

**FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER
EDUCATION «ROSTOV STATE MEDICAL UNIVERSITY» OF THE MINISTRY
OF HEALTHCARE OF THE RUSSIAN FEDERATION**

Therapeutic and prophylactic faculty

I APPROVE
Head
educational program

 / E.S. Belousova _/

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DISCIPLINE WORK PROGRAM

BIOLOGY

Specialty (31.05.01_Medicine)

Form of study _____ full-time _____

**Rostov-on-Don
2023**

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

1.1. Goals of mastering the discipline: formation in students natural scientific worldview based on general theoretical knowledge in the field of biology, necessary for the practical activities of a general practitioner.

1.2. Objectives of studying the discipline:

- acquiring knowledge about multi-level organization biological systems, patterns of evolution of the organic world, functioning of biological systems;
- formation of the idea of a person as central object of study in medical biology;
- the study of the biosocial nature of man, his subordination general biological laws of development, the unity of man with his environment;
- formation of an idea of the modern ecosystem, the action of anthropogenic factors in it, human adaptation to the environment.

II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The study of the discipline is aimed at developing competence in accordance with the Federal State Educational Standard of Higher Education and the EP of Higher Education in this specialty:

General professional – GPC -5.

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

3.1. The discipline is a mandatory part and is basic (B1.B.16).

IV. CONTENT AND STRUCTURE OF DISCIPLINE Labor intensity of the discipline in 6 hours 216 ___

4.1. Sections of the discipline studied in 1.2 semesters

No. section	Name section	Number of hours						SRS
		Total	Contact work					
			L	WITH	ETC	LR		
Semester 1								
1	Cytology basics molecular biology	With 24	6	-	10	-	8	

2	General medical genetics	And 34	6	-	16	-	12
3	Onto-phylogenesis	And 14	4	-	6	-	4
Total for the semester		72	16	-	32	-	24
Intermediate form certification		test					
Semester 2							
3	Onto- and phylogenesis	26	4	-	12	-	10
4	Medical parasitology	73	10	-	33	-	thirty
5	General ecology. Ecology person medical ecology.	And eleven	2	-	3	-	4
Total for the semester		108	16	-	48	-	44
Intermediate form certification		36	exam				
<i>Total for the discipline:</i>		216	32	-	80	-	68

4.2. Contact work

Lectures

No. section	No. lectures	Lecture topics	Qty hours
Semester 1			
1	1	Biology and medicine.	2
	2	Molecular genetics of life. level organizations	2
	3	Molecular mechanisms transcriptions And broadcasts.	2
2	4	Cellular level organizations life. Chromosomal and genomic levels of organization of hereditary material.	2
	5	Variability And her forms. Mutational variability.	2
	6	Medical genetics.	2

3	7	Ontogenesis. <small>Are common</small> patterns. Progenesis. Characteristics of the embryonic period.	2
	8	Patterns of ontogenesis. Genetic control of individual development.	2
Total for the semester hours			16
Semester 2			
3	1	Basic patterns of phylogenetic transformations.	2
	2	Phylogeny of organs and organ systems.	2
4	3	Ecological basis of parasitism.	2
	4	Fundamentals of medical parasitology. The doctrine of natural focal diseases.	2
	5	General and medical protozoology.	2
	6	General and medical helminthology. Type of flatworms.	2
	7	General and medical helminthology. Type of roundworms. General and medical arachnoentomology.	2
5	8	Man and the environment. Ecological foundations of human health.	2
Total for the semester hours			16
<i>Total hours discipline:</i>			32

Practical work

No. section	No. ETC	Topics of practical work	Number in hours	Shapes of the current control
Semester 1				
1	1	Light microscope device and technique microscopy. Cellular organization level biological systems.	2	Testing and/or oral survey, solution situational tasks
1	2	Transport of substances into the cell. Lifetime study methods normal And damaged cells.	2	Testing and/or oral survey, solution situational tasks

