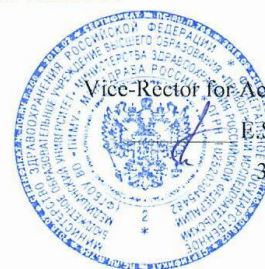


Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation



APPROVED

Vice-Rector for Academic Affairs

E.S. Bogomolova

31 August 2021

WORKING PROGRAM

Name of the academic discipline: **CLINICAL PHARMACOLOGY WITH BASICS OF PHARMACOTHERAPY**

Specialty: **33.05.01 PHARMACY**

Qualification: **PHARMACIST**

Department: **GENERAL AND CLINICAL PHARMACOLOGY**

Mode of study: **FULL-TIME**

Labor intensity of the academic discipline: **324 academic hours**

Nizhny Novgorod
2021

The working program has been developed in accordance with the Federal State Educational Standard for the 33.05.01 Pharmacy, approved by Order No. 219 of the Ministry of Education and Science of the Russian Federation dated March 27, 2018 (registered with the Ministry of Justice of the Russian Federation on 16.04.2018 No. 50789).

Developers of the working program:

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Reviewers:

1. Professor of the Department of Pharmacology and Clinical Pharmacology with a Course in Pharmaceutical Technology at the Ogarev National Research Mordovian State University of the Ministry of Science and Higher Education of the Russian Federation, Doctor of Medical Sciences, Professor
A. V. Siprov.
2. Head of the Department of Propaedeutics of Internal Diseases of the Federal State Budgetary Educational Institution of Higher Education "PIMU" of the Ministry of Health of the Russian Federation, Doctor of Medical Sciences, Associate Professor E. V. Makarova.

The program was reviewed and approved at the meeting of the Department (Minutes No. 7 of 09.06.2021)

Head of the Department of General and Clinical Pharmacology,
Doctor of Medical Sciences, Associate Professor  L. V. Lovtsova
09 June 2021

AGREED

Deputy Head of EMA ph.d. of biology  Lovtsova L.V.
09 June 2021

1. The purpose and objectives of mastering the academic discipline clinical pharmacology (hereinafter – the discipline):

1.1. The purpose of mastering the discipline: (*participation in forming the relevant competencies*).

1.2. Tasks of the discipline:

based on the knowledge of pharmacodynamics, pharmacokinetics, drug interactions, their undesirable effects, taking into account the identified nosological forms of diseases, concomitant conditions and anatomical and physiological characteristics of the body, to form clinical and pharmacological methods of effective and safe use, development of methods for effective and safe use of medicines.

1.3. Requirements to the deliverables of mastering the discipline

As a result of completing the discipline, the student should

Know:

- principles of clinical and pharmacological approaches to the choice of medicines for the pharmacotherapy of major diseases based on current clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine;
- the main pharmacokinetic parameters of drugs in healthy individuals and in various pathologies, their features in the elderly, pregnant, nursing mothers and newborns;
- basic principles of conducting pharmacokinetic studies and monitoring the concentration of drugs;
- features of dosage of medicines depending on the age, nature of the disease and other factors;
- the main types of drug interaction (pharmaceutical, pharmacokinetic and pharmacodynamic), drugs-inducers and drugs - inhibitors of liver enzyme systems;
- methods for evaluating the effectiveness and safety of medicines;
- undesirable drug reactions, methods of their prevention and correction;
- methods of pharmaco-economic research.

Be able to:

- identify groups of drugs for the treatment of a particular disease, based on the mechanism of action of drugs, the state of the body and the predicted impact of the planned pharmacotherapy on it, based on current Clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine;
- analyze the rationality of choosing a specific drug in the group of analogues for the treatment of the main symptom complexes of various diseases according to the criteria of effectiveness and safety;
- choose methods for monitoring the effectiveness and safety of the use of medicines and assume the possible risk of developing undesirable drug reactions;
- apply methods of pharmaco-economic research.

Possess:

- methods for evaluating the clinical efficacy and safety of drugs;
- skills to explain to consumers of medicines the methods of their administration, including when used in combination;
- skills in providing recommendations to consumers of medicines on the prevention of their side effects;
- skills to inform healthcare professionals and consumers about pharmacodynamics, pharmacokinetic features, interactions and side effects of medicines;
- skills of compliance with the rules of medical and pharmaceutical ethics and deontology in relations with medical professionals and consumers of medicines.
- methods of pharmaco-economic studies and monitoring the concentration of medicines.

2. Position of the academic discipline in the structure of the General Educational

Program of Higher Education (GEP HE) of the organization.

2.1. The discipline clinical pharmacology refers to the core part (or *the part formed by the participants of educational relations*) of Block 1(B1. O. 22) of GEP HE (Academic discipline index).

The discipline is taught in __8 and 9__ semesters/ __4-5_ year of study.

