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
_____ / 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

Rostov-on-Don
2023

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

Goalsmastering 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;
- developing in students the ability to competently select effective and safe drugs, taking into account their 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 developing competencies in

in accordance with the Federal State Educational Standard of Higher Education and the EP of Higher Education in this specialty: GPC-5, GPC-7.

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

know:

- basicareas of human anatomy, traditional and modern methods of anatomical research;
- generalpatterns 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 and

pathologies; 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 etiology and pathogenesis major human infectious diseases;

▪ entity 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;

▪ 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 drug nomenclature on the topic of occupation and affiliation 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 for 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 drugs 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 physiologicalconceptual 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 Discipline refers to the part formed by the participants educational relations and is a set of sections that form the basis 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		
	Total:	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
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

No. section	Type of independent work of students	Qty hours	Forms current control
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. 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.
10. Histology edited by E.G. Ulumbekov, Yu.A. Chebyshev, Moscow 1997
11. Test tasks in microbiology. - Part I: - ed. L.I. Vasilyeva. – Rostov n/d: publishing house Rostov State Medical University, 2013. – 72 p.
12. Test tasks in microbiology. - Part II: - ed. L.I. Vasilyeva. – Rostov n/d: publishing house Rostov State Medical University, 2013. – 60 p.
13. Litvitsky P.F. Pathophysiology: in 2 volumes: textbook for medical universities / P.F. Litvitsky. – M.: GEOTAR-media, 2002. T.1. – 2002. – 752 p.
14. Litvitsky P.F. Pathophysiology: in 2 volumes: textbook for medical universities / P.F. Litvitsky. – M.: GEOTAR-media, 2002. T.2. – 2002. – 808 p.
15. Physics and biophysics V.F. Antonov, A.V. Korzhuev M.: GEOTAR-MEDIA, 2011
16. Maisky V.V. Elementary pharmacology: textbook / V.V. May. - M: Center for Intersectoral Programs, 2008. - 544 p.
17. Kondrashev A.V. Normal human anatomy / A.V. Kondrashev, O.A. Kaplunova. – M.: Eksmo, 2010. – 400 p. – (Training course: short and accessible).
18. Orlov R.S. Normal physiology: textbook with compact. disk / R.S. Orlov, A.D. Nozdrachev. – M.: GEOTAR-MEDIA, 2006, 2010.
19. Pathology: textbook: in 2 volumes / ed. M.A. Paltseva, V.S. Paukova. – M.: GOETAR-Media, 2010. – T. 1. – 512 p., T. 2. – 488 p.
20. Atlas of normal physiology (Ed. Korobkov A.V. and Chesnokov S.A.). - M., Higher School, 1986.

6.2. Internet resources

	ELECTRONIC EDUCATIONAL RESOURCES	**Access** to the resource
	Electronic library RostSMU. – URL: http://109.195.230.156:9080/opacg/	Access is not limited
	Student Advisor[Kits: “Medicine. Healthcare. IN"; "Medicine. Healthcare. SPO"; "Psychological Sciences"]: Electronic library system. – Moscow: LLC "Polytekhresurs". - URL:https://www.studentlibrary.ru + opportunities for inclusive education	Access is not limited
	Doctor's consultant. Electronic medical library: Electronic library system. – Moscow: LLC “Higher School of Organization and Management of Healthcare. Complex	Access is not limited

	medical consulting". - URL:http://www.rosmedlib.ru + opportunities for inclusive education	
	Scientific electronic library eLIBRARY. - URL: http://elibrary.ru	Open access
	National Electronic Library. - URL:http://neb.rf/	Access from computers libraries
	Wiley. Full-text collection of electronic journals Medical Sciences Journal Backfile:archive. –URL: https://onlinelibrary.wiley.com/ ByIP addresses of RostSMU and remotely after registration*(National project)*	Indefinite subscription
	Sage Publication:[full text collection of e-books eBook Collections]. – URL: https://sk.sagepub.com/books/discipline By IP addresses RostSMU*(National project)*	Indefinite subscription
	Federal Center for Electronic Educational Resources. - URL:http://srtv.fcior.edu.ru/	Open access
	Electronic Library of the Russian Foundation for Basic Research(RFBR). -URL:http://www.rfbr.ru/rffi/ru/library	Open access
	Federal Electronic Medical Library of the Ministry of Health Russia. - URL:https://femb.ru/femb/	Open access
	Cochrane Library: official website ; chapter "Open Access". - URL: https://cochranelibrary.com/about/open-access	Content open access
	Webmedinfo.ru: website [open information and educational medical resource]. - Moscow. - URL:https://webmedinfo.ru/	Open access
	Univadis from Medscape: international honey. portal. -URL: https://www.univadis.com/ [Regularly updated database of unique information and educational medical resources].	Free registration
	Med-Edu.ru: medical educational video portal. -URL: http://www.med-edu.ru/.Free registration.	Open access
	Doctor's world:professional portal [information resource for doctors and students]. - URL:https://mirvracha.ru.	Free registration
	DoctorSPB.ru: information-reference portal about medicine [for students and doctors]. - URL:http://doctorspb.ru/	Open access
	BEARWEST : Russian doctor portal [library, database knowledge]. - URL:https://medvestnik.ru	Open access
	PubMed: electronic search engine [for biomedical research from the National Center for Biotechnology Information (NCBI, USA)]. - URL:https://pubmed.ncbi.nlm.nih.gov/	Open access
	Cyberleninka Open Science Hub: open scientific electronic library of publications in foreign languages. – URL: **https:// cyberleninka.org/**	Content open that access
	Lvrach.ru:honey. scientific-practical portal [largest prof. resource for doctors and honey community, created on the basis of scientific and practical. magazine "Attending doctor"]. - URL:https://www.lvrach.ru/	Open access
	ScienceDirect:official website; chapter "Open Access"**/**Elsevier. - URL: https://www.elsevier.com/open-access/open-access-journals	Content open access
	Ministry of Health of the Russian Federation: official website. - URL:https://minzdrav.gov.ru	Open access

	Federal Service for Supervisionin the field of healthcare: official. website. - URL:https://roszdravnadzor.gov.ru/	Open access
	World Health Organization: official website. -URL: http://who.int/ru/	Open access
	Ministry of Science and Higher Education Russian Federation: official website. - URL: http://minobrnauki.gov.ru/ (Yandex search engine)	Open access
	Modern problems of science and education: electron. magazine. Online publication. - URL: http://www.science-education.ru/ru/issue/index	Open access
	Dictionaries And encyclopedias on Academician. - URL: http://dic.academic.ru/	Open access
	OtherOpen 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

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 when studying the 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.