

**THE MINISTRY OF HEALTH OF UKRAINE
DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF ENDOCRINOLOGY**



**COURSE SYLLABUS
CLINICAL PHARMACOLOGY
For 5th-year students**

**Training specialists of the second (master's) level of higher education
Subject area 22 - Healthcare
Majors 222 Medicine
228 Pediatrics**

. General information	
Name of the faculty	
Educational program	22 Healthcare, 222 Medicine, second (master's) level of higher education, full-time
Навчальний рік	2023-2024
Name of discipline, code (e-mail address on the website of Danylo Halytsky LNMU)	<i>Clinical Pharmacology, OK 33.</i> Kaf_endocrinology@meduniv.lviv.ua
Department (name, address, telephone number, e-mail)	Department of Endocrinology, Lviv, 1 Ostrozkoho, tel.(032)2759510, (032) 2764673; Kaf_endocrinology@meduniv.lviv.ua
Head of the department (contact e-mail)	Prof. Alina Mechyslavivna Urbanovych urbanovych_alina@meduniv.lviv.ua
The year of study	5
Semester	9 or 10
Type of the subject/module (Mandatory/optional)	Mandatory
Teachers	
Olesia Kikhtyak, Ph.D., Professor	kikhtyak_oleca@meduniv.lviv.ua
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<u>Orysia</u> Lishchuk, Ph.D., Assistant of Professor	lyschuk_orisya@meduniv.lviv.ua
Erasmus+	no
Responsible for the syllabus	Safonova Oksana Safonova_Oksana@meduniv.lviv.ua safonova.oks@gmail.com

Number of credits ECTS	1,0
Number of hours	Лекції – 0 год. Практичні заняття – 20 год. Самостійна робота – 10 год.
Language of study	Ukrainian, English
Information about consultations	Held according to the schedule of consultations presented on the website of the department.
Address, phone number and regulations of the clinical base	№1: "Lviv Regional State Clinical Treatment and Diagnostic <i>Endocrinology Center</i> ", 79010, Lviv, 1, Ostrozkoho str.; tel. 275-95-20, tel./ fax: 276-94-89, e-mail: lred@ua.fm , 24h/day №2: «Lviv city clinical hospital №4», 79007, Lviv, 3, Stetska str., tel. 260-21-03, e-mail: 4kmkl_uoz_lviv@ukr.net 24h/day
1. Short description for the course	
Clinical pharmacology includes the study of group affiliation of medicines, their main mechanisms of action, features of their pharmacokinetics, pharmacodynamics, manifestations of side effects and symptoms of overdose, main indications for appointment and interaction with other medicines. The subject of study of the discipline is medicines and their interconnection with the human body.	
1. Course Goals and Learning Objectives	
<p>The purpose of teaching the discipline "Clinical Pharmacology" is to train specialists who have a sufficient amount of theoretical knowledge and practical skills for conducting the most rational medical therapy in a particular patient, have a methodology for choosing the most effective and safe medicines, as well as their combinations, taking into account the individual characteristics of the body, the course and form of the disease, the presence of concomitant pathology, on the basis of evidence-based medicine.</p> <p>Learning Goals: providing the student with a sufficient amount of theoretical knowledge and practical skills to carry out the most rational drug therapy in a particular patient, mastering the methodology of individual selection of effective and safe drugs on the basis of pharmacokinetics, pharmacodynamics, possible manifestations of side effects, peculiarities of the course of the disease, the age of the patient, optimal dosage forms, compilation of rational combinations of drugs. Namely:</p> <p>Know:</p> <ul style="list-style-type: none"> • modern classifications of medicinal products, • pharmacological characteristics of medicines, • indications for the use of medicines according to knowledge of their pharmacodynamics, • side effects when using medicines and their contraindications for use. • features of the use of medicines in a variety of pathologies. Вміти: • conduct a survey of patients in order to collect medical history and predict the possibility of complications of pharmacotherapy; • to choose the necessary medicines, adequate dosage form and dosage mode of administration when prescribing patients with major pathological syndromes; • determine the main methods of clinical examination of patients to assess the effectiveness and safety of prescribing medicines and analyze their results; • use the basic parameters of pharmacokinetics for the purpose of rational prescription of drugs; • interpret and take into account in clinical practice the peculiarities of clinical pharmacokinetics, pharmacodynamics, side effects and interaction of the main groups of medicines; • predict the effects of drug interaction with combined use and have skills in prevention and correction of undesirable effects of medicines; • prescribe and conduct pharmacotherapeutic analysis of prescribed drugs, • explain the dependence of medicines on the peculiarities of pharmacokinetics in patients of different ages, concomitant diseases and concomitant therapy, • evaluate the benefit/risk ratio when using medicines, • to create an algorithm for helping patients with acute drug poisoning; <p>be able to fill in the printed and electronic card, regarding unwanted side effects of drugs and assist in their detection;</p> <ul style="list-style-type: none"> • be able to prescribe prescriptions of medicines. <p>According to the requirements of the Educational and professional programs, the discipline ensures the</p>	

