

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



CONFIRM

Supervisor
educational program

[Signature] / E.S. Belousova /
(signature) (FULL NAME.)

" 30 " августа 20_23

DISCIPLINE WORKING PROGRAM

FUNDAMENTAL MEDICINE

Speciality 31.05.01 General medicine

Form of education full-time

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

Goals mastering the discipline: updating the acquired knowledge on fundamental disciplines for medical education from the point of view of interdisciplinary interaction, as well as to assess the degree of readiness of students for the consolidated mastery of clinical disciplines.

Tasks:

- formation at students scientific submissions O microscopic functional morphology and development of cellular, tissue and organ systems of the human body;
- acquiring knowledge about the chemical nature of the substances that make up living organisms, their transformations, the connection of these transformations with the activity of organs and tissues, regulation of metabolic processes and the consequences of their violation;
- formation of students' scientific ideas on issues application of the fundamentals of medical and biological physics in fundamental medicine, biomechanics, including mechanical vibrations and waves, acoustics, blood flow through the cardiovascular system; bioelectrogenesis, the emergence of resting potentials, action and electrography methods;
- formation of students' skills literate selection effective and safe drugs, pharmacodynamics and pharmacokinetics, analysis of the action of drugs based on the totality of their pharmacological effects, mechanisms and localization of action, pharmacokinetic parameters, recognize possible side and toxicological manifestations when using drugs and carry out their treatment;
- formation of students' knowledge of human anatomy and topographic anatomy, the structure of both the body as a whole and individual organs and systems, based on modern achievements; formation of skills to use the acquired knowledge in the subsequent study of other fundamental and clinical disciplines, as well as in future professional

activities of a doctor;

- formation of systematized knowledge of structural changes in the level of the organism, organs, tissues, cells, ultrastructures, molecules, genes in diseases, as well as recovery and compensatory-adaptive processes; clarification of the etiology, pathogenesis, morphogenesis, pathomorphosis of these changes; comparison of morphological changes with the results of clinical, biochemical, pathophysiological, microbiological, immunological, cytogenetic studies;

- formation of clinical thinking on basis clinical anatomical comparisons, students' knowledge of the structural foundations of diseases, their etiology and pathogenesis, development dynamics;

- mastering the medical algorithm activities V decision professional and therapeutic tasks;

- formation of clinical thinking, algorithm medical activities in solving professional and medical problems based on clinical and anatomical comparisons, students' knowledge of the structural foundations of diseases, their etiology and pathogenesis.

II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The process of studying the discipline is aimed at forming the following

competencies in accordance with the Federal State Educational Standard of Higher Education and the EP of Higher Education in this specialty:

a) general professional:

readiness to use basic physical, chemical, mathematical and other natural science concepts and methods in solving professional problems (GPC-7);

readiness for medical use of drugs and other substances and their combinations in solving professional problems (GPC-8);

ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems (OPK-9);

b) professional:

readiness to collect and analyze patient complaints and medical history data,

results inspection, laboratory, instrumental, pathological anatomical and other studies in order to recognize a condition or establish the presence or absence of a disease (PC-5)

As a result of mastering the discipline, the student must:

know:

- basic areas of human anatomy, traditional and modern methods of anatomical research;
- are common patterns of the structure of the human body, structural functional relationships between parts of the body;
- basic details of the structure and topography of organs, their systems, their main functions at different age periods;
- the role of microorganisms in the biosphere; features of formation symbiont microflora of the human body, its significance in normal conditions and in pathology; the role of the body's symbiont microflora in the development of opportunistic diseases;
- molecular genetic basics pathogenicity And antibiotic resistance of microorganisms, mechanisms and methods for their study;
- the role of individual representatives of the microbial world in the etiology and pathogenesis of major human infectious diseases;
- essence microbiological, molecular genetic, immunological methods for diagnosing infectious diseases, areas of their application, principles for interpreting the results obtained;
- classification of drugs, mechanism of action, pharmacodynamic effects, main pharmacokinetic parameters, side effects of drugs, indications and contraindications for prescribing drugs;
- concepts of etiology, pathogenesis, morphogenesis, pathomorphosis of the disease, principles of disease classification;
- metabolic pathways and their regulation, causes and clinical manifestations metabolic disorders;