No. section	No. ETC	Topics of practical work	Number in hours	Shapes of the current control
1	3	Organization hereditary material in pro- and eukaryotes. Reproduction at the cellular level.	2	Testing and/or oral survey, solution situational tasks
1	4	Structure eukaryotic And prokaryotic gene. Protein biosynthesis.	2	Testing and/or oral survey, solution situational tasks
1	5	Rubezhny rating No. 1 "Cytology With basics molecular biology". Colloquium. Skill.	2	Testing/ interview, change practical skill
2	6	Linked inheritance. Genetics floor. Inheritance, adhered to the floor.	2	Testing and/or oral survey, solution situational tasks
2	7	Variability, its forms.	2	Testing and/or oral survey, solution situational tasks
2	8	Methods genetics research person: genealogical, twin.	2	Testing and/or oral survey, solution situational tasks
2	9	Methods genetics research person: biochemical, population-statistical.	2	Testing and/or oral survey, solution situational tasks
2	10	Cytogenetic genetics research method person. Skill.	2	Testing and/or oral survey, solution situational tasks, delivery practical skill
2	eleven	Modern methods of genetics and working with gene databases.	2	Testing and/or oral survey, solution situational tasks

No. section	No. ETC	Topics of practical work	Number in hours	Shapes of the current control
2	12	Medical-genetic consulting. Hereditary diseases.	2	Testing and/or oral survey, solution situational tasks, delivery practical skill
2	13	Milestone rating No. 2. "General and medical genetics". Colloquium. Skill.	2	Testing/ interview, change practical skill
3	14	Reproduction. Progenesis and its role.	2	Testing and/or oral survey, solution situational tasks
3	15	Are common patterns embryonic development.	2	Testing and/or oral survey, solution situational tasks
3	16	Regulation ontogeny. Molecular genetic mechanisms of differentiation.	2	Testing and/or oral survey, solution situational tasks
Total for the semester hours			32	
Semester 2				
3	1	Evolution covers body And musculoskeletal systems vertebrates.	3	Testing and/or oral survey, solution situational tasks
3	2	Evolution digestive, respiratory and circulatory vertebrate systems.	3	Testing and/or oral survey, solution situational tasks
3	3	Evolution urogenital And integrative vertebrates. systems	3	Testing and/or oral survey, solution situational tasks
3	4	Milestone rating No. 3 "Onto-and phylogeny". Colloquium.	3	Testing/ interview

No. section	No. ETC	Topics of practical work	Number in hours	Shapes of the current control
4	5	General And medical protozoology. Flagellates. Sarcodae,	3	Testing and/or oral survey, solution situational tasks
4	6	General And medical protozoology. ciliates. Sporozoans,	3	Testing and/or oral survey, solution situational tasks
4	7	Milestone rating No. 4 "General and medical protozoology". Colloquium.	3	Testing/ interview
4	8	General And medical helminthology. Type Flat worms Class Flukes.	3	Testing and/or oral survey, solution situational tasks
4	9	General And medical helminthology. Type Flat worms Class Tapeworms.	3	Testing and/or oral survey, solution situational tasks
4	10	General And medical helminthology. Type Round worms Class Actually roundworms (geo- and biohelminths).	3	Testing and/or oral survey, solution situational tasks
4	eleven	Milestone rating No. 5 "General and medical helminthology". Colloquium. Skill.	3	Testing/ interview, change practical skill
4	12	Type Arthropods. Subtype Cheliceraceae. Class arachnids. Squad Ticks.	3	Testing and/or oral survey, solution situational tasks
4	13	Type Arthropods. Subtype Tracheal breathing. Class Insects. Squads: cockroaches, bedbugs, lice, fleas, dipterans.	3	Testing and/or oral survey, solution situational tasks
4	14	Parasitic illnesses South Russia.	3	Testing and/or oral survey, solution situational tasks

No. section	No. ETC	Topics of practical work	Number in hours	Shapes of the current control
4	15	Milestone rating No. 6 "General and medical arachnoentomology". Colloquium.	3	Testing/ interview
5	16	Adaptation person To environment.	3	Testing and/or oral survey
Total for the semester hours			48	
<i>Total hours discipline:</i>			80	