acquisition of competencies by students:

- - *integral*: the ability to solve typical and complex specialized problems and practical problems in professional activities in the field of health protection, or in the process of training, which involves the conduct of research and/or implementation of innovations and is characterized by the complexity and uncertainty of conditions and requirements.

- *general*:

1. Ability to abstract thinking, analysis and synthesis.
2. The ability to learn and master modern knowledge.
3. Ability to apply knowledge in practical situations.
4. Knowledge and understanding of the subject area and understanding of professional activities.
5. Ability to adapt and act in a new situation.
6. Ability to make informed decisions.
7. Ability to work in a team.
8. Interpersonal interaction skills.
9. Ability to communicate in the state language both orally and in writing.
10. Ability to communicate in a foreign language.
11. Skills in the use of information and communication technologies.
12. Determination and perseverance in relation to tasks and responsibilities.
13. Ability to act socially responsibly and consciously.
14. The desire to preserve the environment.
15. Ability to act on the basis of ethical considerations (motives).

special (professional, subject):

1. Skills survey and clinical examination of the patient.
2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.
3. Ability to establish a preliminary and clinical diagnosis of the disease.
4. Ability to determine the necessary mode of work and rest in the treatment of diseases.
5. Ability to determine the nature of nutrition in the treatment of diseases.
6. Ability to determine the principles and nature of treatment of diseases.
7. Ability to diagnose emergency conditions.
8. Ability to determine the tactics of emergency medical care.
9. Skills in providing emergency medical care.
11. Skills of medical manipulation.
13. Ability to carry out preventive measures.
15. Ability to determine the tactics of conducting persons subject to dispensary supervision.
17. Ability to maintain medical documentation.

19. Ability to assess the impact of the environment, socio-economic and biological determinants on the health of an individual, family, population.

20. Ability to analyze the activities of a doctor, unit, health care institution, conduct measures to ensure the quality of medical care and improve the effectiveness of the use of medical resources.

21. Ability to organize and integrate medical care to the population and marketing medical services.

1. Course prerequisites

The information on the disciplines, basic knowledge and results of training required for the student (enrolled) to successfully study and master the competencies in this discipline requires basic knowledge of the following disciplines:

1. **Normal physiology.**
2. **Pathological physiology.**
3. **Biological and bioorganic chemistry.**
4. **Microbiology, virology.**