- structural changes in pathological processes and diseases on level of the organism, organs, tissues, cells, ultrastructures, molecules, genes;
- the essence and basic patterns of development, general pathological human processes and diseases, their etiology, pathogenesis, complications and possible outcomes, morphogenesis, pathomorphosis, classifications;
- principles of constructing a pathological diagnosis;
- basic physical phenomena and patterns underlying processes occurring in the human body;
- structural and functional characteristics of various cells of all fabrics;
- features of embryonic and reparative histogenesis;
- the relationship between the basic concepts of the discipline in their meaning for acquired profession;
- patterns of functioning and mechanisms of cell regulation, organs and systems of a healthy body, the basics of modern methods for diagnosing the functional state of a person used in medicine. **be able to:**
- find and show organs and their parts on anatomical preparations, details of the structure, correctly call them in Russian and Latin;
- navigate the topography and details of the structure of organs on anatomical preparations; show, correctly name organs and their parts in Russian and Latin;
- work with magnifying equipment (microscopes);
- justify the choice of material and methods of microbiological and molecular genetic diagnosis of infectious and opportunistic diseases, taking into account the biology of the pathogen, pathogenesis and clinical manifestations of the disease; interpret the results obtained;
- navigate the nomenclature of drugs on the topic of classes and affiliations them into groups, correctly write prescriptions for obtaining drugs;
- use knowledge about methodological approaches to understanding

patterns of activity of the whole organism; interpret the results of the most common laboratory and functional diagnostic methods;

- conduct pathophysiological analysis of clinical syndromes, substantiate pathogenetically justified methods (principles) of diagnosis, treatment, rehabilitation and prevention;

- predict the results of physical and chemical processes in living things systems, based on theoretical principles.

- see, describe and recognize (diagnose) structural macro-, microscopic and ultrastructural changes in tissues and organs during pathological processes and human diseases;

- use medical terminology;

- conduct clinical and anatomical comparisons; establish dynamics development of the disease, identifying complications and possible causes of death in the pathogenetic aspect;

- prepare a pathological diagnosis, clinical and anatomical epicrisis;

- make comparisons of clinical and anatomical diagnoses, when If there is a discrepancy in diagnoses, establish its cause and significance for the outcome of the disease.

- use physical equipment;

- differentiate different types of cells in organs and tissues;

- analyze histological preparations and electronic photographs;

- find solutions to non-standard situations.

own:

- skillsinterpretation of microbiological and molecular genetic research methods;

- skills in interpreting sensitivity results microorganisms to antibacterial drugs in order to select means of rational therapy;

- algorithm for selecting immunobiological preparations for the purpose of prevention and treatment of infectious diseases, taking into account the severity of the disease, the urgency of the condition and the manifestation of the main symptom complex, select and prescribe a specific drug, taking into account its pharmacodynamics and pharmacokinetics;
- principles and technologies to conduct pathophysiological analysis clinical syndromes;
- taking into account the severity of the disease, the urgency of the condition and manifestations of the main symptom complex; select and prescribe a specific drug, taking into account its pharmacodynamics and pharmacokinetics;
- medical and physiological conceptual apparatus; the simplest medical instruments (phonendoscope, neurological hammer, tonometer, etc.),
- independent work with educational, scientific and reference literature; searching and summarizing information;
- basic technologies for converting information: independent working with educational literature on paper and electronic media, Internet resources on human anatomy;
- medical-anatomical conceptual apparatus,
- skills of clinical and anatomical analysis;
- skills in analyzing physical patterns;
- microscopy techniques of histological preparations;

III. PLACE OF DISCIPLINE IN THE STRUCTURE OF EP

3.1 The discipline is basic and consists of a set of sections, forming the foundations of general professional and professional competencies, providing the basis for the study of clinical disciplines that contribute to the formation of medical thinking and is implemented by the departments of normal

anatomy, histology, cytology and embryology, normal physiology, pathological physiology, pathological anatomy, microbiology and virology No. 1, microbiology and virology No. 2, general and clinical biochemistry No. 1, general and clinical biochemistry with a course of organic and inorganic chemistry No. 2, pharmacology and clinical pharmacology, medical and biological physics.