2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:

- *Latin language*
- *Biology*
- *Chemistry (general and inorganic, physical and colloidal, analytical, organic, biological)*
- *Pharmacology*
- *Physiology with basic anatomy*
- *Microbiology*
- *Pathology*

2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:

- *Pharmaceutical technology*
- *Toxicological chemistry*
- *Pharmacy management and Economics*

3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following universal (UC) or/and general professional (GPC) or/and professional (PC) competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	UC-1	able to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of actions	IUC 1.4. Develops and substantiates a strategy for solving a problem situation on the basis of systemic and interdisciplinary approaches.	<ul style="list-style-type: none"> - principles of clinical and pharmacological approaches to the choice of medicines for the pharmacotherapy of major diseases based on current Clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine; - basic pharmacokinetic parameters of drugs in healthy individuals and in various pathologies, their features in the elderly, pregnant, nursing mothers and newborns; - basic principles of pharmacokinetic studies and monitoring of drug concentration; - features of drug dosage depending on age, the nature of the disease and other factors; - the main types of drug interaction (pharmaceutical, pharmacokinetic and pharmacodynamic), drugs- 	<ul style="list-style-type: none"> - to identify groups of drugs for the treatment of a particular disease, based on the mechanism of action of drugs, the state of the body and the predicted impact of planned pharmacotherapy on it, based on current Clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine- - analyze the rationality of choosing a specific drug in the group of analogues for the treatment of the main symptom complexes of various diseases according to the criteria of effectiveness and safety; - choose methods for monitoring the effectiveness and safety of drug use and assume the possible risk of developing 	<ul style="list-style-type: none"> - methods for evaluating the clinical effectiveness and safety of drugs; - skills in explaining to drug users how to take them, including when used in combination; - skills in providing recommendations to drug users on the prevention of their side effects; - skills of informing medical professionals and consumers about pharmacodynamics, pharmacokinetic features, interactions and side effects of drugs; -skills of compliance with the rules of medical, pharmaceutical ethics and deontology in relations with

				<p>inducers and drugs - inhibitors of liver enzyme systems;</p> <ul style="list-style-type: none"> - methods for evaluating the effectiveness and safety of drugs; - undesirable drug reactions, methods of their prevention and correction; - methods of pharmaco-economic research 	<p>undesirable drug reactions;</p> <ul style="list-style-type: none"> - apply pharmaco-economic research methods 	<p>medical professionals and drug users</p>
2.	GPC-2	<p>able to apply knowledge about morphofunctional features, physiological conditions and pathological processes in the human body to solve professional tasks</p>	<p>IGPC 2.1. Analyzes the pharmacokinetics and pharmacodynamics of a drug based on knowledge about morphofunctional features, physiological conditions and pathological processes in the human body</p> <p>IGPC 2.2. Explains the main and side effects of drugs, taking into account morphofunctional features, physiological conditions and pathological processes in the human body</p> <p>IGPC -2.3. Takes into account morphofunctional features, physiological</p>	<p>-principles of clinical and pharmacological approaches to the choice of medicines drugs for the pharmacotherapy of major diseases based on current Clinical Guidelines and treatment standards, taking into account the principles of evidence-based medicine;</p> <ul style="list-style-type: none"> - basic pharmacokinetic parameters of drugs in healthy individuals and in various pathologies, their features in the elderly, pregnant, nursing mothers and newborns; - basic principles of pharmacokinetic studies and monitoring of drug concentration; - features of drug dosage depending on age, the nature of the disease and other factors; - the main types of drug interaction (pharmaceutical, pharmacokinetic and 	<p>- to identify groups of drugs for the treatment of a particular disease, based on the mechanism of action of drugs, the state of the body and the predicted impact of planned pharmacotherapy on it, based on current Clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine-</p> <p>analyze the rationality of choosing a specific drug in the group of analogues for the treatment of the main symptom complexes of various diseases according to the criteria of effectiveness and safety;</p> <ul style="list-style-type: none"> - choose methods for monitoring the effectiveness and safety of drug use and assume the 	<ul style="list-style-type: none"> - methods for evaluating the clinical effectiveness and safety of drugs; - skills in explaining to drug users how to take them, including when used in combination; - skills in providing recommendations to drug users on the prevention of their side effects; - skills of informing medical professionals and consumers about pharmacodynamics, pharmacokinetic features, interactions and side effects of drugs; - skills of compliance with the rules of medical, pharmaceutical ethics and deontology

			conditions and pathological processes in the human body when choosing over-the-counter medications	pharmacodynamic), drugs-inducers and drugs - inhibitors of liver enzyme systems; - methods for evaluating the effectiveness and safety of drugs; - undesirable drug reactions, methods of their prevention and correction; - methods of pharmacoeconomic research	possible risk of developing undesirable drug reactions; - apply pharmacoeconomic research methods	in relations with medical professionals and drug users
3.	PC-3	<u>capable of providing pharmaceutical information and consulting during the release and sale of medicinal products for medical use</u>	IPC-3.1. Provides information and consulting assistance to visitors of a pharmacy organization when choosing medicines IPC-3.2. Informs medical professionals about medicines, their synonyms and analogues, possible side effects IPC-3.3. Takes a decision on the replacement of the prescribed medicinal product with synonymous or analogous drugs in the prescribed manner based on information about groups of medicinal products and synonyms	-principles of clinical and pharmacological approaches to the choice of medicines for pharmacotherapy of major diseases based on current Clinical Recommendations and treatment standards, taking into account the principles of evidence-based medicine; - basic pharmacokinetic parameters of drugs in healthy individuals and in various pathologies, their features in the elderly, pregnant, nursing mothers and newborns; - basic principles of pharmacokinetic studies and monitoring of drug concentration; - features of drug dosage depending on age, the nature of the disease and other factors; - the main types of drug interaction (pharmaceutical,	- to identify groups of drugs for the treatment of a particular disease, based on the mechanism of action of drugs, the state of the body and the predicted impact of planned pharmacotherapy on it, based on current Clinical recommendations and treatment standards, taking into account the principles of evidence-based medicine- analyze the rationality of choosing a specific drug in the group of analogues for the treatment of the main symptom complexes of various diseases according to the criteria of effectiveness and safety; - choose methods for monitoring the effectiveness and safety of	- methods for evaluating the clinical effectiveness and safety of drugs; - skills in explaining to drug users how to take them, including when used in combination; - skills in providing recommendations to drug users on the prevention of their side effects; - skills of informing medical professionals and consumers about pharmacodynamics, pharmacokinetics, interactions and side effects of drugs; - skills of compliance with the rules of medical, pharmaceutical ethics and deontology

			within the same international non-patent name	pharmacokinetic and pharmacodynamic), drugs-inducers and drugs - inhibitors of liver enzyme systems; - methods for evaluating the effectiveness and safety of drugs; - undesirable drug reactions, methods of their prevention and correction; - methods of pharmacoeconomic research	drug use and assume the possible risk of developing undesirable drug reactions; - apply pharmacoeconomic research methods	in relations with medical professionals and drug users
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4. Sections of the academic discipline and competencies that are formed when mastering them