5. Pharmacology.

6. Propedeutics of internal medicine.

7. Internal medicine.

5. Program results of training

List of Learning Results

Learning result code	Meaning of the learning result	Link to code matrices competence
<i>Kn-1</i>	Knowledge of modern classification of medicines.	PLR-23
<i>Kn-2</i>	Knowledge of pharmacological characteristics of medicines.	PLR-23
<i>Kn-3</i>	Knowledge of indications for the use of medicines.	PLR-6, 19, 23
<i>Kn-4</i>	Knowledge of pharmacokinetics and pharmacodynamics of medicinal products.	PLR-23
<i>Kn-5</i>	Knowledge of side effects in the use of medicines and contraindications to their use.	PLR-23
<i>Kn-6</i>	Knowledge of the peculiarities of the use of medicines in a variety of pathologies.	PLR-6, 19, 23
<i>Sk-1</i>	The ability to conduct a survey of patients in order to collect medical history and predict the possibility of complications of pharmacotherapy.	PLR-1, 2, 3.
<i>Sk-2</i>	Ability to choose the most effective and safe drug, optimal dosage, dosage, route of administration when prescribing patients with major pathological syndromes.	PLR-5,6
<i>Sk-3</i>	Prescribe an effective and safe combination of medicines in a specific clinical situation.	PLR-5, 6, 14, 19
<i>Sk-4</i>	Ability to determine the main methods of clinical examination of patients to assess the effectiveness and safety of prescribing medicines and analyze their results.	PLR-2
<i>Sk-5</i>	Ability to use the basic parameters of pharmacokinetics for the purpose of rational prescription of drugs.	PLR-5, 6, 19
<i>Sk-6</i>	Ability to interpret and take into account in clinical practice the peculiarities of clinical pharmacokinetics, pharmacodynamics, side effects and interaction of the main groups of medicines.	PLR-5, 6, 19
<i>Sk-7</i>	To predict and detect the side effects of LV in the early stages and to correct it.	PLR-5, 6, 19
<i>Sk-8</i>	The ability to predict the effects of drug interaction with combined use and have the skills of prevention and correction of undesirable effects of drugs.	PLR-5, 6, 12, 19
<i>Sk-9</i>	Ability to interpret and take into account in clinical practice the peculiarities of clinical pharmacokinetics, pharmacodynamics, side effects and interaction of the main groups of medicines.	PLR-5, 6, 16, 19
<i>Sk-10</i>	The ability to explain the dependence of drugs on the peculiarities of pharmacokinetics in patients of different ages, concomitant diseases and concomitant therapy.	PLR-5, 6, 16, 19

<i>Sk-11</i>	Ability to evaluate the benefit/risk ratio when using medicines.	PLR-5, 6, 16, 19
<i>Sk-12</i>	The ability to create an algorithm for helping patients with acute drug poisoning.	PLR-7, 8, 19
<i>Sk-13</i>	Ability to fill in a printed and electronic card, regarding unwanted side effects of drugs and to assist in their detection.	PLR-16
<i>Sk-14</i>	The ability to prescribe prescriptions of medicines.	PLR-16
<i>C-1</i>	Ability to maintain medical documentation.	PLR-16
<i>C-2</i>	Processing of medical information from different sources using knowledge of state and foreign languages.	PLR-23
<i>AR-1</i>	Ability to act socially responsibly and consciously.	PLR-17, 19, 21, 23, 24
<i>AR-2</i>	Ability to work in a team.	PLR-19, 21
<i>AR-3</i>	Ability to act on the basis of ethical considerations.	PLR-24

6. Format and volume of the course

Course format (specify full-time or part-time)	full-time	
Type of classes	Number of hours	Number of hours
lectures	-	
practical	20	
seminars	-	
independent work	10	

7. Topics and content of the course

Код виду занять	Тема	Зміст навчання	Код результату навчання	Викладач
Pr-1	Subject and objectives of clinical pharmacology. The main provisions of pharmacokinetics and pharmacodynamics. Clinical and pharmacological characteristics of medicines affecting lipid metabolism. Clinical and pharmacological characteristics of	Checking the mastering of the list of questions on the topic of the lesson; solution of test tasks, situational problems, theoretical survey, formation of professional skills and skills (correction of prescriptions, control of determination by the student of group belonging of drugs, basic indications for the prescription of drugs), possible side	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia

	antianginal and anti-ischemic medicines	effects of medicines and their correction, solution of pharmacotherapeutic tasks, curation of specialized patients.		
Pr-2	Clinical and pharmacological characteristics of antihypertensive medicines. Clinical and pharmacological characteristics of antiarrhythmic drugs.	Checking the mastering of the list of questions on the topic of the lesson; solution of test tasks, situational problems, theoretical survey, formation of professional skills and skills (correction of prescriptions, control of determination by the student of group belonging of drugs, basic indications for the prescription of drugs), possible side effects of medicines and their correction, solution of pharmacotherapeutic tasks, curation of specialized patients.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
Pr-3	Clinical and pharmacological characteristics of drugs affecting bronchial patency. Anti-inflammatory drugs (steroid, non-steroid).	Checking the mastering of the list of questions on the topic of the lesson; solution of test tasks, situational problems, theoretical survey, formation of professional skills and skills (correction of prescriptions, control of determination by the student of group belonging of drugs, basic indications for the prescription of drugs), possible side effects of medicines and their correction, solution of pharmacotherapeutic tasks, curation of	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia

		specialized patients.		
Pr-4	Clinical and pharmacological characteristics of antibacterial drugs.	Checking the mastering of the list of questions on the topic of the lesson; solution of test tasks, situational problems, theoretical survey, formation of professional skills and skills (correction of prescriptions, control of determination by the student of group belonging of drugs, basic indications for the prescription of drugs), possible side effects of medicines and their correction, solution of pharmacotherapeutic tasks, curation of specialized patients.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
P-5	Clinical and pharmacological characteristics of medicines affecting the functions of the digestive canal. Clinical and pharmacological characteristics of medicines affecting the hepatobiliary system and pancreas. Clinical and pharmacological characteristics of hormonal drugs. Credit.	Checking the mastering of the list of questions on the topic of the lesson; solution of test tasks, situational problems, theoretical survey, formation of professional skills and skills (correction of prescriptions, control of determination by the student of group belonging of drugs, basic indications for the prescription of drugs), possible side effects of medicines and their correction, solution of pharmacotherapeutic tasks, curation of specialized patients.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-1	Preparation for a practical lesson on the topic of №1.	Independent study of theoretical material, study of literary sources, solving test	Kn-1-7; Sk-1-10;	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko

		problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	C-1, 2; AR-1-3.	Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-2	Preparation for practical training on the topic of №2.	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3..	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-3	Preparation for practical training on the topic of №3.	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3..	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-4	Preparation for practical training on the topic of №4.	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-5	Preparation for practical training on the topic of №5.	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base,	Kn-1-7; Sk-1-10; C-1, 2;	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva

		training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	AR-1-3.	Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-6	Clinical and pharmacological characteristics of drugs affecting blood clotting ability	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-7	Clinical and pharmacological characteristics of antiallergic drugs	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
IW-8	Interaction of drugs, types of side effects of drugs, complications of drug therapy	Independent study of theoretical material, study of literary sources, solving test problems and clinical problems from the methodological base, training of writing recipes for certain medicines, writing abstracts, preparation of presentations.	Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Prof. Eugene Pleshanov Assoc. prof. Marta Hotsko Assoc. prof. Kh. Moskva Assist. of prof. O. Lishuk Assist. of prof. M. Krasnyi Assist. of prof. Kh. Kozlovska Teacher, Dunets Julia
1. Verification of learning results				
Current control				
<p><i>It is carried out during training sessions and aims to check the students' learning material (it is necessary to describe the forms of current control during training). Forms of evaluation of current educational activities should be standardized and include control of theoretical and practical training. The final assessment for the current educational activity is exhibited on a 4-point (national) scale</i></p>				

<i>Learning results code</i>	<i>Code of the type of the classes</i>	Method of verification of learning results	Assessment criteria
Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.	Pr-1 Pr-2 Pr-3 Pr-4 Pr-5	<p>The types of educational activities of students according to the curriculum are: a) lectures, b) practical classes, c) independent work of students (ISW), the organization of which has a significant role in the consultation of teachers. Thematic plans of lectures, practical lessons, ISW provide implementation in the educational process of all topics that are part of the content</p>	<p>Excellent ("5") – the student answered correctly 90-100% of the A format test (from the database "Step-2"). Correctly, clearly, logically corresponds to all standardized questions of the current topic. Closely binds theory with practice and demonstrates the correct implementation of practical skills. Fluent in interpretation of the laboratory test results, adept at prescribing appropriate examination methods. Makes differential diagnosis. Solves clinical case with higher level of difficulty and knows how to compile the material.</p> <p>Good ("4") - the student answered correctly 70-89% of the of A format test (from the database "Step-2"). Correctly and essentially responds to all standardized questions of the current topic. Demonstrates knowledge of practical skills. Correctly uses theoretical knowledge in solving practical problems, conducts a differential diagnosis. Capable to solve easy and medium complexity clinical cases. Possesses all necessary practical skills and techniques to perform their uses, more than the required minimum.</p> <p>Satisfactory ("3") - the student answered correctly 50-69% of the A format test (from the database "Step-2"). Incomplete, with the help of additional questions answers all the standardized questions on the current topic. Cannot independently make a clear logical answer. While the student is answering and demonstrating practical skills, he makes mistakes. Can solve only the easiest situational tasks. Has knowledge of only the minimum methods of investigations.</p> <p>Unsatisfactory ("2") - the student answered correctly 50% of the test of A format. Does not know the material of the current topic, cannot build a logical response, does not respond to additional questions, and does not understand the content of the material. Makes significant, gross mistakes when answering and demonstrating practical skills. The student can work off the missed topics or reassign them to the teacher during his consultations (individual work with students) no more than 3 times during the study of the discipline, thus gaining a number of points not less than the minimum to be admitted to the final control.</p>

