

SYLLABUS

INTERNATIONAL EUROPEAN
UNIVERSITY



SCHOOL OF
MEDICINE

PHARMACOLOGY

2023



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Course Name				
		PHARMACOLOGY		
Lecturer (s)				
		PhD in Pharmacy, Associate Professor Maryna Ostapets PhD in Pharmacy Lyubov Shostak		
Lecturer's profile				
		https://medicine.ieu.edu.ua/pro-yemsh/kafedry/kafedra-fundamentalnykh-dystsyplin		
Consultations				
online consulting		Third Tuesday of the month from 15:00 to 16:00		
offline consulting		Third Wednesday of the month from 15:00 to 16:00		
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Discipline page				
		https://medicine.ieu.edu.ua/pro-yemsh/kafedry/kafedra-fundamentalnykh-dystsyplin		
Form of final control		test	def. test	exam
		☐	☐	☒



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1 Brief discipline annotation

The program in the discipline "Pharmacology" is designed for students under the educational and professional program "Medical care", second (master's) level of higher education in specialty 222 "Medicine", field of knowledge 22 "Health care", qualification "Master of Medicine. Doctor"

2 Background for studying discipline

The course is based on the previous knowledge of medical biology, medical physics, medical chemistry, biological and bioorganic chemistry, normal and pathological physiology, and Latin.

3 Purpose and goals of the discipline

Physiology as a basic discipline is aimed at training highly qualified Masters of Medicine and is one of the most important subjects in the medical education system. The goal of the Physiology academic discipline is to study functions of different cells, tissues, organs and systems as a whole in order to use the acquired knowledge while learning subsequent medical disciplines and in future professional activities. It provides the understanding of the concept of health, healthy lifestyle and dysfunction in the process of life activities.

4 Results of the study

Determine the tactics of emergency medical care based on the diagnosis of an emergency
Determine the source and/or location of the necessary information depending on its type; obtain the necessary information from a specific source; process and analyze the information received. To comply with the requirements of ethics, bioethics and deontology in their professional activities.
To organize the necessary level of individual safety (own and persons under his/her care) in case of typical dangerous situations in the individual field of activity.

5 ECTS credits

6 credits / 180 academic hours. Lectures - 24 hours, practical work - 72 hours, independent work - 84 hours.

Topic title	Lectures	Practical training	Student's individual work
Section I. Medicinal formulation.			
1. Main provisions of the Law of Ukraine "On Medicinal Products". Introduction to the drug formulation. Solid dosage forms.	2	3	2
2. Soft dosage forms: classification, prescribing rules, routes of administration, and features of use. Liquid dosage forms. Solutions for external and internal use: classification, prescribing rules, routes of administration and features of use.	-	3	4
3. Liquid dosage forms (infusions, decoctions, emulsions, mixtures, tinctures, liquid extracts, new-gallenic preparations). Rules for prescribing, routes of administration. Dosage forms for injection: requirements for injectable solutions, prescribing rules, routes of administration, and specifics of use.	-	3	4
Section II. Means affecting the central and peripheral nervous system.			
4. Drugs that affect the transmission of excitation in cholinergic synapses. Cholinergic drugs that affect M-H cholinergic receptors. Anticholinesterase agents. Cholinesterase reactivators.	2	3	2
5. Cholinergic drugs that selectively act on M-N cholinergic receptors. M-N cholinomimetics, M-N cholinoblocking agents.	-	3	4
6. Pharmacology of drugs that affect the transmission of excitation in adrenergic synapses: adrenomimetics, sympathomimetics, antiadrenergic drugs, sympatholytics.	2	3	2
7. Pharmacology and toxicology of ethyl alcohol and drugs for the treatment of alcoholism. Sleeping pills and hypnotics. Antiepileptic, antiparkinsonian drugs.	-	3	4
8. Pharmacology of narcotic and non-narcotic analgesics. Substances that cause dependence.	2	3	4
9. Psychotropic drugs with a depressant type of action: antipsychotics, tranquilizers, sedatives.	2	3	4
10. Psychostimulants. Antidepressants. Medications used in bipolar diseases and PAS. Drugs that affect the serotonergic system.	2	3	4