4.3. Independent work of students

No. section	Type of independent work students	Qty hours	Shapes of the current control
Semester 1			
1	Preparation for practical classes	2	Oral survey/ testing, solution situational tasks, delivery practical skill
	Completing tasks	2	Oral survey/ testing, solution situational tasks
	Solving test tasks	1	Testing
	Solving situational problems	1	Solution situational tasks
	Preparation for current control	2	Testing/ oral examination, delivery practical skill

No. section	Type of independent work students	Qty hours	Shapes of the current control
2	Preparation for practical classes	4	Oral survey/ testing, solution situational tasks, delivery practical skills
	Completing tasks	2	Oral survey/ testing, solution situational tasks
	Solving test tasks	2	Testing
	Solving situational problems	2	Solution situational tasks
	Compilation of pedigrees	1	Change practical skill
	Preparation for current control	1	Testing/ oral examination, delivery practical skills
3	Preparation for practical classes	1	Oral survey/ testing, solution situational tasks
	Completing tasks	1	Oral survey/ testing, solution situational tasks
	Solving test tasks	1	Testing
	Solving situational problems	1	Oral survey, solution situational tasks
Total hours per semester		24	
Semester 2			
	Preparation for practical classes	2	Oral survey/ testing, solution situational tasks

No. section	Type of independent work students	Qty hours	Shapes of the current control
3	Completing tasks	2	Oral survey/ testing, solution situational tasks
	Solving test tasks	2	Testing
	Solving situational problems	2	Oral survey, solution situational tasks
	Preparation for current control	2	Testing, oral survey
4	Preparation for practical classes	10	Oral survey/ testing, solution situational tasks, delivery practical skill
	Completing tasks	6	Oral survey/ testing, solution situational tasks
	Solving test tasks	5	Testing
	Solving situational problems	6	Oral survey, solution situational tasks
	Preparation for current control	3	Testing, oral examination, delivery practical skill
5	Preparation for practical training	2	Oral survey/ testing
	Preparation for intermediate control	2	Testing, delivery drugs
Total hours per semester		44	
<i>Total hours discipline:</i>		68	

**V. ASSESSMENT MATERIALS FOR CURRENT CONTROL,
INTERMEDIATE CERTIFICATION** (are an
appendix to the work program).

VI. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF DISCIPLINE

6.1. Printed publications

1. Yarygin V.N. Biology: textbook: in 2 volumes / V.N. Yarygin. - Moscow: GEOTAR-Media, 2021. – Access from the EBS “Student Consultant”.
2. Pekhov A.P. Biology. medical biology, genetics and parasitology. textbook for medical universities / A.P. Pekhov. – Moscow: GEOTAR-Media, 2011. – 656 p. – Access from the EBS “Student Consultant”.
3. Azova M.M. Biology: textbook / M.M. Azova, O.B. Gigani, O.O. Gigani [and etc.]. – Moscow: GEOTAR-Media, 2023. - 712 p. – Access from the EBS “Student Consultant”.
4. Markina V.V. Biology. Guide to practical training / V.V. Markina, Yu.D. Oborotistov, N.G. Lisatova [and others]. – Moscow: GEOTAR-Media, 2015. – 448 p. – Access from the EBS “Student Consultant”.
5. Atlas of medical parasitology: textbook / N.V. Chebyshev, M.V. Dalin, G.S. Guzikov [and others]. Perv. Moscow state honey. University named after THEM. Sechenov. – Moscow: MIA, 2020. – 202 p.
6. Azova M.M. Medical parasitology / M.M. Azova, O.B. Gigani, O.O. Gigani. – Moscow: GEOTAR-Media, 2017. - 304 p. – Access from the EBS “Student Consultant”.

6.2. Internet resources

	ELECTRONIC EDUCATIONAL RESOURCES	Access to the resource
1	Electronic library RostSMU. – URL: http://109.195.230.156:9080/opac/	Access is not limited
2	Consultant student [Kits: "Medicine. Healthcare. VO", "Medicine. Healthcare SPO", "Psychological Sciences", to individual editions of the sets: "Humanities and Social Sciences", "Natural and Exact Sciences" included in the "ELS "Student Consultant"]: Electronic library system. – Moscow: LLC "Student Consultant". - URL: https://www.studentlibrary.ru + opportunities for inclusive education	Access is not limited
3	Scientific electronic library eLIBRARY. - URL: http://elibrary.ru	Open access
4	National Electronic Library. - URL: http://neb.rf/	Virtual reading room at the library
5	DB published by Springer Nature. - URL: https://link.springer.com/ via IP addresses of RostSMU and remotely after registration, remotely via RFBR KIAS https://kias.rfbr.ru/reg/index.php (<i>National project</i>)	Indefinite subscription, no access limited

