

FEDERAL STATE BUDGET EDUCATIONAL INSTITUTION
OF HIGHER EDUCATION
"ROSTOV STATE MEDICAL UNIVERSITY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Faculty of Education of foreign students, residents and postgraduates

Supervisor
educational program

(signature)

CONFIRM

/ E.S. Belousova /

(FULL NAME.)

" 30 " 2023



DISCIPLINE WORKING PROGRAM

PHARMAKOLOGY

Speciality 31.05.01 General medicine

Form of education full-time

Rostov-on-Don
2023

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

1.1. The purpose of mastering the discipline: "pharmacology" is to form students the ability to competently select the most effective and safe drugs according to their pharmacodynamic and pharmacokinetic characteristics, drug interactions, as well as in teaching students the methodology of mastering knowledge in pharmacology using scientific, reference literature, official statistical reviews, Internet resources and principles of evidence, the basics prescription document flow and rules for writing prescriptions for drugs, storage and use of drugs.

1.2. Objectives of studying the discipline:

- to form in students an idea of the role and place of pharmacology among fundamental and medical sciences, about the directions of development of the discipline and its achievements;
- familiarize students with the history of the development of pharmacology, the activities of the most outstanding figures of medicine and pharmacy, the contribution of domestic and foreign scientists to the development of world medical science;
- familiarize students with the main stages of the development of pharmacology as biomedical discipline, main stages of development, fundamental approaches to the creation of medicines;
- familiarize students with the modern stages of creating medicines drugs, the use of modern international standards in preclinical (GLP) and clinical (GCP) research and production (GMP) of drugs, general principles of clinical trials taking into account evidence, with the basic laws of pharmacokinetics and pharmacodynamics of drugs;
- teach students to analyze the effect of drugs according to the totality of their pharmacological effects, mechanisms and localization of action, pharmacokinetic parameters;
- to develop in students the ability to evaluate the possibilities of choice and use medications based on ideas about their properties for the purposes of effective and safe prevention, pharmacotherapy and diagnosis of diseases of individual systems of the human body;
- teach students to recognize possible side effects and toxicological

manifestations when using medications and carry out their treatment;

- train students in the principles of preparing recipes and preparing prescriptions, the ability to write prescriptions for drugs in various dosage forms, as well as for certain pathological conditions, based on the characteristics of the pharmacodynamics and pharmacokinetics of drugs;
- train students in organizing work with medications, basic skills in prescription document management, rules for storing medicines from the list of potent and poisonous drugs, as well as lists of narcotic drugs and psychotropic substances;
- to develop in students the skills necessary to solve individual research and applied scientific tasks in the field of pharmacology, taking into account ethical, deontological aspects, basic information security requirements;
- to develop in students the skills of a healthy lifestyle, work organization, safety regulations and monitoring compliance with environmental safety.

II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The study of the discipline "Pharmacology" is aimed at developing competencies in accordance with the Federal State Educational Standard for Higher Education 3++ and the EP for Higher Education in this specialty:

2.2. General professional: GPC-7 Treatment of diseases and conditions. Able to prescribe treatment and monitor its effectiveness and safety.

III. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF EP VO

3.1. The discipline "pharmacology" belongs to the compulsory part - (B1.B.22).

IV. CONTENT AND STRUCTURE OF DISCIPLINE

The complexity of the discipline in Z6 hour216 .

4.1. Sections of the discipline studied in semesters 5 and 6:

No. section	Section name	Number of hours					SRS
		Total	Contact Job				
			L	WITHETC	LR		
Semester 5							
1	Introduction to pharmacology. General recipe. General pharmacology.	18	2		9		7
2	Chemotherapeutic agents.	25	6		12		7
3	Neurotropic agents.	thirty	8		15		7
4	Medicines that affect inflammation, allergies and immunity.	22	6		9		7
5	Agents with a predominant effect on tissue metabolic processes.	7	4		3		
6	Drugs affecting the cardiovascular system.	6	6				
Total for the semester		108	32		48		28
Interim certification form (test/test with assessment/exam)		test					
Semester 6							
5	Agents with a predominant effect on tissue metabolic processes.	12			6		6
6	Drugs affecting the cardiovascular system.	14			8		6
7	Means influencing the functions of executive bodies.	24	8		10		6
8	Drugs affecting the central nervous system.	22	8		8		6
Total for the semester		72	16		32		24
Interim certification form (test/test with assessment/exam)		Exam 36					
<i>Total for the discipline:</i>		216	48		80		52

