


Department of "Pharmacology, Pharmacotherapy and Clinical Pharmacology"
Working training program of the discipline Clinical Pharmacology (Syllabus)
Educational program 6B10101 "General Medicine»

1.	General information about the discipline		
1.1	Discipline code: CFh 5301	1.6	Academic year: 2023-2024
1.2	Name of the discipline: Clinical Pharmacology	1.7	Course:5
1.3	Prerequisites: Pharmacology-1, Pharmacology-2	1.8	Semester:10
1.4	Post-requirements: GP-1, GP-2	1.9	Number of Credits (ECTS): 4
1.5	Cycle: CD	1.10	Component: EC
2.	Description of the discipline (maximum 150 words)		
Clinical pharmacology: organization of drug supply in clinical practice. Clinical and pharmacological approaches to the selection and use of medicines for the treatment of the most common diseases. Determining the strategy for prescribing drugs, taking into account age characteristics and in pregnant women. Comorbid states. Clinical and pharmacological approaches to solving the problem of polypragmasia in clinical practice from the standpoint of evidence-based medicine. Regulatory and legal basis for prescribing medicines.			
3.	Summative assessment form		
3.1	Testing	3.5	Coursework
3.2	Written	3.6	Essay
3.3	Oral+	3.7	Project
3.4	OSPE	3.8	Other (specify)
4.	Objectives of the discipline		
To form the students ' skills of clinical thinking, the choice of medicines in adults and children with major syndromes of internal diseases.			
Final learning outcomes (RO disciplines)			
5.			
LO1	Demonstrates knowledge on the effective and safe use of medicines		
LO2	Selects medicines, writes prescriptions for medicines, determines the dosage regimen, taking into account the age aspects and individual characteristics of the body		
LO3	Recognizes the undesirable effects of medicines, carries out prevention and correction of side effects of medicines.		
LO4	Predicts pharmaceutical, pharmacokinetic, and pharmacodynamic drug interactions		
LO5	Able to effectively interact with healthcare professionals in order to provide quality medical care.		
LO6	Able to formulate adequate research questions, critically evaluate professional literature, and effectively use international drug databases and clinical treatment protocols in his daily activities.		
5.1	Learning outcomes of the discipline	Learning outcomes of an educational program that are related to the learning outcomes of a discipline	
	LO1 LO2 LO3 LO4	LO5 Adheres to the principles of the organization of general medical practice and achieves the goals of providing qualified care at the PHC level	
	LO5 LO6	LO8 Applies scientific principles, methods, and knowledge in medical practice and research. Capable of continuous self-education and development. Able to introduce new methods into clinical practice	
6.	Detailed information about the discipline		
6.1	Venue (building, auditorium): South Kazakhstan Medical Academy, main building, Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology. Al-Farabi Square-1, 4th floor, auditorium No.		

<p>ОҢТҮСТІК-ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ</p>		 <p>SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»</p>
Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology		044-41/
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419,421,425,429,431,434 , No. 4 lecture hall. Phone (PBX) 40-82-06. v \ n 227						
6.2	Number of hours	Lectures	Practical exercises	Laboratory classes	independent work of the student	independent work of the student with the teacher-teacher
		10	30		56	24
7.	Information about teachers					
№	Full name	Degrees and position	Email address	Research interests, etc.	Progress	
1	Pernebekova Rakhat Karimbekovna	Lecturer	Rakhat_71@mail.ru	The effect of the phytopreparation <i>Rodiola rosea</i> on the metabolism of peroxic lipid compounds in the body's bio-environment during intoxication with phosphorus and isadrin	Author of more than 190 scientific papers	
2	Orynbassar Sabit Abdrayimuly	Teacher	Sabit.orynbassar@mail.ru	-	Author of 2 scientific articles	
3	Yergaliyeva Bereke Kassymkhanovna	Teacher	Yergaliyeva.bereke@gmail.com	-	Author of 2 scientific articles	

8. Thematic plan						
Week/Day	Topic name	Synopsis	The result of learning the discipline	Number of hours	Forms/ methods/ technologies of training	Assessment forms/ methods
1	Lecture. Fundamentals of clinical pharmacology.	The main pharmacokinetic parameters and their clinical significance. The importance of pharmacokinetics for the choice of drugs and determining their dosage regimen: route of administration, absorbability, bioavailability, protein binding, volume of distribution, metabolism, half-life, clearance, pathways and rate of elimination. Features of pharmacokinetics of drugs in different groups of	LO 1	1	Overview	Feedback