№	Competence code	Section name of the discipline	The content of the section in teaching units
1	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	General issues of clinical pharmacology and pharmacotherapy	Purpose and objectives of the discipline Clinical Pharmacology (CPh). Basic concepts: pharmacodynamics (PD), pharmacokinetics (PK), pharmacotherapy (FT), etc. Clinical pharmacokinetics. The role of drug transporters in pharmacokinetic processes. Drug absorption. Distribution of drugs in the body. Drug metabolism. Elimination of drugs from the body. Basic pharmacokinetic parameters. Pharmacodynamics. Relationship between pharmacokinetics and pharmacodynamics. Clinical application of pharmacokinetic parameters. Therapeutic drug monitoring. Adverse drug reactions (ADR). Terminology of drug side effects. Epidemiology of ADR. Classification of ADR. Toxic effects. ADR caused by the pharmacological properties of drugs. Allergic reactions. Pseudoallergic reactions.

			<p>Idiosyncrasy. Drug addiction. ADR diagnostics. Prevention and treatment of ADR. Methods for monitoring side effects. Interaction of the personal account. Types of drug interaction. Pharmacokinetic interaction of drugs. Pharmacodynamic interaction of drugs. Interaction of drugs with food, tobacco, herbal medicines, and ethanol. Risk factors for drug interaction.</p> <p>Features of CPH in pregnant women, nursing mothers, newborns, and the elderly.</p> <p>Clinical and pharmacological technologies of personalized medicine. Pharmacogenetic testing.</p> <p>Pharmacoeconomics and pharmacoepidemiology.</p> <p>Clinical studies of drugs. Evidence-based medicine.</p> <p>Fundamentals of rational pharmacotherapy . Types, goals and objectives, and stages of RFT. Pharmacological history. Choice of medication and dosage regimen. The concept of a pharmacological test. Titration of the drug dose. Monitoring the effectiveness and safety of pharmacotherapy. Patient's adherence to treatment. Features of pharmacotherapy of urgent conditions. Features of long-term pharmacotherapy. Errors in evaluating the effect of the drug. Drug withdrawal. Combined use of medicines.</p>
2	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of antimicrobial drugs</p>	<p>Features and principles of prescribing antimicrobial drugs. Classification of antimicrobial drugs. Mechanisms of action. Mechanisms of formation of resistance of microorganisms to antibiotics. Principles of differentiated prescribing of antimicrobial drugs. spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>beta-lactam antibiotics-indications for use, comparative characteristics of drugs:</p> <ul style="list-style-type: none"> - penicillins;

			<ul style="list-style-type: none"> - cephalosporins; - carbapenems; - monobactams. <p>Aminoglycosides - indications for use, comparative characteristics of drugs.</p> <p>Macrolides - indications for use, comparative characteristics of drugs.</p> <p>Lincosamides - indications for use, comparative characteristics of drugs.</p> <p>Tetracyclines - indications for use, comparative characteristics of drugs.</p> <p>Chloramphenicol group - indications for use, comparative characteristics of drugs.</p> <p>Group of polypeptides - indications for use, comparative characteristics of drugs.</p> <p>Rifamycin group - indications for use, comparative characteristics of drugs.</p> <p>Polymyxin group - indications for use, comparative characteristics of drugs.</p> <p>Group of phosphonic acid derivatives-indications for use, characteristics.</p> <p>Features and principles of prescribing synthetic antimicrobials. Classifications. Mechanisms of action. Pharmacokinetic characteristics. Spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Quinolones of 1-4 generations, indications for use, comparative characteristics of drugs.</p> <p>Nitrofurans - indications for use, comparative characteristics of drugs.</p> <p>Nitroimidazoles-indications for use, comparative characteristics of drugs.</p>
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			<p>Quinoxalins - indications for use, comparative characteristics of drugs.</p> <p>Sulfonamide presentations.</p> <p>Features and principles of prescribing anti-tuberculosis drugs. Classifications. Mechanisms of action. Pharmacokinetic characteristics. Spectrum and contraindications to use. ADR. Interaction with other drugs . Monitoring the effectiveness and safety of pharmacotherapy.</p>
3	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of antiviral and antifungal drugs</p>	<p>Features and principles of prescribing antiviral drugs. Classifications. Mechanisms of action. Spectrum and contraindications to use. ADR. Interaction with other drugs . Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Antiherpetic drugs, indications for use, comparative characteristics of drugs.</p> <p>Anti-cytomegalovirus drugs, indications for use, comparative characteristics of drugs.</p> <p>Anti-influenza drugs, indications for use, comparative characteristics of drugs.</p> <p>Features and principles of prescribing antifungal drugs. Classifications. Mechanisms of action. Spectrum and contraindications to use. ADR. Interaction with other drugs . Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Polyenes, comparative characteristics of drugs, indications for use.</p> <p>Imidazoles, indications for use, comparative characteristics of drugs.</p> <p>Triazoles, indications for use, comparative characteristics.</p> <p>Allylamines, indications for use, comparative characteristics.</p> <p>Other antifungal drugs, indications for use, comparative characteristics of drugs.</p>