SRS- independent work of students **L**- lectures

WITH- seminars

LR -laboratory works **ETC**- practical lessons

4.2. Contact work

Lectures

No. section	No. lectures	Lecture topics	Qty hours
Semester 5			
1	1	Subject, tasks and methods of modern pharmacology. Basic principles of general pharmacology.	2
2	2	Basic principles of chemotherapy. Classification of chemotherapeutic agents.	2
2	3	Selected issues of antimicrobial therapy. Antibiotic resistance, ways to overcome it.	2
2	4	Anti-blastoma drugs.	2
3	5	Medicines affecting efferent innervation. M- and N-cholinomimetics. M-cholinomimetics. Anticholinesterase substances. N-cholinomimetics.	2
3	6	M-anticholinergics. N-anticholinergics. M- and N-anticholinergic blockers (synthetic and central anticholinergic blockers).	2
3	7	Structure of the adrenergic synapse. Adrenergic receptors, their types and localization. Adrenergic agonists of direct and indirect action.	2
3	8	Adrenergic blocking substances. Sympatholytics.	2
4	9	Anti-inflammatory drugs. Part 1	2
4	10	Anti-inflammatory drugs. Part 2	2
4	eleven	Drugs that affect the allergy process and immunity.	2
5	12	Preparations of hormones of protein-polypeptide structure.	2
5	13	Antidiabetic drugs. Preparations of hormones with amino acid structure. Antithyroid drugs.	2
6	14	Antianginal, antiatherosclerotic drugs.	2
6	15	Antihypertensive drugs. Diuretics.	2
6	16	Antiarrhythmic drugs.	2
Total by semester hours			32
Semester 6			
7	1	Medicines that affect the functions of the respiratory system.	2
7	2	Medicines that affect the functions of the gastrointestinal tract.	2
7	3	Drugs affecting the blood coagulation system and hematopoiesis. Part 1.	2
7	4	Drugs affecting the blood coagulation system and hematopoiesis. Part 2.	2

8	5	Psychotropic drugs: neuroleptics, tranquilizers, sleeping pills, sedatives. Anticonvulsant, antiparkinsonian drugs.	2
8	6	Psychotropic drugs: antidepressants, mood stabilizers, psychostimulants, nootropics.	2
8	7	Local anesthetics.	2
8	8	Anesthetics, ethanol.	2
Total by semester hours			16
<i>Total hours discipline:</i>			48

Seminars, practical work

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Shapes of the current control
Semester 5				
1	1	General recipe.	3	Interview
1	2	General pharmacology.	3	Interview
1	3	Final lesson on general formulation and general pharmacology.	3	Interview, testing, prescribing recipes
2	4	Antiseptics and disinfectants. Basic principles of chemotherapy. Beta-lactam antibiotics. Macrolides. tetracyclines, chloramphenicol, polymyxins, aminoglycosides, polypeptides.	3	Interview
2	5	Synthetic chemotherapeutic agents. Antiviral and antifungal agents.	3	Interview
2	6	Antispirochetal, antituberculosis. Anti-blastoma drugs.	3	Interview
2	7	Final lesson on chemotherapy.	3	Interview, testing, prescribing recipes
3	8	Neurotropic drugs. M- and N-cholinomimetics. M-cholinomimetics. Anticholinesterase substances. N-Cholinomimetics.	3	Interview
3	9	M-anticholinergics. N-cholinergic blockers (ganglionic blockers and muscle relaxants). M- and N-cholinergic blockers (synthetic and central anticholinergic blockers).	3	Interview