		patients.				
	Practical lesson Clinical pharmacology of respiratory diseases. Rational pharmacotherapy of pneumonia.	Clinical and pharmacological approaches to the informed choice of drugs, dosage regimen, evaluation of the effectiveness and safety of the use of drugs in pneumonia and bronchitis. International treatment protocols.	LO 1,2	3	Working in small groups	Oral discussion, dose calculation, prescribing
	Independent work of students with teachers Pneumonia, acute and chronic bronchitis	Clinical pharmacology of beta-adrenostimulants: mechanism of action, classification, pharmacodynamic effects, indications for use, adverse reactions. Rebound syndrome, short circuit syndrome. Clinical pharmacology of M-holinoblockers: mechanism of action, pharmacodynamic effects, indications for administration, side effect. Clinical pharmacology of inhaled corticosteroids and antileukotriene drugs: mechanism of action, comparative characteristics of drugs, indications for administration, side effects	LO 1,5,6	8	Protection of presentations, abstracts.	Checklist (presentation, abstract).
2	Lecture. Atypical pneumonia. Atypical pneumonia.	Clinical and pharmacological approaches to the choice of drugs, dosage regimen, evaluation of the effectiveness and safety of drugs in pneumonia, and treatment protocols.	LO 1	1	Overview	Feedback
	Practical lesson Clinical pharmacology of respiratory diseases. Rational pharmacotherapy chronic obstruction lung disease, bronchial asthma	Clinical and pharmacological approaches to the informed choice of drugs, dosage regimen, evaluation of the effectiveness and safety of the use of drugs.	LO 1,2,3,4,5	3	Case study (CbD – Case based Discussion).	Oral interview. Solving test tasks and situational tasks. Writing

		International treatment protocols.				prescriptions
	Independent work of a student with a teacher. Chronic obstructive pulmonary disease, bronchial asthma, chronic pulmonary heart disease, respiratory failure	Current recommendations for the treatment of bronchial obstructive diseases (GINA). Principles of relieving an attack of bronchial asthma and prescribing medicines for basic therapy. Modern recommendations for the treatment of bronchial obstructive diseases (GOLD).	LO 6	8	Protection of presentations, abstracts.	Checklist (presentation, abstract).
3	Lecture. COVID-associated pneumonia	Clinical and pharmacological approaches to the choice of drugs, dosage regimen, evaluation of the effectiveness and safety of drug use in COVID-associated pneumonia. International treatment protocols.	LO 1,2,4,5	1	Overview	Feedback
	Practical lesson Clinical pharmacology of diseases of the cardiovascular system. Rational pharmacotherapy of acute coronary syndrome, arterial hypertension.	Clinical and pharmacological approaches to the informed choice of drugs, dosage regimen, evaluation of the effectiveness and safety of diuretics, cardiac glycosides, and antianginal drugs. International treatment protocols.	LO 2,3,4,5	3	Working in small groups	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher 1. Acute coronary syndrome, arterial hypertension, metabolic syndrome 2. Rhythm disturbance syndrome, circulatory insufficiency	1. Nitrates – mechanism of action, pharmacokinetics, pharmacodynamics, choice of drugs, dosage regimen. Methods for evaluating effectiveness and safety. Tolerance to nitrates-diagnosis, correction and prevention of adverse reactions. Cytoprotective drugs, indications for administration. Clinical pharmacology of lipid-lowering drugs (statins, fibrates, nicotinic acid,	LO 6	8	Analysis of scientific articles	Checklist (RBL).

		ezetimibe, polyunsaturated fatty acids), mechanism of action, dosage regimen, control of efficacy and side effects, combination therapy 2. Clinical and pharmacological approaches to the justification, selection, dosage regimen, evaluation of the effectiveness and safety of antiarrhythmic drugs				
4	Lecture. Acute coronary syndrome with ST segment elevation . Acute coronary syndrome without ST segment elevation . ACS at the ambulance stage.	Clinical and pharmacological approaches to the choice of drugs, dosage regimen, evaluation of the effectiveness and safety of the use of nitrates, beta-blockers, calcium channel blockers, anticoagulants. International treatment protocols	LO 1	1	Overview	Feedback
	Practical lesson Clinical pharmacology of diseases of the cardiovascular system. Rational pharmacotherapy of rhythm disturbance syndrome, circulatory insufficiency.	Clinical and pharmacological approaches to the justification of the choice of drugs, dosage regimen, evaluation of the effectiveness and safety of antiarrhythmic drugs. International treatment protocols.	LO 2,3,4,5	3	Case study (CbD – Case based Discussion).	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher. Acute rheumatic fever, HRBS, heart disease, rheumatoid arthritis, osteoporosis, reactive arthritis, gout	Clinical pharmacology of nonsteroidal anti-inflammatory drugs: mechanism of action, classification, dosage regimen, side effect, indications for use, contraindications. Principles of prevention and treatment of NSAIDs-gastropathies. Clinical pharmacology glucocorticosteroids, mechanism of action, pharmacological effects,	LO 6	6	Protection of presentations, abstracts.	Checklist (presentation, abstract).

