

Course Outline for Seminar-Based Classes
in the Discipline of Clinical Pharmacology for the Students Enrolled in 2022
Program: 33.05.01 Pharmacy (Specialist Degree, Full-Time Study)
Academic Year 2025–2026

№	Thematic blocks	Practical training within the framework of the thematic block	Hours (academic)
7th semester			
1.	General issues of clinical pharmacology. ¹ The subject and objectives of clinical pharmacology. Sections of clinical pharmacology: clinical pharmacokinetics, pharmacodynamics, pharmacogenetics, pharmacoeconomics, pharmacoepidemiology. ²	-	4
2.	The subject and objectives of clinical pharmacology. ¹ Classification of diseases (ICD). Classification of drugs. The concept of pharmacotherapy. Clinical and pharmacological algorithm of drug selection. Types of pharmacotherapy (etiologic, pathogenetic, symptomatic, preventive). Principles of rational pharmacotherapy, pharmaceutical formulary, standards, clinical recommendations ²	-	4
3.	Basic concepts of pharmacodynamics. ¹ Mechanisms of action of drugs, pharmacological targets (receptors, enzymes, ion channels). ²	-	4
4.	Clinical pharmacokinetics. ¹ The main pharmacokinetic parameters and their clinical significance. Pharmacokinetic curve, bioavailability, routes of administration and especially absorption of drugs. ²	-	4
5.	The subject and objectives of clinical pharmacology. ¹ Original drugs, generics. Equivalent replacement of medicines. Evaluation of the effectiveness and safety of drugs. ²	-	4
6.	The subject and objectives of clinical pharmacology. ¹ Clinical drug research: phases of clinical research, the concept of GCP, ethical and legal norms of clinical research, participants in clinical trials. Evidence-based medicine: principles, levels of recommendation, classes of evidence. ²	-	4
7.	The subject and objectives of clinical pharmacology. ¹ Sources of information about the drug: meta-analysis, randomized clinical trials, reference books, electronic databases, online resources, etc. The importance of evidence-based medicine in clinical practice. ²	-	4
8.	Drug interactions. ¹ Types and classifications of drug interactions. Pharmaceutical interaction, the concept of drug compatibility. Pharmacokinetic interaction at the levels of absorption, distribution, metabolism and excretion of drugs. Pharmacodynamic interaction. Selection of safe and effective drug therapy, taking into account the pharmacokinetic features of drug interaction. ²	-	4
9.	Adverse drug reactions. ¹ The concept of a non-fatal reaction when using drugs, classification of undesirable effects of drugs: severe, serious, teratogenic, toxic, and other effects of medicinal products. Registration of adverse drug reactions and filling out a notification card. The Russian far surveillance system. Risk factors for the development of undesirable drug reactions. ²	-	4

10.	Clinical and pharmacological approaches to the selection and use of drugs for diseases of the cardiovascular system. Clinical pharmacology of drugs used for arterial hypertension. ¹ Principles of evidence-based pharmacotherapy. Clinical and pharmacological approaches to the choice of drugs for hypertension and hypertensive crises, taking into account the individual characteristics of the patient, pharmacokinetics, pharmacodynamics, treatment standards. ²	-	4
11.	Clinical and pharmacological approaches to the selection and use of drugs for diseases of the cardiovascular system. Clinical pharmacology of drugs used for arterial hypertension. ¹ Clinical pharmacology of antihypertensive drugs. Possible drug interactions when prescribed in combination and in combination with drugs from other groups. ²	-	4
12.	Clinical pharmacology of drugs for the treatment of chronic heart failure. ¹ Classification of chronic heart failure. Symptoms and signs. Principles of treatment based on evidence-based medicine. The main, additional and auxiliary groups of drugs for the treatment of CHF with a reduced left ventricular ejection fraction. Clinical and pharmacological approaches to the selection of drugs for the treatment of CHF. ²	-	4
13.	Clinical pharmacology of drugs used for the treatment of coronary heart disease. ¹ Classification of coronary heart disease, symptoms, clinical manifestations, principles of pharmacotherapy. Clinical and pharmacological approaches to drug selection, taking into account individual characteristics of pharmacokinetics, pharmacodynamics, evidence-based medicine, and treatment standards. ²	-	4
14.	Clinical pharmacology of antiarrhythmic drugs. ¹ The main types of arrhythmias. Clinical and pharmacological approaches to drug selection for common rhythm disorders (supraventricular tachycardia, atrial fibrillation) methods for evaluating efficacy and safety. Possible drug interactions. ²	-	4
15.	Clinical pharmacology of antiarrhythmic drugs. ¹ Clinical pharmacology of antiarrhythmic drugs: IA class, IB class, IC class, II class, III class, IV class, V class, etc. ²	-	4
16.	Clinical pharmacology of drugs affecting hemostasis. ¹ Clinical and pharmacological approaches to the selection of antithrombotic drugs for the treatment of various forms of coronary heart disease, treatment and prevention of thrombosis and thromboembolism, etc. Dosage regimens. Side effects, prevention. Possible combinations and interactions with other drugs. ²	-	4
17.	Clinical pharmacology of drugs affecting hemostasis. ¹ Hemostatics. Clinical pharmacology of antithrombotic drugs fibrinolytics, anticoagulants, antiplatelet agents. ²	-	4
Total			68 часов
8th semester			
1.	Clinical pharmacology of drugs for the treatment of metabolic syndrome. ¹ Definition of metabolic syndrome. Classification of obesity. Basic principles of treatment. Assessment of metabolic and hemodynamic disorders for the choice of therapy volume. Classification and types of dyslipidemia. ²	-	4