4	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of psychotropic drugs</p>	<p>Features and principles of prescribing psychotropic drugs. Classifications. Mechanisms of action. Pharmacokinetic characteristics. Principles of differentiated assignment. ADR. Side effects. Interaction with other DRUGS . Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Neuroleptics</p> <ul style="list-style-type: none"> -typical (derivatives of phenothiazine, thioxanthene, diphenylbutylpiperidine, indole, rauwolfia, etc.) - atypical (benzamides, derivatives of benzothiazepine, benzisoxazole, etc.) <p>Tranquilizers</p> <ul style="list-style-type: none"> -derivatives of propanediol, benzodiazepine, oxazine, quinuclidine, diphenylmethane, GABA, famatisol, hydroxyzine. <p>Sedatives</p> <ul style="list-style-type: none"> - bromine presentations, medicinal plants, combined. <p>Features and principles of prescribing psychotropic drugs of stimulating action. Classifications. Comparative characteristics of the mechanisms of action, pharmacokinetics, and side effects. interactions with other drugs. Principles of differentiated assignment. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Nootropics: derivatives of pyrrolidone, diaphenylpyrrolidone, dimethylaminoethanol, pyridoxine; derivatives and analogues of GABA, neuropeptides and their analogues, amino acids and substances affecting the system of excitatory amino acids, derivatives of 2-mercantobenzimidazole, vitamin-like agents, polypeptides and organic composites, etc.</p> <p>Antidepressants</p> <p>Agents that block the neuronal uptake of monoamines:</p> <ul style="list-style-type: none"> - Non-selective action, blocking the neuronal uptake of serotonin and norepinephrine;
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			<p>- Selective action Blocking the neuronal uptake of serotonin Blocking the neuronal uptake of norepinephrine Monoamine oxidase inhibitors-Non-selective action, inhibiting MAO-A and MAO-B -Selective action, inhibiting MAO-A. Monoamine receptor agonists (atypical) Antidepressants with secondary symptoms: sedative antidepressants, balanced-acting antidepressants, and stimulant antidepressants. Psychostimulants: derivatives of methylxanthines, phenylalkylsidnonymine, phenylalkylpiperidine, phenylalkylamine, benzimidazole.</p>
5	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of analgesic drugs</p>	<p>Features and principles of prescribing analgesic drugs. Classification of drugs. Comparative characteristics (mechanisms of action, pharmacokinetics, ADR, interactions with other drugs). Principles of differentiated assignment. Monitoring the effectiveness and safety of pharmacotherapy. Opioid (narcotic) analgesics and their antagonists Non-opioid drugs of central action with analgesic activity Comparative characteristics of painkillers used for various types of pain.</p>
6	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of anti-inflammatory drugs</p>	<p>CPH nonsteroidal anti-inflammatory drugs (NSAIDs) (scope of application, significance in modern practice, features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy). Classification of NSAIDs by chemical structure and mechanism of action. Mechanism of action of NSAIDs. The main pharmacological effects of NSAIDs. Indications for use of NSAIDs.</p>

			<p>Comparative characteristics of drugs. Features, including age-related, pharmacokinetics. Indications and contraindications for use. ADR, due to the peculiarities of pharmacodynamics and pharmacokinetics of NSAIDs (Reye and Vidal syndrome, etc.). Interaction with other drugs. Evaluation of efficacy and safety in pharmacotherapy.</p> <p>Basic, slow-acting anti-inflammatory drugs (meaning in modern practice, features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy). Classification. Comparative characteristics of corticosteroids: natural (cortisone, hydrocortisone), semi-synthetic (prednisone, methylprednisolone), synthetic (triamcinolone, dexamethasone, etc.). Types of corticosteroid therapy.</p>
7	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of medicinal products used in diseases of the respiratory</p>	<p>system Management tactics of patients with impaired bronchial patency in accordance with the current national Clinical guidelines. Routes of delivery of drugs that affect bronchial patency (aerosol inhaler, nebulizer, spacer, turbohaler, etc.).</p> <p>CPH drugs that affect bronchial patency. CPH of individual groups of drugs (classification, FD and FC by groups, comparative characteristics of drugs; indications and contraindications for use; ADR; interaction with other drugs; dosage features for different pathological conditions; monitoring the effectiveness and safety of pharmacotherapy):</p> <ul style="list-style-type: none"> beta-adrenostimulants, M-holinoblockers, phosphodiesterase inhibitors, Antileukotriene drugs. Mast cell membrane stabilizers. <p>CPH of drugs that affect inflammation in the respiratory tract (comparative characteristics of drugs; indications and</p>

			<p>contraindications for use; ADR; interaction with other drugs; monitoring the effectiveness and safety of pharmacotherapy):</p> <p>Inhaled glucocorticoids, Monoclonal antibodies to IgE, Phosphodiesterase IV inhibitors. Expectorant and antitussive drugs.</p>
8	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of medicinal products used in diseases of the digestive</p>	<p>system CPH drugs used in diseases of the digestive system. Features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>drugs that reduce the activity of acid-peptic factor, Gastroprotectors, Antiemetic drugs, Enzyme presentations, Choleretic, hepatoprotective, cholelitholytic drugs, proteolysis inhibitors, drugs used for diarrhea, Laxatives Drugs, Prokinetics, drugs used for intestinal dysbiosis.</p>
9	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of drugs used in diseases of the cardiovascular system</p>	<p>CPH drugs that lower vascular tone. Features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>Agonists of central α_2-adrenergic receptors and I1-imidazoline receptors, Sympatholytics, Ganglion blockers, α-adrenoblockers, β-adrenoblockers, Venous vasodilators, slow calcium channel blockers,</p>