		indications for administration, features of the dosage regimen (chronopharmacology), indications for administration. The concept of equivalent doses. Glucocorticosteroids for intra-articular administration. Clinical pharmacology of drugs for the basic therapy of rheumatoid arthritis: drugs, prescribing features, side effects				
5	Lecture Arterial hypertension. Arterial hypertension in pregnant women.	Clinical and pharmacological approaches to the reasonable choice of drugs, dosage regimen, assessment of the efficacy and safety of diuretics (thiazides, chlorthalidone and indapamide), beta-blockers, calcium antagonists, ACE inhibitors and angiotensin receptor blockers. International treatment protocols.	LO 1	1	Overview	Feedback
	Practical lesson Rational pharmacotherapy of rheumatic diseases. Acute rheumatic fever, CRHD, heart defects, rheumatoid arthritis, osteoporosis, reactive arthritis, gout	Clinical and pharmacological approaches to substantiating the choice of drugs, dosage regimen, assessing the effectiveness and safety of antiarrhythmic drugs. International treatment protocols.	LO 2,3,4,5	3	Case study (CbD – Case based Discussion).	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher Midterm control number 1	Answer the questions of programmed ticket control	LO 1,2,3,5	4	Tickets	Solving situational problems, oral interview
6	Lecture ARF and RHD	Rational pharmacotherapy in rheumatology. Glucocorticosteroids, basic drugs: pharmacodynamics, pharmacokinetics, side effects, correction of side	LO 1	1	Overview	Feedback

		effects. Clinical pharmacology of cytostatics and immunosuppressive drugs. International treatment protocols.				
	Practical lesson Rational pharmacotherapy in the treatment of gastritis, peptic ulcer, pancreatitis, cholecystitis, hepatitis, liver cirrhosis.	Clinical pharmacology of antacids and anti-secretory drugs: classification, pharmacological effects, indications for administration, side effects. Clinical pharmacology of gastroprotectors and prokinetics: classification, mechanism of action, indications for administration, dosage regimen, side effects. Drugs for eradication therapy (antibiotics, proton pump inhibitors, bismuth drugs). Modern approaches to the treatment of GERD, gastric ulcer and duodenal ulcer. International treatment protocols.	LO 2,3,4,5	3	Working in small groups	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher Gastritis, peptic ulcer, pancreatitis, cholecystitis, hepatitis, liver cirrhosis	Clinical pharmacology of antacids and anti-secretory drugs: classification, pharmacological effects, indications for administration, side effects. Clinical pharmacology of gastroprotectors and prokinetics: classification, mechanism of action, indications for administration, dosage regimen, side effects. Drugs for eradication therapy (antibiotics, proton pump inhibitors, bismuth drugs). Modern approaches to the treatment of GERD, gastric ulcer and duodenal ulcer	LO 6	6	Protection of presentations, abstracts.	Assessing of Protection of presentations, abstracts.

7	Lecture Peptic ulcer disease. Ulcerative colitis (Crohn's disease)	Rational pharmacotherapy of diseases of the digestive system. Clinical and pharmacological approaches to substantiation, selection, dosage regimen, assessment of the efficacy and safety of drugs for peptic ulcer disease and Crohn's disease. International treatment protocols	LO 1	1	Overview	(Feedb ack)
	Practical lesson Rational pharmacotherapy in the treatment of gastritis, peptic ulcer, pancreatitis, cholecystitis, hepatitis, liver cirrhosis.	Clinical pharmacology of antacids and anti-secretory drugs: classification, pharmacological effects, indications for administration, side effects. Clinical pharmacology of gastroprotectors and prokinetics: classification, mechanism of action, indications for administration, dosage regimen, side effects. Drugs for eradication therapy (antibiotics, proton pump inhibitors, bismuth drugs). Modern approaches to the treatment of GERD, gastric ulcer and duodenal ulcer. International treatment protocols.	LO 2,3,4,5	3	Case study (CbD – Case based Discussion).	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher Acute and chronic pyelonephritis, acute and chronic glomerulonephritis, chronic renal failure	Therapeutic drug monitoring. Calculation of the dosage regimen of drugs in patients with chronic renal failure and hemodialysis	LO 1,2,3	6	Protection of presentations, abstracts.	Feedback
8	Lecture Chronic pyelonephritis	Clinical and pharmacological approaches to justification, selection, dosage regimen, assessment of the efficacy and safety of drugs in kidney disease. International treatment	LO 1	1	Overview	(Feedb ack)

