

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) I. S. Belousova /  
(FULL NAME.)



2023

**DISCIPLINE WORKING PROGRAM**  
**HISTOLOGY, EMBRYOLOGY, CYTOLOGY**

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: to develop in students systematized knowledge, skills and abilities in the course of the discipline based on modern achievements of micro- and ultramicroscopy; formation in students of a morphofunctional approach to the study of the development, structure and functions of various intracellular structures, cells, tissues, organs and systems of the human body; formation in the future doctor of theoretical and clinical thinking, the ability to analyze and use acquired knowledge when studying other fundamental and clinical disciplines, as well as to understand structural and functional changes in the cells and tissues of various organs in pathological conditions.

1.2. Objectives of studying the discipline:

- when developing students' knowledge of the discipline course, provide specialized lectures and practical classes in cytology, embryology, general and specific histology, taking into account age and clinical orientation;
- study of the morphofunctional features of prenatal and postnatal histogenesis of human tissues and organs, age-related changes in organs and tissues, as well as the regenerative capabilities of individual tissues and organs;
- developing in students the skills of light microscopy of histological preparations, the ability to identify organs, tissues, cells and intercellular structures at the light and electron microscopic levels.
- formation of an integrated approach among students when studying the histological structure of organs, tissues and systems that closely interact in the human body; as well as for understanding pathological processes necessary for diagnosis and further successful treatment;
- formation of ideas among future doctors about the importance of fundamental research in histology as a science for applied and theoretical medicine.
- formation and instilling in students the traditional principles of humanism and mercy, highly moral standards of behavior in student groups; respectful attitude towards senior colleagues and students;
- developing students' skills in abstract thinking, analysis and synthesis of obtained data;
- developing skills in working with educational, scientific, popular science and foreign literature

## II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The process of studying the discipline is aimed at developing the following competencies in accordance with the Federal State Educational Standard for Higher Education in this specialty:

- 2.1. Universal (UK):
- 2.2. General professional (OPK): OPK-5.
- 2.3. Professional (PC):

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

- 3.1. The academic discipline “Histology, embryology, cytology” is a basic part.
- 3.2. The knowledge, skills and proficiency formed by this academic discipline are necessary for anatomy, normal physiology, pathological physiology, pathological anatomy, topographic anatomy and operative surgery.

## IV. CONTENT AND STRUCTURE OF DISCIPLINE

Labor intensity of the discipline in z.e. 7, hour 252

2nd semester z.e.3, hour 108; 3rd semester z.e.4, hour 144

### 4.1. Sections of the discipline studied in the 2nd and 3rd semester(s)

Section number	Section name	Number of hours					
		Total	Contact Work				SR
			L	WI TH	ETC	LR	
<b>Semester 2</b>							
1	Cytology	12	2		6		4
2	Embryology	5			3		2
3	General histology	70	10		thirty		thirty
4	Private histology	21	4		9		8
Total for the semester		108	16		48		44
Interim certification form - test		Pass/no grade					
<b>Semester 3</b>							
4	Private histology	99	14		45		40

5	Embryology person	9	2		3		4	
Total for the semester		108 144	16		48		44	
Interim certification form - exam		36						
<i>Total for the discipline:</i>		252	32		108		96	

**SR-** independent work of students

**L-** lectures

**WITH-** seminars (in accordance with the RUP)

**LR** –laboratory work (in accordance with the RUP)

**ETC-** practical exercises (in accordance with the RUP, they include clinical practical exercises)

## 4.2. Contact work

### Lectures

No. section	No. lectures	Lecture topics	Number of hours
<b>Semester 2</b>			
1	1	Introduction to the course of histology. Cytology	2
3	2	The doctrine of tissues. Epithelial tissue	2
3	3	Blood, lymph	2
3	4	Connective tissues. Skeletal tissues.	2
3	5	Muscle tissue	
3	6	Nervous tissue	2
4	7	The cardiovascular system	2
4	8	Organs of hematopoiesis and immune defense	2
Total hours per semester			16
<b>Semester 3</b>			
4	1	Endocrine system	2
4	2	Digestive system	2
4	3	Digestive system	2
4	4	Excretory system	2
4	5	Nervous system	2
4	6	Sense organs	2
4	7	Sex glands	2

5	8	Human embryology	2
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Total for the semester		16
<i>Total hours discipline:</i>		32

### Practical lessons

No. section	No. PR	Practical topics	Quantity hours	Forms of current control
<b>Semester 2</b>				
1	1	Introduction to the course of histology Cytology	3	Testing, interview
1	2	Cytology	3	Testing, interview
2	3	Cytology. Cell division	3	Testing, interview
3	4	Basics of general embryology	3	Testing, interview
3	5	Principles of tissue organization. Epithelial tissues. Glands	3	Testing, interview
3	6	Blood and lymph	3	Testing, interview
3	7	Connective tissues	3	Testing, interview
3	8	Final lesson	3	Testing, interview
3	9	Skeletal tissues. Cartilage tissue	3	Testing, interview
3	10	Skeletal tissues. Bone tissue.	3	Testing, interview
3	eleven	Muscle tissue	3	Testing, interview
3	12	Nervous tissue	3	Testing, interview
4	13	Respiratory system	3	Testing, interview
4	14	The cardiovascular system	3	Testing, interview
4	15	Organs of hematopoiesis and immune defense	3	Testing, interview
4	16	Final lesson	3	Testing, interview
<i>Total hours per semester:</i>			48	