Section III. Drugs that affect the function of executive organs and metabolism.			
11. Pharmacology of drugs that affect the function of the respiratory system. Drugs used to treat bronchial asthma and pulmonary edema.	2	3	4
12. Diuretics. Pharmacology of drugs that reduce the content of uric acid in the body. Drugs that affect the tone and contractile activity of the myometrium.	-	3	4
13. Medicines used in case of coronary artery disease.	2	3	2
14. Antiatherosclerotic drugs.	-	3	2
15. Antihypertensive drugs. Antiarrhythmic drugs.	2	3	4
16. Medicinal products affecting the function of digestive organs (medicinal products affecting appetite; medicinal products regulating gastric gland secretion; gastroprotectors, medicinal products affecting the zonal secretory function of the pancreas; choleretic and medicinal products affecting the motility of the gastrointestinal tract). pancreas; choleretic agents and agents affecting gastrointestinal motility).	2	3	4
17. Pharmacology of drugs affecting hematopoiesis and blood coagulation system	2	3	4
18. Hormones of the hypothalamus, pituitary gland, thyroid gland. Antithyroid drugs. Insulin preparations and oral hypoglycemic agents. Preparations of adrenal cortex hormones. Sex hormones and anabolic steroids.	2	3	2
19. Anti-inflammatory drugs. Treatment of rheumatoid arthritis. Antiallergic and immunotropic drugs.	-	3	4
Section IV. Antibacterial agents. General pharmacology.			
20. Pharmacology of antibiotics 1. (Pharmacology of betalactam antibiotics). Pharmacology of antibiotics 2. (Pharmacology of macrolides, lincosamides, tetracyclines, aminoglycosides, cyclic polypeptides).	-	3	4
21. Sulfonamide drugs. Synthetic antimicrobial agents of different chemical structure. Pharmacology of fluoroquinolones.	-	3	4
22. Pharmacology of anti-tuberculosis drugs. drugs. Antispirochetic, antiprotozoal, antifungal and anthelmintic drugs.	-	3	4
23. Antiviral drugs. Antiseptic and disinfectant drugs. Pharmacology of calcium, potassium and sodium preparations. Pharmacology of antitumor drugs.	-	3	4
24. Toxicology. Basic principles of treatment of acute poisoning with drugs and poisons. General pharmacology. Pharmacokinetics. Pharmacodynamics. Mechanisms of action of drugs.	-	3	4
TOTAL HOURS:	24	72	84

7 List of obligatory tasks

1. Drugs and chemicals that cause abuse, drug and substance abuse. Medical and social aspects and methods of pharmacotherapy.
2. Modern cardiotonic drugs.
3. Hypertensive drugs.
4. Antidepressants.
5. Modern concepts of pharmacotherapy of gastric ulcer and 12 duodenal ulcer. Gastroprotectors and antacids.
6. Drugs used in the treatment of liver and biliary tract diseases.
7. Antiatherosclerotic drugs.
8. Drugs that affect phosphorus-calcium metabolism. Principles of treatment of osteoporosis.
9. Ethyl alcohol and drugs for the treatment of alcoholism.
10. Adaptogens.
11. Drugs that affect fibrinolysis
12. Antihormonal agents.
13. Enzyme preparations, coenzymes and antenzymes.
14. Vitamin preparations, the concept of hypo- and hypervitaminosis.
15. Antimalarial drugs.
16. Drugs for the treatment of leishmaniasis.
17. Modern problems and features of the use of antitumor drugs.
18. Modern theory of the action of drugs on the body.
19. Antidotism and basic antidotes.
20. The importance of genetic factors in the action of drugs