		<p>mixed-action vasodilators (sodium nitroprusside), Arterial vasodilators, angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, Inhibitors of sinus node If channels.</p> <p>CPH of medicines that increase vascular tone.</p> <p>CPH of antiarrhythmic drugs. The main goals of antiarrhythmic treatment. General characteristics and classification of antiarrhythmic drugs. Mechanisms of action of antiarrhythmic drugs. ADR. CPH of individual antiarrhythmic drugs. Monitoring the effectiveness and safety of pharmacotherapy. Principles of choosing antiarrhythmic drugs and treating some of the most common arrhythmias.</p> <p>CPH of inotropic drugs. Features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>Cardiac glycosides, adrenergic receptor agonists, phosphodiesterase inhibitors, Drugs that increase the sensitivity of contractile proteins to calcium (calcium sensitizers).</p> <p>CPH of diuretics (diuretics). Features of FD and FC, indications and contraindications for use, ADR, interactions with other drugs:</p> <p>Carbonic anhydrase inhibitors, Osmotic diuretics, Loop diuretics, Thiazide and thiazide-like diuretics, Aldosterone antagonists, potassium-sparing diuretics.</p> <p>Choosing a diuretic. Monitoring of efficiency and safety. Principles of substitution therapy for hypokalemia.</p>
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10	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Clinical pharmacology of drugs used in the treatment of anemia	Main symptoms and syndromes. Principles of clinical and pharmacological approach to the choice of drugs for the treatment of anemia. Classification of drugs. Comparative characteristics (mechanisms of action, pharmacokinetics, side effects, interactions with other drugs). Principles of differentiated assignment. Monitoring the effectiveness and safety of pharmacotherapy: CPH of iron presentations. CPH of vitaminB12 presentations. CPH of folic acid presentations.
11	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Clinical pharmacology of drugs affecting the hemostatic system	Fundamentals of etiology and pathogenesis, main symptoms and syndromes in blood clotting disorders. Classification, features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, principles of clinical and pharmacological approach to the choice of drugs, monitoring the effectiveness and safety of pharmacotherapy: Direct -acting anticoagulants, indirect -acting anticoagulants, direct-acting procoagulants, indirect-acting procoagulants, Fibrinolytics-plasminogen activators, fibrinolysis inhibitors, Antiplatelet agents, thromboplastin formation activators, drugs used for hemophilia and lack of blood clotting factors.
12	UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)	Clinical pharmacology of drugs affecting immune processes	Principles of a clinical and pharmacological approach to the selection of drugs affecting immune processes. Classification of drugs. Comparative characteristics (mechanisms of action, pharmacokinetics, ADR, interactions with other drugs). Principles of differentiated assignment. Monitoring the effectiveness and safety of pharmacotherapy:

			<p>CPH drugs for the treatment of allergic diseases: EC of H1-histamine receptor blockers. CPH of mast cell membrane stabilizers. CPH of corticosteroids in intranasal form. CPH of decongestants. CPH of M-cholinoblocators.</p> <p>Immunomodulators (microbial origin, thymic, bone marrow, cytokines, nucleic acids, plant origin).</p>
13	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of drugs used in skin-allergic diseases</p>	<p>Main symptoms and syndromes in skin and allergic diseases (dermatitis, eczema, psoriasis, non-specific infections of the skin and soft tissues). Principles of clinical and pharmacological approach to the choice of drugs for treatment. Classification of drugs. Comparative characteristics (mechanisms of action, pharmacokinetics, ADR, interactions with other drugs). Principles of differentiated assignment. Monitoring the effectiveness and safety of pharmacotherapy.</p>
14	<p>UC-1 (IUC-1.4), GPC-2 (IGPC-2.1, IGPC-2.2, IGPC-2.3), PC-3 (IPC-3.1, IPC-3.2, IPC-3.3)</p>	<p>Clinical pharmacology of drugs that affect the hormonal regulation</p>	<p>of CPH drugs that affect the hormonal regulation. Classification, pharmacodynamics and pharmacokinetics, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy.</p> <p>CPH of hypoglycemic drugs. CPH of insulin presentations. EC of oral hypoglycemic agents: sulfonylureas, biguanides, glinides, thiazolidinedione derivatives, alpha-glycosidase inhibitors, incretins. CPH of glucocorticoid presentations. CPH of drugs that affect thyroid function: CPH of thyroid hormones CPH of antithyroid drugs.</p>

5. Volume of the academic discipline and types of academic work

Type of educational work	Labor intensity		Labor intensity (AH) in semesters	
	volume in credit units (CU)	volume in academic hours (AH)	8	9
Classroom work, including	4.8	174	112	62
Lectures (L)	0.9	34	22	12
Laboratory practicum (LP)*	does not provide			
Practical exercises (P)	3,9	140	90	50
Seminars (S)	does not provide			
Student's individual work (SIW)	3,2	114	68	46
Mid-term assessment exam	1	36	-	36
TOTAL LABOR INTENSITY	9	324	180	144

