recompilation policy: timely completion of the tasks set by the teacher within the specified time is mandatory. For late performance of the task during the current / final control of knowledge the student receives an unsatisfactory grade. Reassignment is carried out according to the approved schedule with the permission of the dean's office**.**

Academic Integrity Policy

Adherence to academic integrity by students involves:

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

• links to sources of information in the case of the use of ideas, developments, statements, information;

• compliance with the law on copyright and related rights;

• providing reliable information about the results of their own (scientific, creative) activities, used research methods and sources of information.

Unacceptable in educational activities for participants in the educational process are:

- the use of family or business ties to obtain a positive or higher assessment in the implementation of any form of control over learning outcomes or advantages in scientific work;
- use of prohibited auxiliary materials or technical means (cheat sheets, abstracts, headphones, phones, smartphones, tablets, etc.) during control measures;
- passing the procedures of control of learning outcomes by fictitious persons.

For violation of academic integrity, students may be held subject to the following academic liability:

• reduction of results of assessment of control work, examination, credit of something;

• re-assessment (test, exam, test, etc.);

• appointment of additional control measures (additional individual tasks, tests, tests, etc.);

• re-passing the relevant educational component of the educational program;

• conducting additional verification of other works by the infringer;

• deprivation of the right to participate in competitions for scholarships, grants, etc .;

• notification of the entity that finances the training (conducting research), the institution that issued the grant for training (research), potential employers, parents of the applicant for higher education about the violation;

• exclusion from the rating of applicants for an academic scholarship or accrual of penalty points in such a rating;

• deprivation of an academic scholarship;

• deprivation of tuition benefits provided by the University;

• expulsions from the University.

Attendance 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**.**

Syllabus stacker
Candidate of Medical Sciences,
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