8 List of selective tasks

1. Create situational test tasks
2. Creating multimedia presentations on the topics of practical classes
3. Creating biological crosswords on the topics of practical classes
4. Making posters with contours of physiological regulation of functions
5. Participation in the work of the student scientific club
6. Participation in student scientific and practical conferences
7. Organization and visiting of thematic museums
8. Publication of abstracts of scientific conference reports in co-authorship with a teacher

9 Discipline features

Period of teaching	Semester	International disciplinary integration	Year of study	Courses: general training/ professional training/elective
1 semester	5,6 semester	yes	3	General training

10 Assessment system and requirements. General system of discipline assessment

Current student performance is assessed according to the 4-point scale (2; 3; 4; 5) during every practical class given the approved assessment criteria for a corresponding discipline. Students should obtain a grade in each topic for further conversion of grades into points due to the multi-point (200-point) scale.

Assessment criteria of current learning activities:

Excellent (5) – students answer correctly to 90-100% of A-format tests (from the Krok-2 database); solve case problems and can generalize the material.



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Assessment system and requirements. General system of discipline assessment

Good (4) – students answer correctly to 70-89% of A-format tests; have necessary practical skills and techniques of their performance in the volume exceeding the required minimum.

Satisfactory (3) – students answer correctly to 50-69% of A-format tests; have an obligatory minimum of research methods.

Failure (2) – students answer correctly to 50% of questions, make significant, serious mistakes while answering and showing practical skills.

Students' independent work related to preparations for practical classroom activities is assessed during current control of a topic during a corresponding class.

A semester Pass/Fail test is assessed due to the two-point scale (Pass/Fail) and 200-point scale by defining the arithmetic average of current grades for each practical class due to the 4-point scale and by its further conversion into points of the 200-point scale. Minimum amount of points that should be obtained by students: 120.

The final control of knowledge in the Physiology discipline is conducted in the form of an exam. The exam is conducted in the form of a written test work with individual options, each one containing 3 theoretical questions.

<https://ieu.edu.ua/docs/rate-of-study.pdf>

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Assessment system and requirements. General system of discipline assessment

Students who have completed all types of work, tasks provided for in the curriculum for the semester in accordance with the discipline, attended all classes provided for in the curriculum, written and submitted a medical history and have an average score for current academic activities of at least "3" (72 points on a 120-point scale) are allowed to take part in the semester final control

<https://ieu.edu.ua/docs/rate-of-study.pdf>

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Admission to final control

The policy of the academic discipline is determined by the requirements that scientific and practical workers make to students in the study of clinical discipline. The condition for a successful educational process is personal compliance of each student of a higher education institution with the rules of behavior adopted both at the university and in society. A future doctor must have a high level of behavioral culture, behave with dignity, tact, and self-control.

The student must be on time for classes and wear academic medical uniform (white coat or surgical suit).

The student must adhere to the schedule of the educational process, come to class prepared on the topic of the class. During the class, the student should not leave the classroom without the permission of the teacher; use a cell phone and other means of communication and information without the permission of the teacher, engage in outside activities, distract other students. When writing different types of papers, students must adhere to the rules of academic integrity.

The teacher must adhere to the curriculum, objectively assess the knowledge and skills of students. During the educational process, the teacher must be aware of anti-corruption measures and not engage in corrupt activities.



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Discipline policy

A student who, for valid reasons, confirmed by documentary evidence, was not subject to current control has the right to undergo current control within two weeks after returning to study.

A student who was absent from classes without valid reasons, did not participate in current control activities, did not eliminate academic debt, is not allowed to take the final semester control of knowledge in this discipline, and on the day of the exam, the academic staff member gives a grade of "not admitted" in the examination record.