3.2. The formation of the above competencies is facilitated by studying the following previous disciplines:

Pharmacology

Biochemistry

Anatomy

Histology, embryology, cytology

Normal physiology

Pathological anatomy

Pathological physiology

Chemistry

3.3. The discipline creates the prerequisites for successful mastery of clinical disciplines in the future.

IV. CONTENT AND STRUCTURE OF THE DISCIPLINE **Discipline complexity 2 z, 72 hours**

4.1. Sections of the discipline studied in the 7th semester

No. section	Section name	Number of hours			
		Total	Contact Job		SRO*
			L	WITH	
Semester 7					
1	Histology, embryology, cytology	6	2		3
2	Clinical biochemistry	6	2		3
3	Clinical microbiology	6	2		3
4	Pathophysiology	6	2		3

5	Biophysics	6	2		3
6	Pharmacology	6	2		3
7	human anatomy	6	4		4
8	Normal physiology	6	4		4
9	Pathological anatomy	6	4		4
	Interim certification form	18	test		
	<i>Total:</i>	72	24		thirty

4.2. Contact work

Lectures

No. section	No. lectures	Lecture topics	Qty hours
Semester 7			
1	1	Fundamental issues of cytology, special histology, embryology. Review lecture	2
2	2	Fundamental issues of clinical biochemistry. Review lecture	2
3	3	Fundamental issues of clinical microbiology. Review lecture	2
4	4	Fundamental issues of pathophysiology. Review lecture	2
5	5	Fundamental questions of biophysics. Review lecture	2
6	6	Fundamental issues of pharmacology. Review lecture	2
7	7	Fundamental questions of human anatomy. Review lecture	4
8	8	Fundamental questions of human physiology. Review lecture	4
9	9	Fundamental issues of pathological anatomy. Review lecture	4
Total			24

4.3. Independent work of students

No. section	Type of independent work of students	Qty hours	Forms current control
Semester 7			
1	Preparing for testing	3	testing

No. section	Type of independent work of students	Qty hours	Forms current control
2	Preparing for testing	3	testing
3	Preparing for testing	3	testing
4	Preparing for testing	3	testing
5	Preparing for testing	3	testing
6	Preparing for testing	3	testing
7	Preparing for testing	4	testing
8	Preparing for testing	4	testing
9	Preparing for testing	4	testing
Total		thirty	

V. INTERMEDIATE ASSESSMENT ASSESSMENT FUND (application)

VI. EDUCATIONAL AND METHODOLOGICAL SECURITY DISCIPLINES

6.1. Main literature

1. Histology, cytology, embryology" edited by Yu.I. Afanasyeva,
Moscow 2006
2. Zverev V.V. Medical microbiology, virology and immunology: textbook [*Rec. GBOU VPO 1st Moscow State Medical University named after. Sechenov*] / V.V. Zverev, A.S. Bykov. – M.: MIA, 2016. – 816 p.
3. Ovsyannikov V.G. General pathology (pathological physiology): a textbook for medical students, interns, FPK doctors / V.G. Ovsyannikov. – Rostov-n/D.: RostSMU. – 2010. Part 1. – 2010. –292 p.
4. Ovsyannikov V.G. General pathology" (pathological physiology): a textbook for medical students, interns, FPK doctors/ V.G. Ovsyannikov. – Rostov-n/D.: RostSMU. – 2010. Part 2. – 2011. – 255 p.

5. "Medical and biological physics" A.N. Remizov M.: GEOTAR-Media, 2012-2013
6. Pathological anatomy: textbook: in 2 volumes / ed. V.S. Paukova. – M.: GEOTAR-Media, 2015. – T. 1. – 720 p., T. 2. – 528 p.
7. Kharkevich D.A. Fundamentals of pharmacology: textbook for universities: [rec. UMO]: for university students / D.A. Kharkevich. - 2nd ed., rev. and additional –M. :GEOTAR-Media, 2015. - 717 p.
8. Gain M.G. Human anatomy: textbook. / M.G. Prives, N.K. Lysenkov, V.I. Bushkovich. – St. Petersburg: St. Petersburg MAPO, 2013. –720 p.
9. Human physiology: textbook / ed. V.M. Pokrovsky, G.F. Briefly. - M.: Medicine, 2011. GEOTAR-Media, 2010.