		protocols.				
	Practical lesson Rational pharmacotherapy of acute and chronic pyelonephritis, acute and chronic glomerulonephritis, chronic renal failure.	Principles of dosage of drugs for impaired renal function Modified release dosage forms. Principles of dosage of drugs for impaired renal function. International treatment protocols.	LO 2,3,4,5	3	Working in small groups	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher Iron deficiency anemia, B12-deficiency anemia, acute and chronic leukemia	Rational pharmacotherapy of drugs. Clinical and pharmacological approaches to substantiation, selection, dosage regimen, assessment of the effectiveness and safety of the use of drugs used for anemia	LO 6	6	Protection of presentations, abstracts.	Checklist (presentation, abstract).
9	Lecture Iron-deficiency anemia . B12 deficiency anemia	Clinical and pharmacological approaches to the substantiation, selection, dosage regimen, assessment of the efficacy and safety of the use of ionic iron-containing preparations (salt, polysaccharide compounds of ferrous iron) and non-ionic compounds (preparations of ferric iron, represented by an iron-protein complex and a hydroxide-polymaltose complex, iron (III) -hydroxide sucrose complex). International treatment protocols.	LO 5,6	1	Overview	Feedback
	Practical lesson Rational pharmacotherapy of iron deficiency anemia, B12-deficiency anemia, acute and chronic leukemia.	Clinical and pharmacological approaches to justification, selection, dosage regimen, assessment of the effectiveness and safety of the use of drugs used for anemia. International treatment protocols	LO 2,3,4,5	3	Case study (CbD – Case based Discussion).	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a	Rational pharmacotherapy	LO 6	6	Protection	Checklist

	student with a teacher Diabetes mellitus, obesity	of drugs. Clinical and pharmacological approaches to substantiation, selection, dosage regimen, assessment of the efficacy and safety of drugs used in diabetes mellitus			of presentations, abstracts.	(presentation, abstract).
10	Lecture Diabetes mellitus type 1. Diabetes mellitus type 2. Diabetes mellitus in pregnant women.	Clinical and pharmacological approaches to the substantiation, selection, dosage regimen, assessment of the efficacy and safety of the use of sulfonylureas, biguanides, thiazolidinediones, insulins. International treatment protocols.	LO 1	1	Overview	(Feedback)
	Practical lesson Rational pharmacotherapy of diabetes mellitus, obesity, hypothyroidism, hyperthyroidism.	Clinical and pharmacological approaches to substantiation, selection, dosing regimen, assessment of the efficacy and safety of drugs used for diabetes, hypothyroidism, hyperthyroidism (levothyroxine, metformin, thiamazole). International treatment protocols.	LO 2,3,4,5	3	Working in small groups	Oral interview. Solving test tasks and situational tasks. Writing prescriptions
	Independent work of a student with a teacher Hyper and hypothyroidism	Rational pharmacotherapy of drugs. Clinical and pharmacological approaches to substantiation, selection, dosage regimen, assessment of the efficacy and safety of drugs used for hypothyroidism, hyperthyroidism (levothyroxine, metformin, thiamazole)	LO 6	6	Protection of presentations, abstracts.	Checklist (presentation, abstract).
11	Independent work of a student with a teacher. Midterm control number 2	Answer the questions of programmed ticket control	LO 1,3,4,5,	4	Tickets	Solving situational problems, oral interview
	Number of hours			108		
	Preparation and			12		

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	implementation of intermediate certification					
22	Total hours of discipline			120		

9.	Teaching and learning methods	
9.1	Lectures	Review, problem review of lectures in the form of a lecture-presentation or text material, lecture materials included in the module "Task", feedback questions; lectures-presentations, feedback from the audience blitz survey of students on the topic of the lecture
9.2	Practical exercises	Working in small groups; Case study. Clinical case discussion (CbD-Case based Discussion). individual work in the offline communication mode.
9.3	SIW/SIWT	Presentation, abstracts, on the topic in accordance with the schedule of SRO delivery;
9.4	Midterm	Tickets; in the conditions of distance learning, an oral survey of tickets, prescribing prescriptions using audio and video surveillance, an oral survey
9.5	Intermediate control	OSPE. Testing.

10.	Evaluation criteria				
10.1	Criteria for evaluating the learning outcomes of the discipline				
№ LO	Name of learning outcomes	Unsatisfactory	Satisfactorily	Good	Excellent
LO1	Demonstrates knowledge of the effective and safe use of medicines .	1) Not oriented in the pharmacological classification and nomenclature of medicines. 2) Does not demonstrate knowledge of the pharmacokinetics and pharmacodynamics of drugs, their adverse reactions, indications and contraindications to application .	1) Oriented in the pharmacological classification and nomenclature of drugs. 2) According to the instructions for use for specialists and reference materials, demonstrates knowledge of the pharmacokinetics and pharmacodynamics of drugs, their adverse reactions, indications and contraindications to application.	1) Determines the belonging of the drug to the pharmacological and therapeutic group. 2) Demonstrates knowledge of the pharmacokinetics and pharmacodynamics of drugs, indications and contraindications to application. 3) Warns about possible side effects of medicines of certain groups 4) Warns of possible drug interactions in individual groups .	1) Oriented in various classifications of medicines. 2) Determines the belonging of the medicinal product to the nomenclature of various classifications 3) Demonstrates knowledge of the pharmacokinetics and pharmacodynamics of drugs, their adverse reactions, indications and contraindications for use. 4) Recognize the adverse effects of drugs, carry out prevention and correction of side effects of drugs. 5) Evaluates the possibility of toxic effects of drugs. 6) Compares