6	Federal Center for Electronic Educational Resources. - URL: http://srtv.fcior.edu.ru/ (Yandex search engine)	Open access
7	Electronic library of the Russian Foundation for Basic Research (RFBR). - URL: http://www.rfbr.ru/rffi/ru/library	Open access
8	Federal Electronic Medical Library of the Russian Ministry of Health. - URL: https://femb.ru/femb/ (Yandex search engine)	Open access
9	Central Scientific Library named after Sechenov. - URL: https://rucml.ru (Yandex search engine)	Limited access
10	Wiley: official website; section "Open Access" / John Wiley & Sons. - URL: https://authorservices.wiley.com/open-research/open-access/browse-journals.html (Yandex search engine)	Content open access
eleven	Webmedinfo.ru: honey. website [open information educational medical resource]. - Moscow. - URL: https://webmedinfo.ru/	Open access
12	Univadis from Medscape: international. honey. portal. - URL: https://www.univadis.com/ [Regularly updated database of unique information. and educate. honey. resources]. Free registration	Open access
13	MEDVESTNIK: portal of a Russian doctor [library, knowledge base]. - URL: https://medvestnik.ru	Open access
14	PubMed: electronic search engine [for biomedical research]. - URL: https://pubmed.ncbi.nlm.nih.gov/ (Yandex search engine)	Open access
15	Cyberleninka Open Science Hub: open scientific electronic library of publications in foreign languages. - URL: https://cyberleninka.org/	Open access
16	Lvrach.ru: honey. scientific-practical portal [professional resource for doctors and medical professionals. communities, based on scientific and practical magazine "Attending Physician"]. - URL: https://www.lvrach.ru/ (Yandex search engine)	Open access
17	Directory of Open Access Journals: [full-text journals from 121 countries, incl. in medicine, biology, chemistry]. - URL: http://www.doaj.org/	Content open access
18	Archive of scientific journals / NP NEIKON. - URL: https://arch.neicon.ru/xmlui/ (Yandex search engine)	Content open access
19	Free Medical Journals. - URL: http://freemedicaljournals.com	Content open access
20	Free Medical Books. - URL: http://www.freebooks4doctors.com	Content open access
21	International Scientific Publications. - URL: http://www.scientificpublications.net/ru/	Content open access
22	Medline.Ru: medical and biological information portal for specialists: network electronic scientific publication. - URL: http://www.medline.ru	Open access

23	Medical Bulletin of the South of Russia: electronic. magazine / RostSMU. - URL: http://www.medicalherald.ru/jour (Yandex search engine)	Content open access
24	Meduniver.com All about medicine: website [for medical students]. - URL: www.meduniver.com	Open access

6.3. Guidelines for students on mastering the discipline

The training consists of contact work (112 hours), including lectures and practical work, and independent work (68 hours). The main study time is allocated to practical work (80 hours).

Practical work is carried out in the form of active and interactive forms of training, demonstrations of macro- and micropreparations, the use of visual aids, presentations, video materials, solving situational problems, answering test tasks, and discussions.

Independent work of students involves preparing for practical classes, completing assignments, solving test tasks and situational problems, preparing for current and intermediate control. It promotes mastery of a culture of thinking, the ability to logically present results in oral and written form, the perception of innovation, and forms the ability and readiness for self-improvement, self-learning and self-realization.

Students are provided with access to the library funds of the University and the department.

Completing group tasks builds a sense of teamwork and sociability.

The initial level of students' knowledge is determined by testing, the current control of mastering the subject is determined by oral questioning during classes, when solving typical situational problems, answering test tasks and passing practical skills.

At the end of studying the academic discipline, an intermediate control of knowledge is carried out using test control, determination of drugs, solving situational problems and an oral interview.