Retaking the differentiated test in the discipline is assigned subject to the completion of all types of educational, independent (individual) work provided for by the working curriculum of the discipline and is carried out in accordance with the schedule of liquidation of academic debt approved by the directorate.
<https://ie.u.edu.ua/docs/050.pdf>

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Policy of absence and late task performance

Participants in the educational process are guided by the principles of academic integrity
<https://ie.u.edu.ua/docs/011.pdf>

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Recommended sources of information

Primary literature:

1. Pharmacology: Textbook for students of medical faculties / I.S. Chekman, N.O. Gorchakova, L.I. Kazak et al: New book, 2019. 784 c.
2. Skakun MP, Posokhova KA Pharmacology: Textbook, Ternopil: Ukrmedkniga, 2019. 740 c.
3. Pharmacology: a textbook for students of medical and dental faculties of higher medical educational institutions / Chekman IS, Bobyrev VM, Kresyun VY [et al: Nova Knyha, 2020. 427 p.: illus.
4. Drogozov SM, Shchokina KG Pharmacology in the palms of your hands, Kharkiv: Pleiades, 2019. 112 c.

Supporting literature:

1. Kaplan USMLE Step 1 Lecture Notes 2018 Pharmacology. Kaplan Medical, 2018, 321 P.
2. Drogozov S.M. Pharmacology pharmacology to help the doctor, pharmacist, student: Textbook, X.: Publishing center "KhAI", 2012. 480 C.
3. Oleshchuk O.M., Posokhova K.A. Fundamentals of drug formulation: a textbook. Ternopil: TSMU, 2019. 92 c.
4. Skakun M.P. Fundamentals of clinical epidemiology and evidence-based medicine: Textbook, Ternopil: TSMU, 2008. 372 c.
5. "Pharmacology - visually" (Pharmacology in tables, diagrams and figures) Textbook, Drogozov S.M., Oleshchuk O.M., Khomenko V.M. et al. Kharkiv: 2021. 204 c.
6. Lippincott illustrated reviews: Pharmacology. [edited by] Karen Whalen; collaborating editors, Carinda Feild; Rajan Radhakrishnan. Seventh edition. 7th ed., 2019.
7. Basic and Clinical Pharmacology, 12th edition, B.G. Katzung (editor), The McGraw Hill Companies, 2012.
8. Posokhova K.A., Viktorov O.P. Antibiotics (properties, application, interaction): Study guide, Ternopil: TSMU, 2005. 296 c.
9. Samura B.A. General pharmacokinetics: monograph. Ternopil: TSMU, 2009. 356 c.
10. Stepaniuk G.I. Pharmacology. Course of lectures, Vinnytsia, 2011. 373 c



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15 Recommended sources of information

13. Scientific Bulletins of the Institute of Molecular Biology and Genetics: <https://www.imbg.org.ua/uk/journals/>
14. Scientific Bulletin of the Ukrainian Society of Geneticists and Breeders: <http://utgis.org.ua/index.php/ua/publ-ua/visnyk-ua>
15. Bulletin of Biological and Medical Problems: <https://vpbm.com.ua/ua/>

Additional sources of information:

1. Ministry of Education and Science of Ukraine: <http://www.mon.gov.ua/>
2. Ministry of Ecology and Natural Resources of Ukraine: <http://www.menr.gov.ua/>
3. State Emergency Service of Ukraine: <http://www.dsns.gov.ua/>
4. Testing Board – Database of Krok-1 licensed test assignments: <http://testcentr.org.ua/>
5. Testing Board at the Ministry of Health of Ukraine: <https://www.testcentr.org.ua/uk/>
6. Genetic Disorders <http://omim.org/>

16 Tips on successful study during the course

If you want to succeed in this discipline, you should:

1. Be active, insistent, curious, consecutive.
2. Be tidy and polite.
2. Systematically prepare for practical classes.
3. Attend lectures and take notes.
4. Accomplish tasks for independent work and present them during the class.
5. Carefully handle department equipment, in particular, microscopes.
6. Attend classes in a medical gown.
7. Solve tests and tasks on your own, work actively during the class.
8. Keep an album and sketch out macro- and micro-specimens.
9. Visit the Krok Center website and focus on medical biology questions.
10. Prepare presentations and crosswords dedicated to the discipline.
11. Take part in student scientific conferences.
12. Be engaged in research activities in scientific groups at the department.