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Shapes of the current control
3	10	Structure of the adrenergic synapse. Adrenergic receptors, their types and localization. Transmission of excitation at the synapse. Adrenergic agonists of direct and indirect action.	3	Interview
3	eleven	Adrenergic blocking substances. Sympatholytics.	3	Interview
3	12	Final lesson on drugs affecting afferent innervation and neurotropic drugs.	3	Interview, testing, prescribing recipes
4	13	Anti-inflammatory drugs.	3	Interview
4	14	Painkillers. Antiallergic drugs.	3	Interview
4	15	Final lesson on drugs that influence the processes of inflammation and allergies.	3	Interview, testing, prescribing recipes
5	16	Preparations of hormones of protein-polypeptide structure.	3	Interview
Total for the semester hours			48	
Semester 6				
5	1	Antidiabetic drugs. Preparations of hormones with amino acid structure. Antithyroid drugs.	2	Interview
5	2	Hormone preparations with steroid structure. Anabolic steroid. Sex hormones and contraceptives.	2	Interview
5	3	Final lesson on means influencing tissue metabolic processes.	2	Interview, testing, prescribing recipes
6	4	Antianginal agents. Antiatherosclerotic agents.	2	Interview
6	5	Antihypertensive and hypertensive drugs. Diuretics.	2	Interview
6	6	Antiarrhythmic drugs. Cardiac glycosides.	2	Interview
6	7	Final lesson on means affecting the functions of the cardiovascular system.	2	Interview, testing, prescribing recipes
7	8	Medicines that affect the functions of the respiratory system. Analeptics.	2	Interview

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Shapes of the current control
7	9	Medicines that affect the functions of the gastrointestinal tract. Medicines affecting the myometrium.	2	Interview
7	10	Drugs affecting the blood coagulation system and hematopoiesis.	2	Interview
7	eleven	Drugs affecting the blood coagulation system and hematopoiesis.	2	Interview
7	12	Final lesson on means influencing the functions of executive bodies.	2	Interview, testing, prescribing recipes
8	13	Psychotropic drugs: neuroleptics, tranquilizers, sleeping pills, sedatives. Anticonvulsant, antiparkinsonian drugs.	2	Interview
8	14	Psychotropic drugs: antidepressants, mood stabilizers, psychostimulants, nootropics.	2	Interview
8	15	Final lesson on drugs acting on the central nervous system.	2	Interview, testing, prescribing recipes
8	16	Testing.	2	Testing
Total for the semester hours			32	
<i>Total hours discipline:</i>			80	

4.3. Independent work of students

No. section	Type of independent work of students	Qty hours	Forms current control
Semester 5			
1	Preparation for the current lesson. Preparation for the final lesson "Introduction to pharmacology. General recipe. General pharmacology".	7	Survey
2	Preparation for the current lesson. Preparation for the final lesson "Chemotherapeutic agents".	7	Survey
3	Preparation for the current lesson. Preparation for the final lesson "Neurotropic drugs".	7	Survey
4	Preparation for the current lesson. Preparation for the final lesson on the topic "Medicines that affect inflammation, allergies and immunity."	7	Survey
Total hours per semester		28	

No. section	Type of independent work of students	Qty hours	Forms current control
Semester 6			
5	Preparation for the current lesson. Preparation for the final lesson "Medicines with a predominant effect on tissue metabolic processes."	6	Survey
6	Preparation for the current lesson. Preparation for the final lesson "Drugs affecting the cardiovascular system."	6	Survey
7	Preparation for the current lesson. Preparation for the final lesson "Means influencing the functions of executive bodies."	6	Survey
8	Preparation for the current lesson. Preparation for the final lesson "Drugs affecting the central nervous system."	6	Survey
Total hours per semester		24	
<i>Total hours discipline:</i>		52	

V. ASSESSMENT MATERIALS FOR CURRENT CONTROL, INTERMEDIATE CERTIFICATION

The fund of assessment tools for determining the level of acceleration of competencies as a result of mastering the discipline is an appendix to the work program.