	IW-1	<p>of the program .</p> <p>The lecture course consists of 4 lectures. The topics of the lecture course reveal the problematic issues of the relevant sections of endocrinology. During the lectures, students develop theoretical basic knowledge, provide a motivational component and a general-oriented stage of mastering scientific knowledge during the independent work of students. The lecture course uses a variety of tools - multime</p>	
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<p>Kn-1-7; Sk-1-10; C-1, 2; AR-1-3.</p>	<p>IW-2 IW-3 IW-4 IW-5 IW-6 IW-7 IW-8</p>	<p>dia presentat ions, slides, demonst ration of thematic patients.</p> <p>Practical classes are clinical, aimed at controlli ng the assimilat ion of theoretic al material and the formatio n of practical skills, as well as the ability to analyze and apply the obtained knowled ge to solve practical problem s, are conducte d in the departm ents of clinical bases of the departm ent.</p> <ul style="list-style-type: none"> • Each lesson starts with test control to assess the initial level of knowled ge and determin 	
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		<p>e the degree of readiness of students for the lesson. The teacher determines the purpose of the lesson and creates a positive cognitive motivation; answers questions of students who arose during the SRS on the topic of the lesson.</p> <ul style="list-style-type: none">• The main stage of the lesson is the practical work of the student at the bed of the patient. The teacher and students bypass the sick. Students examine patients, collect history, examine them, perform	
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		<p>diagnost ic manipul ations, etc. Control of the main stage of the lesson is carried out by assessin g the perform ance of practical skills by the student, the ability to solve typical situation al problem s. The teacher discusse s and gives an explanat ion, emphasi zes the peculiar ities of the course of the disease in a particula r child, aims at a more rational conduct of a particula r method of examina tion, etc.</p> <p>In addition, practical classes</p>	
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		<p>include:</p> <ul style="list-style-type: none">- planning of the patient's examination;- interpretation of laboratory and instrumental research data;- differential diagnosis of the main diseases of the endocrine system in a typical or complicated course;- determination of preliminary clinical diagnosis;- definition of therapeutic tactics;- prescription of medical nutrition;- emergency medical care;- solution of situational	
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		<p>problems;</p> <ul style="list-style-type: none">- working out practical skills at the bed of the patient;- maintenance of medical documentation. <ul style="list-style-type: none">• At the final stage of the lesson to assess the student's mastering of the topic, he is invited to answer situational problems. The teacher summarizes the lesson, gives students tasks for independent work, points to the nodal issues of the next topic and offers a list of recommended literature for self-study. <p>The duration</p>	
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		<p>of one practical lesson topic is 4.0 academic hours.</p> <p>Independent work of students, which is provided in the topic along with the audit, including filling in workbooks, is evaluated during the current control of the topic at the appropriate lesson</p> <p>Individual work is taken into account when evaluating for practical lessons under conditions of successful implementation and protection</p>	
Final control			

General evaluation system	Participation in the semester - 100% on a 200-point scale	
Rating scale	traditional 4-point scale, multifunctional (200-point) scale, ECTS rating scale	
Admission to final credit	The student attended all practical (laboratory, seminar) classes and received at least 120 points for current success	
Type of final control	Methodology of final control	Enrollment criteria
Differentiated credit	The semester test is issued according to the results of the current control.	A semester test is a form of final control, which consists in assessing the student's mastering of the discipline's educational material solely on the basis of the results of performing all types of educational work provided for by the curriculum.

In order to intensify the educational process, systematically assimilate educational material, establish feedback with each student, timely control and correction of the educational process, increase motivation, reduce the omissions of educational classes, students' responsibility for the results of educational activities, the success of each student is evaluated according to the rating system.