6.2. additional literature

1. Histology edited by E.G. Ulumbekov, Yu.A. Chebyshev, Moscow 1997
2. Test tasks in microbiology. - Part I: - ed. L.I. Vasilyeva. – Rostov n/d: publishing house Rostov State Medical University, 2013. – 72 p.
3. Test tasks in microbiology. - Part II: - ed. L.I. Vasilyeva. – Rostov n/d: publishing house Rostov State Medical University, 2013. – 60 p.
4. Litvitsky P.F. Pathophysiology: in 2 volumes: textbook for medical universities / P.F. Litvitsky. – M.: GEOTAR-media, 2002. T.1. – 2002. – 752 p.
5. Litvitsky P.F. Pathophysiology: in 2 volumes: textbook for medical universities / P.F. Litvitsky. – M.: GEOTAR-media, 2002. T.2. – 2002. – 808 p.
6. Physics and biophysics V.F. Antonov, A.V. Korzhuev M.: GEOTAR-MEDIA, 2011
7. Maisky V.V. Elementary pharmacology: textbook / V.V. May. - M: Center for Intersectoral Programs, 2008. - 544 p.
8. Kondrashev A.V. Normal human anatomy / A.V. Kondrashev, O.A. Kaplunova. – M.: Eksmo, 2010. – 400 p. – (Training course: short and accessible).
9. Orlov R.S. Normal physiology: textbook with compact. disk / R.S. Orlov, A.D. Nozdrachev. – M.: GEOTAR-MEDIA, 2006, 2010.
10. Pathology: textbook: in 2 volumes / ed. M.A. Paltseva, V.S. Paukova. – M.: GOETAR-Media, 2010. – T. 1. – 512 p., T. 2. – 488 p.

11. Atlas of normal physiology (Ed. Korobkov A.V. and Chesnokov S.A.). - M., Higher School, 1986.

6.4. Internet resources

	ELECTRONIC EDUCATIONAL RESOURCES	Access to the resource
1.	Electronic library RostSMU. - URL: http://109.195.230.156:9080/opacq/	Access is not limited
2.	Student Advisor: EBS. - Moscow: LLC "IPUZ". -URL: http://www.studmedlib.ru	Access is not limited
3.	Doctor's consultant. Electronic medical library: EBS. - Moscow: LLC GC "GEOTAR". - URL: http://www.rosmedlib.ru	Access is not limited
4.	UpToDate: DB /Wolters Kluwer Health. - URL: www.uptodate.com	Access is not limited
5.	Consultant Plus: reference legal system. -URL: http://www.consultant.ru	Access from university computers
6.	Scientific electronic library eLIBRARY. - URL: http://elibrary.ru	Open access
7.	National Electronic Library. - URL: http://neb.rf/	Access from computers libraries
8.	Scopus/Elsevier Inc., Reed Elsevier. - Philadelphia: Elsevier BV, PA. - URL: http://www.scopus.com/ via IP addresses of RostSMU and remotely after registration (<i>National project</i>)	Access is not limited
9.	Web of Science / Clarivate Analytics. - URL: http://apps.webofknowledge.com via IP addresses of RostSMU and remotely after registration (<i>National project</i>)	Access is not limited
10.	ScienceDirect. Freedom Collection [magazines] /Elsevier. - URL: www.sciencedirect.com . via IP addresses of RostSMU and remotely after registration (<i>National project</i>)	Access is not limited
eleven.	Springer Nature database. - URL: http://link.springer.com/ via IP addresses of RostSMU and remotely after registration, remotely via RFBRCIAS https://kias.rfbr.ru/reg/index.php (<i>National project</i>)	Access is not limited
12.	Wiley Online Library / John Wiley & Sons. - URL: http://onlinelibrary.wiley.com via IP addresses of RostSMU and remotely after registration (<i>National project</i>)	Access is not limited
13.	Single window of access to information resources. http://window.edu.ru/	Open access
14.	Russian education. Federal educational portal. - URL: http://www.edu.ru/index.php	Open access
15.	ENVOC.RU English vocabulary]: educational site for English learners. language - URL: http://envoc.ru	Open access
16.	Online dictionaries. - URL: http://dic.academic.ru/	Open access
17.	WordReference.com: online language dictionaries. -URL: http://www.wordreference.com/	Open access
18.	History.RF. - URL: https://histrf.ru/	Open access
20.	Official Internet portal of legal information. - URL: http://pravo.gov.ru/	Open access