					drugs in pharmacological groups, generations (generations) according to pharmacokinetic, pharmacodynamic parameters.
LO2	Selects drugs, writes prescriptions for drugs, determines the dosing regimen, taking into account age aspects and individual characteristics of the organism.	1) Defines the general pharmacological group of medicines . 2) Writes a prescription with errors .	1) Selects the pharmacological group of drugs by organs and systems 2) Writes a prescription with the help of reference books/sources .	1) Selects drugs for the treatment and prevention of the most common diseases. 2) Writes a prescription for a given drug without errors Calculates the dose of the drug .	1) Selects drugs from various pharmacological groups in accordance with indications for use, contraindications and side effects . 2) Writes out a prescription for drugs in the most appropriate dosage form, depending on age, gender, functional characteristics . 3) Carries out the calculation of doses by various methods and determines the frequency and duration of the use of the drug .
LO3	Recognizes undesirable effects of medicines, carries out prevention and correction of side effects of medicines.	1) Does not determine the side effects of drugs .	1) Determines the side effects of drugs based on reference material .	1) Recognizes the undesirable effects of drugs depending on the pharmacological group .	1) Recognize the adverse effects of drugs, carry out prevention and correction of side effects of drugs. 2) Assesses the possibility of toxic effects of drugs .
LO4	Predicts pharmaceutical, pharmacokinetic and pharmacodynamic drug interactions	Not able to use the information received about the interaction of drugs.	Collects information about possible drug interactions from various sources for distribution to specialists and non-specialists.	Collects information from sources about possible interactions of drugs with each other, with food, medicinal plants, etc. for professional advice from specialists and non-specialists.	Formulates arguments, evaluates possible interactions of drugs with each other, with food, medicinal plants, etc.

LO5	Able to communicate effectively with healthcare professionals to provide quality medical care.	1) Unable to use the received information on medicines for consultations for the public and health professionals.	1) Collects information about medicines from various sources for transmission to specialists and non-specialists	1) Collects information on medicines from various sources for professional advice from specialists and non-specialists.	1) Analyzes information about medicines
LO6	Able to formulate adequate research questions, critically evaluate professional literature, effectively use international drug databases, clinical treatment protocols in their daily activities	1) Does not have the skills to work in drug databases	1) Searches for information in reference databases on medicines.	1) Searches for information in the international drug database based on the principles of evidence-based medicine	1) Searches and interprets information in the international drug database based on the principles of evidence-based medicine

10.2 Criteria for evaluating teaching methods and technologies

Checklist for practice.

Oral discussion, dose calculation, prescription writing

Oral discussion, dose calculation, prescription writing	Excellent Corresponds to the ratings: A (4.0; 95-100%); A- (3.67; 90-94%)	Actively participates in the work, at the same time showed original thinking, shows a deep knowledge of the material, uses scientific achievements of other disciplines in the discussion. Writes a prescription for drugs in the most appropriate dosage form, depending on age, gender, functional characteristics . The doses are calculated by various methods and the frequency and duration of the drug use is determined .
	Good Corresponds to the ratings: B+ (3.33; 85-89%) B (3.0; 80-84%) B- (2.67; 75-79%) C+ (2.33; 70-74%)	Participated in the work, showed knowledge of the material, made minor inaccuracies or fundamental errors corrected by the student himself Writes a prescription for a given drug without errors Calculates the dose of the drug .
	Satisfactory Corresponds to the ratings: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	When working in a group, he was passive, made inaccuracies and unprincipled mistakes, and experienced great difficulties in systematizing the material. Writes a prescription using reference books/sources .
	unsatisfactory FX (0.5 ; 25-49 %) _ _ F (0; 0- 24 %)	They did not take part in the work of the group, answering the questions of the teacher, made fundamental mistakes and inaccuracies, did not use scientific terminology when answering. Writes a prescription with errors .