Evaluation is one of the final stages of educational activity and determining the success of learning. The discipline score is set as an average of grades for current educational activities, which is exhibited when evaluating theoretical knowledge and practical skills in accordance with the lists determined by the discipline program.

The current educational activities of students are monitored in practical classes in accordance with specific goals. Recommended for use are the following means of diagnostics of the level of preparation of students: test control (machine and machine-based), solution of situational problems, control of practical skills, in particular - the ability to properly conduct the patient's curation, assign and interpret the results of laboratory and instrumental examination, justify the diagnosis on the basis of analysis of clinical and auxiliary methods of examination.

When evaluating the assimilation of each topic of the module, students are given grades on a 4-point (traditional) scale using the criteria of evaluation adopted in universities and approved by the cycle medical commission. This takes into account all types of work provided for by methodological development for the study of the topic.

The student can work out the missed topics during the debuts no more than 3 times during the study of the subject, thereby gaining the number of points not less than the minimum to get a score from the discipline. Evaluation of current educational activities: carried out at each practical lesson on the relevant topic and has a definition according to the ESTS system and the traditional scale adopted in Ukraine

When assimilating each topic for the current educational activity, the student is given grades on a 4-point traditional scale, then for each student his average score is calculated for the discipline and according to Table 1 " " Instructions for assessing the educational activities of students... "is converted to the appropriate points."

The calculation of the number of points for the current training is carried out on the basis of the grades received by the student on a 4-point (national) scale during the study of the discipline, by calculating the arithmetic (CA) mean, rounded to 2 characters after the decimal

point. The resulting value is converted to points on a multi-point scale as follows:

$$X=(CA \times 200):5$$

Evaluation of individual tasks of the student.

The independent work of students, which is provided in the topic along with the audit work, is evaluated during the current control of the topic at the appropriate lesson. The assimilation of topics, which are made only for independent work, is controlled at the credits lesson. The implementation of individual tasks is taken into account when deriving an assessment for a practical lesson in the conditions of their successful execution and protection. In no case can the total score for the current training activity not exceed 200 points.

Final control. A semester test is a form of final control, which consists in assessing the student's mastering of the discipline's educational material solely on the basis of the results of performing all types of educational work provided for by the curriculum. The semester test is issued according to the results of the current control.

The assessment of the student's achievement in the discipline is rating and is set on a multi-scale as an average arithmetic assessment of the assimilation of the corresponding modules and has a definition by the ESTS system and the traditional scale adopted in Ukraine.

Correspondence of discipline evaluation in grading scores in traditional assessments

Evaluation on a 200 point scale	ECTS Score	Rating for four-point (national) scale
170–200	A	Excellent
160–169	B	Good
140–159	C	Good
130–139	D	Satisfactory
120–129	E	Satisfactory
Less than 120	F, Fx	Unsatisfactory

After completing the study of the discipline, the responsible for organizing the educational and methodological work at the department or the teacher puts the student the number of points and the corresponding score in the credits book and fills in the information of the success of students from the discipline in the form of Y-5.03B - test.

9. Course Policy

The policy of the discipline is determined by the system of requirements for the student in the study of the discipline "Clinical Pharmacology" and is based on the principles of academic integrity. Students are explained by the value of acquiring new knowledge, academic norms that need to be followed, why they are important, what is academic integrity, what are its values and functions, how students can contribute to its development

by their actions; the essence, peculiarities and causes of inadmissibility of academic plagiarism are explained, they encourage higher education applicants to independently perform educational tasks, correctly refer to sources of information in case of borrowing ideas, statements, information.

The policy of the course is:

compulsory observance of academic integrity by students, namely:

- independent execution of all types of pobits, tasks, forms of control provided for by the working program of this discipline;
- links to sources of information in case of use of ideas, developments, statements, information;
- compliance with copyright and cymbal law;
- providing reliable information on the results of their own educational (scientific) activities, methods of research and sources of information used.

adherence to the principles and norms of ethics and deontology by applicants of higher education:

- actions in professional and educational situations from the position of academic integrity and professional ethics and deontology;
- compliance with the rules of the internal procedure of the clinical base of the department, to be tolerant, friendly and balanced in communication with students and teachers, patients, medical staff of healthcare institutions;
- awareness of the significance of examples of human behavior in accordance with the norms of academic integrity and medical ethics.