VI. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF DISCIPLINE

6.1. Printed publications

1. Kharkevich D.A. Pharmacology: a textbook for university students / D.A. Kharkevich. - 11th ed., rev. and additional – M.: GEOTAR-Media, 2013. - 755 p.
2. Maisky V.V. Elementary pharmacology: textbook. allowance / V.V. May. - M.: Center for Intersectoral Programs, 2008. - 544 p.
3. Kharkevich D.A. Pharmacology: textbook for universities / D.A. Kharkevich. - ed. 10th, revised and additional – M.: GEOTAR-Media, 2009. - 752 p.
4. Kharkevich D.A. Pharmacology: textbook for universities / D.A. Kharkevich. - ed. 10th, revised and additional – M.: GEOTAR-Media, 2008. - 752 p.
5. Kharkevich D.A. Pharmacology: textbook for universities / D.A. Kharkevich. - ed. 10th, revised and additional – M.: GEOTAR-Media, 2010. - 752 p.

6.2. Internet resources

ELECTRONIC EDUCATIONAL RESOURCES	Access to the resource
Electronic library RostSMU. – URL: http://109.195.230.156:9080/opacq/	Access is not limited
Student Advisor [Kits: "Medicine. Healthcare. IN"; "Medicine. Healthcare. SPO"; "Psychological Sciences"]: Electronic library system. – Moscow: LLC	Access is not limited

"Polytekhresurs" - URL: https://www.studentlibrary.ru +	
opportunities for inclusive education	
Sage Publication: [full text collection of e-books eBook Collections]. - URL: https://sk.sagepub.com/books/discipline by IP addresses of RostSMU(<i>National project</i>)	Indefinite subscription
Med-Edu.ru: medical educational video portal. -URL: http://www.med-edu.ru/ .Free registration.	Open access
Other Open resources can be found at: http://rostgmu.ru → Library → Electronic catalog → Open Internet resources → further by keyword...	

6.3. Guidelines for students on mastering the discipline

1. Neurotropic drugs: educational method. development / Yu.S. Maklyakov [and others]. - Rostov n/d: Publishing house Rostov State Medical University, 2009.
2. Drugs affecting the central nervous system: method. aid for students / Yu.S. Maklyakov, N.M. Morozov, L.E. Khmara [and others]. - Rostov n/d: Publishing house Rostov State Medical University, 2012.
3. Fundamentals of anti-infective chemotherapy: educational method. development / Yu.S. Maklyakov [and others]. - Rostov n/d: Rostov State Medical University Publishing House, 2017.

VII. MATERIAL AND TECHNICAL SUPPORT OF DISCIPLINE

No. p/p	Address (location) of classrooms, name of equipped training classrooms, facilities for practical and laboratory classes	Equipment of educational office (technical products, kits demonstration equipment)	Quantity computers for access to the network Internet
1.	6th floor ULK 1 RostSMU, Auditorium No. 602, room for classes practical type, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	70 chairs, board magnetic marker, laptop, multimedia projector, audio system.	
2	6th floor of Rostov State Medical University, Auditorium No. 633, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room staffed specialized educational furniture: tables - 9, chairs - 18. Technical means training for presentation of educational a lot of information audience: board magnetic marker, laptop, multimedia projector.	

3	- 1st floor of Rostov State Medical University, Auditorium No. 634, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room staffed specialized educational furniture: tables - 25, chairs - 38. Technical means training for presentation of educational a lot of information audience: board magnetic marker, laptop, multimedia projector.	
4	6th floor of Rostov State Medical University, Auditorium No. 604, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room equipped with: specialized educational furniture: tables - 8, chairs - 16. Technical means training for presentation of educational information: board magnetic marker, laptop, TV.	
5	6th floor of Rostov State Medical University, Auditorium No. 607, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room staffed specialized educational furniture: tables - 14, chairs - 28. Technical means training for presentation of educational information: board magnetic marker, laptop, multimedia projector.	

6	6th floor of Rostov State Medical University, Auditorium No. 608, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room staffed specialized educational furniture: tables - 13, chairs - 26. Technical means training for presentation of educational information: board magnetic marker, laptop, multimedia projector.	
7	6th floor of Rostov State Medical University, Auditorium No. 609, room for conducting practical classes, group consultations, individual consultations, ongoing monitoring, intermediate certification in the discipline "Pharmacology".	Room staffed specialized educational furniture: tables - 13, chairs - 26 Technical means training for presentation of educational information: board magnetic marker, laptop, multimedia projector.	