Discussion of a clinical case (CbD - Case based Discussion). Small group work

Discussion of a clinical case (CbD - Case based Discussion). Small group work	Excellent Corresponds to the ratings: A (4.0; 95-100%); A- (3.67; 90-94%)	The students, allocated to a small group, actively participated in the discussion of the clinical situation, at that time they showed their logical thinking skills, completely correctly solved the clinical situation during the discussion.
	Good Corresponds to the ratings: B+ (3.33; 85-89%) B (3.0; 80-84%) B- (2.67; 75-79%) C+ (2.33; 70-74%)	The students assigned to the subgroup took an active part in the discussion of the clinical situation, while discussing the clinical situation, students from the subgroup coped with errors or position errors, corrected and
	Satisfactorily Corresponds to the ratings: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	Students enrolled in a small group were passive in discussing a clinical case, when discussing a clinical case, students from a small group performed it using reference literature / sources, making weak and inconsistent errors.
	unsatisfactory FX (0.5 ; 25-49 %) _ _ F (0; 0- 24 %)	They could not find the correct solution to the clinical situation, did not participate in the work of the group, made mistakes and inaccuracies, did not use scientific terminology when answering.

Checklist for SIW
Topic presentation

Form of control	Grade	Criteria for evaluation
Presentation	Excellent Corresponds to estimates A (4,0; 95-100%); A- (3,67; 90-94%)	The presentation was made independently, on time. Use of at least 3 literary sources. The slides are informative and concise. During the defense, the author demonstrates deep knowledge on the topic. Does not make mistakes when answering questions during the discussion.
	Good Corresponds to estimates B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	The presentation was made independently, on time. Use of at least 3 literary sources. The slides are informative and concise. During the defense, the author demonstrates good knowledge on the topic. Makes minor mistakes when answering questions that he corrects.
	Satisfactory Corresponds to estimates C (2,0; 65-69%) C- (1,67; 60-64%) D+ (1,33; 55-59%) D- (1,0; 50-54%)	The presentation was made independently, on time. Use of at least 3 literary sources. The slides are not meaningful. When defending, the author makes fundamental mistakes when answering questions.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	The presentation was not submitted on time. Less than 3 literary sources were used. The slides are not meaningful. When defending, the author makes gross mistakes when answering questions. Doesn't orientate himself in his own

		material.
Preparation of test tasks		
Form of control	Grade	Criteria for evaluation
Preparation of test tasks	Excellent Corresponds to estimates: A (4,0; 95-100%); A- (3,67; 90-94%)	Test tasks contain at least 10 questions. Delivered on time. The basis of the test is informative. Test tasks are formulated clearly, correctly, specifically. Similar and adequate answers. There is an algorithm of answers. The correct answers are marked correctly.
	Good Corresponds to estimates: B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	Test tasks contain at least 10 questions. Delivered on time. The basis of the test is informative. Test tasks are formulated clearly, correctly, specifically. Inconsistent response options. Algorithm of answers is hovering. The correct answers are marked correctly.
	Satisfactorily Corresponds to estimates: C (2,0; 65-69%) C- (1,67; 60-64%) D+ (1,33; 55-59%) D- (1,0; 50-54%)	Test tasks contain at least 10 questions. Delivered on time. The basis of the test is inconsistent. There are test tasks formulated indistinctly, incorrectly, vaguely. Inconsistent response options. There is an algorithm of answers. Not all correct answers are marked correctly.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	Test tasks contain at least 10 questions. Inconsistent basis of the text, fuzzy statement of the question. Inconsistent response options. There is no answer algorithm. More than 50% of correct answers are marked incorrectly.
Oral discussion, dose calculation, prescription writing		
Oral discussion, dose calculation, prescription writing	Excellent Corresponds to estimates: A (4,0; 95-100%); A- (3,67; 90-94%)	Actively participates in the work, at the same time showed original thinking, shows a deep knowledge of the material, uses scientific achievements of other disciplines in the discussion. Writes a prescription for drugs in the most appropriate dosage form, depending on age, gender, functional characteristics. Carries out the calculation of doses by various methods and determines the frequency and duration of the use of the drug.
	Good Corresponds to estimates: B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	Participated in the work, showed knowledge of the material, made minor inaccuracies or fundamental errors corrected by the student himself Writes a prescription for a given drug without errors Calculates the dose of the drug.
	Satisfactorily Corresponds to estimates: C (2,0; 65-69%) C- (1,67; 60-64%)	When working in a group, he was passive, made inaccuracies and unprincipled mistakes, and experienced great difficulties in systematizing the material. Writes a prescription using reference books/sources.

	D+ (1,33; 55-59%) D- (1,0; 50-54%)	
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	He did not take part in the work of the group, answering the questions of the teacher, made fundamental mistakes and inaccuracies, did not use scientific terminology when answering. Writes a prescription with errors.
Intermediate certification		
Test exam	Excellent Corresponds to estimates: A (4,0; 95-100%); A- (3,67; 90-94%)	90-100% correct answers.
	Good Corresponds to estimates: B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	70-89% correct answers.
	Satisfactorily Corresponds to estimates C (2,0; 65-69%) C- (1,67; 60-64%) D+ (1,33; 55-59%) D- (1,0; 50-54%)	50-69% correct answers.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	Less than 50% correct answers.