2.	Clinical pharmacology of drugs for the treatment of metabolic syndrome. ¹ Hypolipidemic drugs: statins (simvastatin, atorvastatin), fibrates (fenofibrate), omega-3 polyunsaturated fatty acids, etc. Clinical and pharmacological approaches to the choice of pharmacotherapy for dyslipidemia. Combination and drug interactions with drugs of other classes. ²	-	4
3.	Clinical pharmacology of drugs for the treatment of common endocrine diseases. ¹ Drugs for the treatment of diabetes mellitus (insulins, oral hypoglycemic drugs - sulfonylureas, biguanides, nonglitinides, thiazolidinediones, alpha-glucosidase inhibitors). Symptoms and principles of pharmacotherapy of diabetes mellitus. ²	-	4
4.	Clinical pharmacology of drugs for the treatment of common endocrine diseases. ¹ New drugs for the treatment of diabetes. ²	-	4
5.	Clinical pharmacology of anti-inflammatory drugs. ¹ Clinical pharmacology of nonsteroidal anti-inflammatory drugs. ²	-	4
6.	Clinical pharmacology of anti-inflammatory drugs. ¹ Clinical pharmacology of steroid anti-inflammatory drugs. Clinical and pharmacological approaches to the selection and use of drugs for rheumatic diseases. Principles of choosing routes of administration and dosage regimen depending on the location of the inflammatory process. Prevention of adverse drug reactions. ²	-	4
7.	Clinical pharmacology of antianemic drugs. ¹ Classification of anemia. Clinical manifestations, symptoms, and syndromes of blood diseases. Clinical and pharmacological approaches to the selection and use of drugs for the treatment of various types of anemia. ²	-	4
8.	Clinical pharmacology of vitamins. ¹ Clinical pharmacology. Vitamin preparations, water-soluble vitamins, fat-soluble vitamins. Place in the pharmacotherapy, indications for use, clinical and pharmacological approaches to selection and application. ²	-	4
9.	Clinical pharmacology of drugs used to treat diseases of the central nervous system. ¹ Clinical pharmacology of antidepressants, anticonvulsants, and hypnotic drugs. ²	-	4
10.	Clinical pharmacology of the main classes of antibacterial drugs. ¹ Principles of rational antibiotic therapy. Antibiotic prevention. Antibiotics for outpatient practice. Combination of antibiotics and interactions. ²	-	4
11.	Clinical pharmacology of the main classes of antibacterial drugs. ¹ Classification, indications, and contraindications for the use of beta-lactam antibiotics, macrolides, and fluoroquinolones. ²	-	4
12.	Clinical pharmacology of the main classes of antibacterial drugs. ¹ Classification, indications, contraindications to the use of tetracyclines, aminoglycosides, metronidazole, and co-trimoxazole. ²	-	4
13.	Clinical pharmacology of antifungal drugs. ¹ Clinical pharmacology of drugs: azole derivatives, allylamines, polyene antimycotics, echinocandins. Selection of antifungal agents, indications, contraindications, adverse events, principles of application of antimycotics for the treatment of fungal infections, efficacy and safety. ²	-	4
14.	Clinical pharmacology of the main classes of antiviral chemotherapy drugs. ¹ Clinical pharmacology of antiviral drugs. Indications, contraindications, pharmacokinetics, evaluation of efficacy and	-	4

	safety of use, combinations and interactions. ²		
15.	Clinical pharmacology of drugs used for hypersecretory diseases of the gastrointestinal tract. ¹ Clinical pharmacology of drugs affecting the organs of the digestive system. ²	-	4
16.	Clinical pharmacology of drugs used in liver diseases. ¹ Clinical and pharmacological approaches to the selection of medicines for liver diseases. ²	-	4
17.	A clinical and pharmacological approach to the selection and use of drugs for the treatment of bronchoobstructive syndrome in bronchial asthma. ¹ Clinical pharmacology of drugs affecting bronchial patency. ²	-	4
18.	A clinical and pharmacological approach to the selection and use of drugs for the treatment of chronic obstructive pulmonary disease. ¹ The main symptoms and syndromes of chronic obstructive pulmonary disease. Clinical and pharmacological approaches to the choice of pharmacotherapy. Clinical pharmacology of drugs affecting bronchial patency. ²	-	4
Total			72

¹ – topic

² – essential content

Reviewed at the meeting of the Department of Clinical Pharmacology and Intensive Care, Protocol No. 11 dated May 26, 2025.

Head of the Department



V.I.Petrov