6. Content of the academic discipline

6.1. Sections of the discipline and types of academic work

№	Name of the section of the academic discipline	Types of academic work* (in AH)					
		L	LP	P	S	SIW	total
1.	General issues of clinical pharmacology and pharmacotherapy	8	-	20		10	38
2.	Clinical pharmacology of antimicrobial drugs	2	-	20		15	37
3.	Clinical pharmacology of antiviral and antifungal drugs	2	-	10		11	23
4.	Clinical pharmacology of psychotropic drugs	4	-	10		10	24
5.	Clinical pharmacology of	2	-	10		7	19

	analgesic drugs						
6.	Clinical pharmacology of anti-inflammatory drugs	2	-	10		5	17
7.	Clinical pharmacology of drugs used in respiratory diseases.	2	-	10		10	22
8.	Clinical pharmacology of drugs used in diseases of the digestive	2	-	10		10	22
9.	Clinical pharmacology of drugs used in diseases of the cardiovascular system	6	-	10		6	22
10.	Clinical pharmacology of drugs used in the treatment of anemia	-	-	5		6	11
11.	Clinical pharmacology of drugseffects on the hemostatic system	2	-	5		6	13
12.	Clinical pharmacology of drugs that affect immune processes	-	-	5		6	11
13.	Clinical pharmacology of drugs used for skin-allergic diseases	-	-	5		6	11

14.	Clinical pharmacology of drugs that affect hormonal regulation.	2	-	10		6	18
	Summary	34	-	140		114	288
	Exam						36
	TOTAL						244

* - L – lectures; LP – laboratory practicum; P – practicals; S – seminars; SIW – student's individual work.

6.2. Thematic schedule of educational work types:

6.2.1 Thematic schedule of lectures

№ n /	Name of lecture topics	Volume in AH	
		semester	
		8	9
1.	Introduction to clinical pharmacology and pharmacotherapy	2	
2.	Fundamentals of pharmacotherapy. Methods of examination of patients, principles of diagnosis, significance for clinical pharmacology	2	
3.	Adverse drug reactions	2	
4.	Features of clinical pharmacology in pregnant women, nursing mothers, newborns and the elderly	2	
5.	Clinical pharmacology of antimicrobial drugs	2	
6.	Clinical pharmacology of antiviral and antifungal drugs	2	
7.	Clinical pharmacology of psychotropic drugs	4	
8.	Clinical pharmacology of painkillers	2	
9.	Clinical pharmacology of anti-inflammatory drugs	2	
10.	Clinical pharmacology of medicinal products used in diseases of the respiratory tract	2	
11.	Clinical pharmacology of medicinal products used in diseases of the digestive tract		2

12.	Clinical pharmacology of medicinal products that lower vascular tone		2
13.	Clinical pharmacology of antiarrhythmic medicinal products		2
14.	Clinical pharmacology of inotropic medicinal products		2
15.	Clinical pharmacology of medicinal products that affect the hemostatic system		2
16.	Clinical pharmacology of medicinal products factors affecting hormonal regulation		2
TOTAL (34 AH)		22	12

6.2.2. The thematic plan of laboratory practicums (*if this type of classes is stipulated in the curriculum*) not provided

6.2.3. Thematic plan of practicals

№ n /	Name of the topics of practical classes	Volume in AH	
		semester	
		8	9
1.	General issues of clinical pharmacology and pharmacotherapy	10	-
2.	Undesirable drug reactions. Drug interactions	10	-
3.	Clinical pharmacology of antibiotics	10	-
4.	Clinical pharmacology of synthetic antimicrobials	5	-
5.	Clinical pharmacology of anti-tuberculosis drugs	5	-
6.	Clinical pharmacology of antiviral drugs	5	-
7.	Clinical pharmacology of antifungal drugs	5	-
8.	Clinical pharmacology of psychotropic drugs (depressing effect)	5	-
9.	Clinical pharmacology of psychotropic drugs (stimulating action)	5	-
10.	Clinical pharmacology of analgesic drugs	10	-
11.	Clinical pharmacology of anti-inflammatory drugs	10	-
12.	Clinical pharmacology of drugs used in respiratory diseases	5	-
13.	Project presentation. Milestone control	5	-
14.	Clinical pharmacology of drugs used in diseases of the digestive	-	10
15.	Clinical pharmacology of drugs that lower vascular tone	-	5

16.	Clinical pharmacology of inotropic and antiarrhythmic drugs	-	5
17.	Clinical pharmacology of drugs used in the treatment of anemia	-	5
18.	Clinical pharmacology of drugs that affect the hemostatic system	-	5
19.	Clinical pharmacology of drugs that affect the hemostatic system -5 Clinical pharmacology of drugs that affect the hemostatic system -5 Clinical pharmacology of drugs used in the treatment of	-	5
20.	Clinical pharmacology of drugs used for skin-allergic diseases	-	5
21.	Clinical pharmacology of drugs that affect hormonal regulation	-	5
22.	Project presentation. Border control	-	5
TOTAL (total - 140 AH)		90	50

6.2.4. Thematic plan of seminars (*if this type of classes is stipulated in the curriculum*) not provided

6.2.5. Types and topics of student's individual work (SIW)

№ n /	a Section of the discipline	Name of the type of SIW*	Volume in AC	
			semester	
			8	9
1	General issues of clinical pharmacology and pharmacotherapy	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Monitoring the effectiveness and safety of pharmacotherapy".	10	
2	Clinical pharmacology of antimicrobial drugs	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of penicillins used in the treatment of respiratory diseases".	15	
3	Clinical pharmacology of antiviral and antifungal	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of drugs used in the treatment of	11	

	medicines	dermatomycosis".		
4	Clinical pharmacology of psychotropic drugs	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of psychotropic drugs"	10	
5	Clinical pharmacology of painkillers	Working with literature sources; working with electronic educational resources (SDS, EBS, etc.). of a project on the topic: "Clinical pharmacology of painkillers"	7	
6	Clinical pharmacology of anti-inflammatory drugs	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of glucocorticosteroid presentations"	5	
7	Clinical pharmacology of medicines used in respiratory diseases	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of drugs used in the treatment of COPD"	10	
8	Clinical pharmacology of drugs used in diseases of the digestive	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.).		10
9	Clinical pharmacology of drugs used in diseases of the cardiovascular system	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of diuretics used in the treatment of patients with arterial hypertension".		6
10	Clinical pharmacology of drugs used in the	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.).		6

	treatment of anemia			
11	Clinical pharmacology of drugs affecting the hemostatic system	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Project presentation on the topic: "Clinical pharmacology of fibrin-and antifibrinolytic agents".		6
12	Clinical pharmacology of drugs that affect immune processes	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.).		6
13	Clinical pharmacology of drugs used for skin-allergic diseases	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.).		6
14	Clinical pharmacology of drugs affecting hormonal regulation	Work with literature sources; work with electronic educational resources (SDS, EBS, etc.). Presentation of a project on the topic: "Clinical pharmacology of hypoglycemic drugs"		6
		TOTAL (total – 114 AH)	68	46