Checklist for evaluating the analysis of scientific articles (elements RBL-research-based learning)

Letter grading system	The Numerical equivalent of points	Total percentage	Evaluation criteria
A	4,0	95 - 100	Choosing a database of scientific literature review resources. Defining targets and tasks. Planning the search and methodology of analysis. Conducting an analysis of scientific articles. The analysis reflects the results of research on the main problems and questions of the topic under study. Obtaining conclusions on the topic. Proposing recommendations for solving the problem. Analyzed at least 5 scientific articles. Use of the literature of the last 5 years in an amount not less than 5-7 sources.
A-	3,67	90 – 94	
B+	3,33	85 - 89	

B	3,0	80 – 84	resources. Target and tasks are defined. Planned search and methodology of analysis. Conducting a complete analysis of scientific articles. The analysis reflects the results of research on the main problems and issues of the topic under study. The conclusions on the topic are consistent with the objectives. Recommendations for solving the problem are offered. Analyzed at least 4 scientific articles. The use of literature of the last 10 years in the amount of at least 5 sources.
B-	2,67	75 - 79	
C+	2,33	70 - 74	
C	2,0	65 - 69	The choice of a database of sources of scientific literature review is not complete. The set target and tasks do not fully disclose the topic under study. The methodology of the analysis is not defined. The analysis does not reflect the results of research on the main problems and the questions of the topic under study. There are conclusions on the topic. Recommendations for solving the problem do not correspond to the topic. Analyzed at least 2-3 scientific articles. Used literature of the last 10 -15 years in an amount not less than 5 resources.
C-	1,67	60 – 64	
D+	1,33	55 – 59	
D	1,0	50 – 54	
FX	0,5	25 – 49	
F	0	0-24	The analysis of scientific articles was not carried out.

Multi-point system of knowledge assessment			
Rating by letter system	Digital equivalent of points	Percentage content	Assessment according to the traditional system
A	4,0	95-100	Excellent
A -	3,67	90-94	
B +	3,33	85-89	Good
B	3,0	80-84	
B -	2,67	75-79	
C +	2,33	70-74	
C	2,0	65-69	Satisfactory
C -	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	
FX	0,5	25-49	Unsatisfactory
F	0	0-24	

11.	Learning resources	
Electronic resources, including, but not limited to: databases, animation simulators, professional blogs, websites, other electronic reference materials (for example: video, audio, digests)	1."Consultant student " (GEOTAR), which represents full access to modern educational literature on all disciplines. A link to access: http://www.studmedlib.ru , login ibragim123, password Libukma123 2. SKMA repository http://lib.ukma.kz/repository/ 3. Republican Interuniversity Electronic Library http://rmebrk.kz/ 4. Digital Library" Akpigress " https://aknurpress.kz/login 5. Database of normative legal acts" Law " https://zan.kz/ru 6. Information System" paragraph Medicine " https://online.zakon.kz/Medicine/ 7.Thomson Reuters (Web of science) www.webofknowledge.com 8.ScienceDirect http://www.sciencedirect.com/ 9.Scopus https://www.scopus.com/	