21.	Federal Electronic Medical Library of the Russian Ministry of Health. - URL: http://www.femb.ru/feml/ , http://feml.scsml.rssi.ru	Open access
22.	Medline (PubMed, USA). - URL: https://pubmed.ncbi.nlm.nih.gov/	Open access
23.	Free Medical Journals. - URL: http://freemedicaljournals.com	Open access
24.	Free Medical Books. - URL: http://www.freebooks4doctors.com/	Open access
25.	International Scientific Publications. -URL: https://www.scientific-publications.net/ru/	Open access
26.	CyberLeninka: scientific electron. beep. -URL: http://cyberleninka.ru/	Open access
27.	Archive scientific magazines / NEICON. - URL: https://archive.neicon.ru/xmlui/	Open access
28.	ECO-Vector Journals Portal /Open Journal Systems. - URL: https://journals.eco-vector.com/	Open access
29.	Open access journals in Russian /platformEIPub NEICON. - URL: https://elpub.ru/	Open access
thirty.	Medical Herald South Russia. - URL: https://www.medicalherald.ru/jour or from the RostSMU website	Open access
31.	World Health Organization. - URL: http://who.int/ru/	Open access
32.	Evrika.ru information and educational portal for doctors. - URL: https://www.evrika.ru/	Open access
33.	Med-Edu.ru: medical video portal. - URL: http://www.med-edu.ru/	Open access
34.	Univadis.ru: international honey. portal. - URL: http://www.univadis.ru/	Open access
35.	DoctorSPB.ru: information-reference portal about medicine. - URL: http://doctorspb.ru/	Open access
36.	Modern problems of science and education: electron. magazine. - URL: http://www.science-education.ru/ru/issue/index	Open access
37.	Rubricator of clinical recommendations Ministry of Health of Russia. -URL: http://cr.rosminzdrav.ru/	Open access
38.	Education on Russian: portal / State. Institute of Russian language them. A.S. Pushkin. - URL: https://pushkininstitute.ru/	Open access
39.	Urology Herald: RostSMU magazine. -URL: https://www.urovest.ru/jour	Open access
40.	South Russian Journal of Therapeutic Practice. -URL: https://www.therapeutic-j.ru/jour/index	Open access
	Other Open resources can be found at: http://rostqmu.ru → Library→ Electronic catalogue→ Open Internet resources→ further by keyword...	

6.5. Guidelines for students on mastering the discipline

The discipline is complex, consisting of sections: histology, embryology, cytology, clinical biochemistry, clinical microbiology, pathophysiology, biophysics, pharmacology, human anatomy, normal physiology, pathological anatomy. The sections concentrate the knowledge that students should have mastered while studying

relevant disciplines in early courses. The course of lectures allows you to refresh and update knowledge on the topics of the sections. Independent preparation includes working with literature and solving test tasks with self-control. Students have the opportunity to test their knowledge of previously studied fundamental disciplines and fill possible gaps in preparation for mastering subsequent clinical disciplines.

VII. LOGISTICS DISCIPLINES

No. n\n	Name of the discipline (module), practice in in accordance with the curriculum plan	Name of special* premises and premises for independent work	Equipping special rooms and rooms for independent work
1	FUNDAMENTAL MEDICINE	344022, Rostov region, Rostov-on-Don, lane. Nakhichevansky, 38/57-59/212-214 (No. 41, Letter A-Ya, 1st floor) Auditorium No. 1,2,3,4 Classroom for conducting classes lecture type on discipline "Fundamental medicine"	150 seats Technical teaching aids used to present educational information to a large audience: multimedia presentation complex\
		344022, Rostov region, Rostov-on-Don, lane. Nakhichevansky, 38/57-59/212-214 (No. 41, Liter A-Ya, 7th floor, 344022, Rostov region, Rostov-on- Don, Adygeyskaya / Pushkinskaya st., 12/191. Special rooms for independent work - reading rooms of the library, auditorium of the Department of Physics, Department of Automation and monitoring the quality of training	Computer equipment with connecting to the Internet and providing access to the EIOS