attendance of classes by students of higher education:

- presence at all classes is mandatory for the purpose of current and final assessment of knowledge (except for cases for a valid reason).

overpayment of topics and development of missed classes by students of higher education:

- training of missed classes takes place according to the schedule of testing
- reassignment of the topic of the lesson, for which the student received a negative assessment, is carried out at a convenient time for the teacher and the student outside the classes, the maximum assessment is "good"

re-assignment of the topic during the current training and final control in order to improve the assessment is not allowed

10. References

Mandatory:

1. Клінічна фармакологія: Підручник для мед. ВНЗ IV рівня акредитації. – 2-ге видання, перероблене і доповнене / За ред. О.Я. Бабака, О.М.Біловола. – К., 2010. – 776 с.
2. Клінічна фармакологія: підручник / За ред. проф. М.І.Яблчанського, В.М.Савченка. – Харків: ХНУ ім. В.Н.Каразіна, 2011. – 405 с.
3. Клиническая фармакология: Учебник для медицинских ВУЗов IV уровня акредитации / Под ред. О.Я.Бабака, А.Н.Биловола, И.С.Чекмана. – К.: Медицина, 2012. – 728 с

4. Бертрам Г. Катцунг. Базисная и клиническая фармакология: в 2-х томах. – М.-СПб.: Бином, Диалект, 2008. – Т.1. – 648 с., Т.2. – 784 с.
5. Клиническая фармакология: учебник для вузов / Под ред. В.Г.Кукеса, Д.А.Сычева. – 6-е изд., перераб. и доп. – М.: ГЭОТАР-Медиа, 2017. – 1024 с.
6. Клиническая фармакология и фармакотерапия: Учебник / Под ред. В.Г.Кукеса, А.К.Стародубцева. – М.: ГЭОТАР-Медиа, 2013. – 832 с.
7. Михайлов И.Б. Клиническая фармакология: Учебник для студентов медицинских вузов.- СПб.: «Сотис-Мед», 2013. – 587 с.
8. Михайлов И.Б. Клиническая фармакология – основа рациональной фармакотерапии: Руководство для врачей. – СПб.: ООО «Издательство Фолиант», 2013. – 960 с.
9. Фармакология в рисунках и схемах / В.В.Годован; под ред. В.И.Кресюна. – Винница: Нова Книга, 2017. – 464 с.

Additional:

1. Взаимодействие лекарств и эффективность фармакотерапии / Л.В.Деримедведь, И.М.Перцев, Е.В.Шуванова, И.А.Зупанец, В.Н.Хоменко; Под ред. проф. И.М.Перцева. – Харьков: Изд-во «Мегаполис», 2001. – 784 с.
2. Грэхам-Смит Д.Г., Аронсон Дж.К. Оксфордский справочник по клинической фармакологии и фармакотерапии: Пер. с англ. – М.: Медицина, 2000. – 744 с.
3. Зборовский А.Б., Тюренков И.Н., Белоусов Ю.Б. Неблагоприятные побочные эффекты лекарственных средств. – М.: ООО «Медицинское информационное агенство», 2008. – 656 с.
4. Клініко-фармакологічний глосарій: навч. посібник / В.Й.Кресюн, В.В.Годован, С.Б.Стречень. – Одеса: ОНМедУ, 2015. – 328 с.
5. Клінічна фармакологія: Підручник у 2-х томах / О.М.Біловол, О.Ф.Возіанов, І.К.Латогуз, В.Ф.Москаленко, А.Я.Циганенко. – К.: Здоров'я, 2005. – Т.1. – 606 с., Т.2. – 684 с.
6. Клінічна фармакологія: Підручник для студентів вищ. навч. закл. у 2-х томах / За ред. І.А.Зупанця, С.В.Нальотова, О.П.Вікторова. – Харків: Вид-во НФАУ: Золоті сторінки, 2007. – Т.1. – 348 с., Т.2. – 312 с.
7. Козлов С.Н., Страчунский Л.С. Современная антимикробная химиотерапия: Руководство для врачей. – 2-е изд., перераб. и доп. – М.: ООО «Медицинское информационное агенство», 2009. – 448 с.
8. Кресюн В.Й. Лікарська рецептура із загальною фармакологією: навч. посібник для студентів вищих навчальних закладів МОЗ України / В.Й.Кресюн, В.В.Годован. – 2-ге вид., переобл. і доповн. – Одеса: ОНМедУ, 2017. – 280 с.
9. Лекарственная токсикология: учебник-справочник / Под ред. Дрогвоз С.М., Лукьянчук В.Д., Шейман Б.С. – Х.: Титул, 2015. – 592 с.
10. Невідкладні стани / За ред. М.С.Регеди, В.Й.Кресюна. – Львів: Магнолія, 2008. – 844 с.
11. Невідкладні стани у внутрішній медицині: підр. для мед. ВНЗ / За ред. Баран С.В. – Київ, 2015. – 136 с.
12. Основи внутрішньої медицини: підр. для студ. вищ. навч. закладів в 2-томах / В.Г.Передерій, С.М.Ткач. – Винниця: Нова Книга, 2009. – Т.1. – 640 с., Т.2. – 784 с.
13. Рациональная диагностика и фармакотерапия заболеваний внутренних органов / Под ред. проф. О.Я.Бабака. – 2-е изд., доп. – К.: ООО «Доктор-