7. Types of assessment formats for ongoing monitoring and mid-term assessment

№ n /	№ a no. of the semester	Control forms	Name of the discipline section	Assessment tools		
				types	number of control questions (questions in the task)	number of independent options
1.	8	<ul style="list-style-type: none"> • CIW • CTC • exam at the end of the 9th semester 	General questions of clinical pharmacology and pharmacotherapy	Project	1	1
				Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	total questions for the section - 6

2.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of antimicrobial, antifungal, antiviral drugs	Project	1	2
				Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1-2	total questions for the section-16
3.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of Psychoactive Drugs	Project	1	1
				Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	total questions for the section - 6
				Situational tasks	1	10
4.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of of Painkillers	Tasks in the test form	10	unlimited (when conducting computer testing)
				Project	1	1
				Exam questions	1	total questions for section - 6
				Situational tasks	1	10
5.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of anti-inflammatory drugs	Tasks in the test form	10	unlimited (when conducting computer testing)
				Project	1	1
				Exam questions	1	total questions for section - 6
				Situational tasks	1	10
6.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs used for respiratory diseases	Project	1	1
				Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	6
				Clinical cases	1	10
7.	8	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs used for diseases of the digestive tract	Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	8
				Clinical cases	1	10
8.	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end 	Clinical pharmacology of drugs used in diseases of the cardiovascular	Tasks in the test form	10	unlimited (when conducting computer testing)
				Project	1	1
				Exam questions	1	8

		of the 9th semester	system	Clinical cases	1	10
10	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs used in the treatment of anemia	Tasks in the test form	15	unlimited (when conducting computer testing)
				Exam questions	1	3
				Clinical cases	1	10
11	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs affecting the hemostasis system	Project	1	1
				Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	8
				Clinical cases	1	4
12	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs affecting immune processes	Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	3
				Clinical cases	1	6
13	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC • exam at the end of the 9th semester 	Clinical pharmacology of drugs used for skin and allergic diseases	Tasks in the test form	10	unlimited (when conducting computer testing)
				Exam questions	1	3
				Clinical cases	1	6
14	9	<ul style="list-style-type: none"> • <i>CIW</i> • CTC exam at the end of the 9th semester 	Clinical pharmacology of drugs affecting hormonal regulation	Tasks in test form	10	unlimited (when conducting computer testing)
				Project	1	1
				Exam questions	1	8
				Clinical cases	1	4

Note: * - forms of current control: control of individual work of the student (*CIW*), control of current topic (*CTC*); forms of intermediate certification: exam at the end of the 9th semester.

8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Clinical pharmacology of antibacterial drugs : textbook for 6th year- students of the foreign students faculty / M. V. Stolbova, I. S. Mitrofanova, T. V. Chernysheva [и др.] ; Stolbova M. V., Mitrofanova I. S., Chernysheva T. V., Liskova Y. V., Tenchurina L. R. – Оренбург : ОпГМУ, 2020. – 108 с. – Текст : электронный. – URL: https://e.lanbook.com/book/257978 (дата обращения: 01.12.2022. – Режим доступа: по подписке.	Ссылка на библиографическое описание: http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&id=230963&idb=0	
2	Clinical implementation of drug interactions: tutorial. / edited by associate professor Sorokina Yu.A. PhD. – N. Novgorod: Publishing house «Medial», 2021. – 120 p.	100	

8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Bennett, P. N. Clinical pharmacology / P. N. Bennett, M. J. Brown, P. Sharma. – 11 th ed. – Edinburgh : Churchill Livingstone, 2012. – XI, 667 p. – ISBN 9780808924319.	Ссылка на библиографическое описание: http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&id=163900&idb=0	
2	Grahame-Smith, D. G. Oxford textbook of clinical pharmacology and drug therapy / D. G. Grahame-Smith, J. K. Aronson ; Grahame-Smith, D. G. ; Aronson, J. K. – 3rd ed. – Oxford University Press, 2002. – 641 с. : мяг. – ISBN 0-19-850944-8.	Ссылка на библиографическое описание: http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&id=23432&idb=0	

8.3. Electronic educational resources for teaching academic subjects

8.3.1. Internal Electronic Library System of the University (IELSU)

Name of the electronic resource	Brief description (content)	Access conditions	Number of users
Internal Electronic Library System (EBS) http://nbk.pimunn.net/MegaPro/Web	Works of the university's teaching staff: textbooks, study guides, problem collections, methodological	From any computer and mobile device using an individual login and password. Access mode: http://nbk.pimunn.net/MegaPro/Web	Not restricted

	<p>manuals, laboratory works, monographs, collections of scientific papers, scientific articles, dissertations, dissertation abstracts, patents</p>		
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8.3.2. Electronic educational resources acquired by the University