Electronic textbooks	<p>1. Clinical pharmacology [Electronic resource] : textbook / edited by V. G. Kukes, A. K. Starodubtsev. - 3rd ed., reprint. and an additional Electron.text data. (41.8 Mb). - Moscow : Publishing house of the GEOTAR-Media Group, 2018. - 840 p. e. opt.disc (CD-ROM) .-</p> <p>2. Askorytu agzalary aurularyn pharmacotherapy. [Electronic resource]: Okulyk/ Kerimbayeva Z. A., Ormanov N.Zh., Dzhakipbekova Z.K., Ormanov T.N. Shymkent, 2018zh.</p> <p>3. Maisky, V. V. Pharmacology with a general recipe [Electronic resource] : textbook for medical schools and colleges / V. V. Maisky, R. N. Alyautdin. - 3rd ed., supplement and revision. - Electron.text data. (36.1 MB). - Moscow : Publishing group "GEOTAR- Media", 2016. - 240 p.</p> <p>4. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice master class [Electronic resource] : textbook. - Electron. text data. (63.5 MB). - Moscow : Publishing group "GEOTAR- Media", 2019. - 880 p. e. opt. disc (CD-ROM).</p> <p>5. Doctor's consultant. Clinical pharmacology. Version 1.1 [Electronic resource] : manual. - Electron.text data. (132 MB). - Moscow : Publishing group "GEOTAR- Media", 2019. - e. opt. disk (CD-ROM).</p>
Literature	<p>In Russian:</p> <p>Main:</p> <p>1. Pharmacology: textbook / ed. by R. N. Alyautdin-M: GEOTAR-Media, 2013. -832 +e-mail.</p> <p>2. Kopasova V. N. Pharmacology: textbook.manual/V. N. Kopasova. - M.: Eksmo, 2011. - 352 p.</p> <p>3. Harkevich D. A. Fundamentals of pharmacology: textbook. - M.: GEOTAR-Media, 2015. - 720 p.</p> <p>4. Alyautdin R. N. Pharmacology: textbook. - M.: GEOTAR-Media, 2014. - 704 p. :</p> <p>Additional information:</p> <p>1. Pharmacology of antimicrobial agents: textbook.manual / T. A. Muminov. - Almaty: Letter Print. Kazakhstan, 2016. - 784 p. -</p> <p>2. Mashkovsky M. D. Medicinal products. 16. - e edition. pererab., add. and ispr. M. New Wave. 2017. – 1216 p.</p> <p>3. Pharmacology:guide to laboratory classes: studies. manual / ed. by D. A. Harkevich. - 6th ed., ispr. and add.; Rec. educational and methodological association for medical and pharmaceutical sciences. education of Russian universities. - Moscow: GEOTAR-Media, 2014. - 512 p.</p> <p>4. Fundamentals of pharmacology with a recipe: textbook / M. Z. Shaidarov [et al.]. - Astana: Aknur, 2014. - 406 p.</p> <p>5.Ormanov N. Zh. Pharmacological reference book of medicinal products (classification, nomenclature, mechanism of action and indications for use): textbook.- methodical manual /SKGFA. -; Approved by the Academic Council of the SKGFA. - Almaty: Evero, 2013. - 138 p.</p> <p>In English:</p> <p>Main:</p> <p>1. Katzung , Bertram G.Basic and Clinical Pharmacology [Text] : textbook / Katzung Bertram G. - 14 nd ed. - [S. l.] : McGraw-Hill education, 2018.</p> <p>2. Goodman end Gilman's , A. The Pharmacological Basis of Therapeutics [Text] : textbook / Goodman & Gilman's A. ; editor L. L. Brunton . - 13 nd ed. - New York : McGraw-Hill Education, 2018.</p>
12.	Discipline Policy

1. Be active in practical classes;
2. Be able to work in a team;
3. Have an idea about the topic of the upcoming lecture, be ready for feedback at the lecture;
4. Must perform tasks daily according to the schedule of lectures, practical classes and classes of independent work of students with a teacher and independent work of students
5. In the absence of activity and failure to complete the task, penalties are applied and the score on the practical lesson is reduced;
6. Must participate in discussions, complete individual and group assignments, research, and other resources;
7. Do not miss classes without a good reason;
8. Have a neat appearance;
9. Be active in practical classes;
10. Don't be late for classes;
11. Keep the workplace clean.

At the DL

1.It is recommended that the student has the necessary technical attitude (laptop, smartphone)

2. Have a stable internet connection

3. Pre-installed communication programs, etc.

4. Be able to get in touch during distance learning according to the schedule

5.Timely check the availability of tasks on the Platonus AIS platform

6. Must keep track of the final dates of delivery of tasks;

7. Perform and send completed tasks on time via the Platonus AIS platforms, Mail.ru. Whatsapp in the allotted time period.

If you miss each lecture class, the score of the boundary control is reduced by 1 point, if you miss each class of the SRSP, the score for

The SRO is reduced by 2 points. The rating of admission to the exam consists of the average score of the practical lesson, the SRS, and the boundary control

The final rating of admission to the exam in the subject must be at least 50 points (60%).

13. Academic policy based on the moral and ethical values of the Academy

Academic policy based on the moral and ethical values of the Academy

Understanding the importance of the principles and culture of academic integrity that express the integrity of the student when performing written work, answering exams, in research, expressing their position, in relationships with teachers, students and administration.

Final control

The final score is calculated automatically based on the average score of the current control, the average score of the boundary controls, and the score of the final control:

Final score (100 %) = Admission rating (60 %) + Final control

(40 %)

Admission rating (60 %) = Average score of boundary controls (20 %) + Average score of current controls (40 %)

Average score of boundary controls =

Boundary control 1 + Boundary control 2

Average score of the current control = the arithmetic average of the current scores, taking into account the average score on the SIW, incentive and penalty points

Final score (100%) = RC cp x 0.2+Dac x 0.4+IG x 0.4

Rsr-average score of boundary controls

Tsr - average rating of the current control

IR-evaluation of the final control



14. Approval and revision			
Date of approval	Protocol No. <u>10</u> <u>15.05.23y</u>	Full name of the head	Signature
		Associated professor Toxanbayeva Zh.S.	
Date of approval <u>05.06.2023</u>	Protocol No. <u>11</u>	Full name of the Chairman of the KOP Sadykova A.Sh.	Signature
Date of approval	Protocol No. _____	Full name of the head	Signature
		Associated professor Toxanbayeva Zh.S.	