Медиа», 2011. – Т.1. – 618 с., Т.2. – 454 с.

14. Справочник Сэнфорда по противомикробной терапии / Дэвид Н.Гилберт и др.; пер. с англ. под ред. Спасокукоцкого А.П. – 2-у изд. пер. и доп. – К.: Украинский медицинский вестник, 2013. – 288 с.

Information resources:

1. State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>
2. SE "Ukrainian Scientific Pharmacopoeial Center for Medicinal Products Quality
<http://sphu.org/>
3. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
4. National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>
1. Resource for forecasting interdisciplinary interactions (based on FDA instructions, in English) URL: <http://www.drugs.com>
2. Resource-dispenser of medicinal means and prognosis of interdisciplinary interactions (in English). URL: <http://www.medscape.org>
3. www.studmedlib.ru
4. [www. Med-Tutorial.ru](http://www.Med-Tutorial.ru)
5. Interregional Society of Evidence-Based Medicine Specialists:
<http://www.osdm.org/index.php>
6. Bulletin of Evidence-Based Medicine: <http://www.evidence-update.ru>
7. European Society of Clinical Pharmacologists and Pharmacotherapists:
<http://www.eacpt.org>
8. Resource for the interaction of medicines: <http://medicine.iupui.edu/flockart/>

11. Equipment, logistics and software of the subject / course

- Multimedia projector
- Computers
- Overhead
- Working discipline program
- Plans for practical classes and independent work of students
- Methodical instructions for practical lessons for students
- Methodical instructions for practical training for teachers
- Methodological materials that ensure independent work of the student
- Test and control tasks for practical classes
- Situational tasks for practical classes
- Virtual history of diseases
- List of medicines for study
- List of questions to control the success of training, which are put on practical lessons

12. Additional information

In charge for academic work: Oksana Safonova, tel. (032)2759510

In charge for students scientific circle: Orysia Lischuk, tel. (032) 2759510.

Materials related to the educational and organizational process (thematic plan, schedule of classes, schedules of consultations and work up of missed classes) are available on the website of the department: (<https://new.meduniv.lviv.ua/kafedry/kafedra-endokrynologiyi/>). Besides, all materials are on platform MISA (<http://misa.meduniv.lviv.ua/login/index.php>).

Addresses of the practical classes locations:

№1: "Lviv Regional State Clinical Treatment and Diagnostic Endocrinology Center", 79010, Lviv, 1, Ostrozkoho str.; tel/: (032) 276-46-73; 275-95-10 (main base), teachers: Oleksandr Serhiyenko, Olesia Kikhtiak, Victoria Serhiyenko, Marta Hotsko, Oksana Safonova, Khrystyna Moskva, Halyna Suslyk, Orysia Lischuk, Dunets Julia Viktorivna.

Lviv city clinical hospital №4», Endocrinology department, 79011, Lviv, st. Svetsitsky, 3, tel. (032) 276-02-74, teachers: Eugene Pleshanov, Mykhailo Krasnyi, Khrystyna Kozlovska, Dunets Julia Viktorivna.

Lectures are held on the basis of the department at: Lviv, Ostrozkoho 1 str.

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