№	<i>Name of the electronic resource</i>	<i>Brief description (content)</i>	<i>Access conditions</i>	<i>Number of users</i>
	<p>EBS " Student's Consultant "(Electronic database "Student's Consultant". Database " Medicine. Healthcare (VO) and " Medicine. Healthcare (SPE)") http://www.studmedlib.ru</p>	<p>Educational literature, additional materials (audio, video, interactive materials, test tasks) for higher medical and pharmaceutical education</p>	<p>From any computer and mobile device using an individual username and password. Access mode: http://nbk.pimunn.net/MegaPro/Web</p>	<p><i>unlimited</i></p>
	<p>Database " Doctor's Consultant. Electronic Medical Library" https://www.rosmedlib.ru</p>	<p>National guidelines, clinical guidelines, training manuals, monographs, atlases, pharmaceutical reference books, audio and video materials, ICD-10 and ATX</p>	<p>From any computer and mobile device using an individual login and password. Access mode: http://nbk.pimunn.net/MegaPro/Web</p>	<p><i>unlimited</i></p>
	<p>Electronic library system "Bookup" https://www.books-up.ru</p>	<p>Educational and scientific medical literature of Russian publishing houses, including translations of foreign publications. Within the framework of the "Big Medical Library" project, publications of participating universities are available</p>	<p>from any computer and mobile device using an individual login and password; access is automatic from university computers. Publications from the "My</p>	<p><i>unlimited</i></p>

			books" section are available for reading. Access mode: http://nbk.pimunn.net/MegaPro/Web	
	URAIT Educational Platform https://urait.ru	https://urait.ru A collection of publications on psychology, ethics, and conflict	management of computer or mobile device using an individual username and password. Access mode: http://nbk.pimunn.net/MegaPro/Web	<i>unlimited</i>
	Electronic periodicals in the database "Scientific Electronic Library eLibrary" https://elibrary.ru	Electronic medical journals	From university computers. Access mode: https://elibrary.ru	<i>unlimited</i>
	Integrated Information and library system (IBS) of the scientific and educational medical cluster of the Volga Federal District – "Srednevolzhsky" (contract on a free basis)	Electronic copies of scientific and educational publications from the collections of libraries participating in the scientific and educational medical cluster of the Volga Federal District "Srednevolzhsky"	Access using an individual username and password from any computer or mobile device. Access mode: websites of libraries participating in the project	<i>unlimited</i>
	Electronic reference and legal system "Consultant Plus" (contract on a free basis) http://www.consultant.ru	Regulatory documents regulating the activities of medical and pharmaceutical institutions	From the computers of the scientific library. Access mode: http://www.consultant.ru/He	<i>unlimited</i>
	National Electronic Library (NEB) (contract on a free basis) http://НЭБ.рф	Electronic copies of publications (including scientific and educational ones) on a wide range of knowledge	Scientific and educational works that have not been reprinted in the last 10 years are publicly available. Works restricted by copyright –	<i>unlimited</i>

			from the computers of the scientific library. Access mode: http://HЭб.рф	
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8.3.3 Open access resources

№	Name of the electronic resource	Brief description (content)	Access conditions
	PubMed https://www.ncbi.nlm.nih.gov/pubmed	Search engine of the National Library of Medicine of the USA for the databases "Medline", "PreMedline"	From any computer or mobile device. Access mode: https://www.ncbi.nlm.nih.gov/pubmed
	Directory of Open Access Journals http://www.doaj.org	Directory for open access to a full-text collection of periodicals	from any computer or mobile device. Access mode: http://www.doaj.org
	Directory of open access books (DOAB) http://www.doabooks.org	A directory of open access to a full-text collection of scientific books	from any computer or mobile device. Access mode: http://www.doabooks.org

9. Material and technical support for mastering an academic discipline

9.1. List of premises for classroom activities for the discipline

For conducting lectures on the basis of the academic building No. 2 (BFK), there are:

- 2 lecture halls.

For conducting practical classes on the basis of the educational building No. 2 (BFK), there are:

- 6 study rooms with an area of 36,8, 26, 23,6, 21,2, 21,2, 21 m².

9.2. List of equipment for classroom activities for the discipline

Name	quantity
Based on academic building No. 2:	
Multimedia projectors:	
- Epson EMP-S3	1
-Epson	1
-BEAQMS	1
Laptops:	
- Fujitsu Siemens	1
- Lenovo	1
- Lenovo Idea Pad	1
- Lenovo Think Book	2
LCD TV	4
Screens	3
Whiteboards	5
Marker boards	4
Stands:	
- on the organization of the educational process at the department	1
-pharmacodynamics and pharmacokinetics of medicines	16

9.3. A set of licensed and freely distributed software, including domestic production

Item no.	Software	number of licenses	Type of software	Manufacturer	Number in the unified register of Russian software	Contract No. and date
1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	
4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN10030 LLC "Softline Trade" from 04.12.2020

10. List of changes to the working program (to be filled out by the template)

Federal State Budgetary Educational Institution of Higher Education
 "Privolzhsky Research Medical University"
 Ministry of Health of the Russian Federation
 (FSBEI HE "PRMU" of the Ministry of Health of Russia)

Department of
Name of the department

CHANGE REGISTRATION SHEET

working program for the academic discipline
NAME OF THE ACADEMIC DISCIPLINE

Field of study / specialty / scientific specialty: _____
(code, name)

Training profile: _____
(name) - for master's degree programs

Mode of study: _____
full-time/mixed attendance mode/extramural

Position	Number and name of the program section	Contents of the changes made	Effective date of the changes	Contributor's signature
1				

Approved at the department meeting
 Protocol No. _____ of _____ 20__

Head of the Department

_____ /
 department name, academic title

_____ /
 signature

_____ /
 print name