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No. section	No. PR	Practical topics	Quantity hours	Forms of current control
<b>Semester 3</b>				
4	1	Leather and its derivatives	3	Testing, interview
4	2	Endocrine glands	3	Testing, interview
4	3	Endocrine glands	3	Testing, interview
4	4	Digestive system	3	Testing, interview
4	5	Digestive system	3	Testing, interview
4	6	Digestive system	3	Testing, interview
4	7	Excretory system	3	Testing, interview
4	8	Final lesson	3	Testing, interview
4	9	Nervous system	3	Testing, interview
4	10	Nervous system	3	Testing, interview
4	eleven	Sense organs	3	Testing, interview
4	12	Sense organs	3	Testing, interview
4	13	Female reproductive system	3	Testing, interview
4	14	Male reproductive system	3	Testing, interview
4	15	Human embryology	3	Testing, interview
5	16	Final lesson	3	Testing, interview
Total hours per semester:			48	
<i>Total hours discipline:</i>			96	

### 4.3. Independent work of students

No. section	Type of independent work of students	Quantity hours	Forms of current control
Semester 2			
1	Microscoping of microslides	24	Interview survey

No. section	Type of independent work of students	Quantity hours	Forms of current control
2	Analysis of electron diffraction patterns	10	Interview survey
3	Solving situational problems	10	Interview survey
Total hours per semester		44	
Semester 3			
1	Microscoping of microslides	24	Interview, survey
2	Analysis of electron diffraction patterns	10	Interview, survey
3	Solving situational problems	10	Interview survey
Total hours per semester		44	
<i>Total hours discipline:</i>		88	

## V. ASSESSMENT MATERIALS FOR CURRENT CONTROL AND INTERMEDIATE CERTIFICATION

Evaluation materials for determining the level of competencies obtained as a result of mastering the discipline “Histology, embryology, cytology” are an appendix to the work program in the specialty 05/31/01 Medical business.

## VI. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF DISCIPLINE

### 6.1. Printed publications.

1. Histology, embryology, cytology: Textbook edited by Professor Yu.I. Afanasyev, professor N.A. Yurina 6th edition, revised and expanded - LLC Publishing Group "GEOTAR-Media", 2018 -802p.
2. Bykov V.A. Cytology and general histology: Functional morphology of human cells and tissues: a textbook for medical students. Institute / V.L. Bykov. - St. Petersburg: SOTIS, 2007. -520 p.

3. Bykov V.A. Particular human histology. / V.L. Bykov. – Edition 2, St. Petersburg: SOTIS, 1999. – 301c.
4. Danilov R.K., Klishov A.A., Borovaya T.G. Histology, embryology, cytology. Textbook. Moscow: GEOTAR-Media, 2020. - 528 p.
5. Histology, embryology, cytology: textbook: S.L. Kuznetsov, N.N. Mushkanbarov. Textbook, third edition corrected and expanded - Medical Information Agency Moscow - 2016 - 620 p.



## 6.2. Internet resources(from the list of RostSMU library)

	<b>ELECTRONIC EDUCATIONAL RESOURCES</b>	<b>Access to the resource</b>
	<b>Electronic library RostSMU.</b> – URL: <a href="http://109.195.230.156:9080/opacg/">http://109.195.230.156:9080/opacg/</a>	Unlimited access
	<b>Student Advisor</b> [Kits: "Medicine. Healthcare. IN"; "Medicine. Healthcare. SPO"; "Psychological Sciences"]: Electronic library system. – Moscow: LLC "Polytekhresurs" - URL: <a href="https://www.studentlibrary.ru">https://www.studentlibrary.ru</a> + opportunities for inclusive education	Unlimited access
	<b>Scientific electronic library eLIBRARY.</b> - URL: <a href="http://elibrary.ru">http://elibrary.ru</a>	Open access
	<b>National Electronic Library.</b> - URL: <a href="http://neb.rf/">http://neb.rf/</a>	Access from library computers
	<b>Sage Publication:</b> [full-text collection of electronic books eBook Collections]. – URL: <a href="https://sk.sagepub.com/books/discipline">https://sk.sagepub.com/books/discipline</a> via IP addresses RostSMU (National Project)	Lifetime subscription
	<b>Med-Edu.ru:</b> medical educational video portal. - URL: <a href="http://www.med-edu.ru/">http://www.med-edu.ru/</a> . Free registration.	Open access
	<b>Scientific heritage of Russia: eelectronic library /MSC RAS.-</b> URL: <a href="http://www.e-heritage.ru/">http://www.e-heritage.ru/</a>	Access limited
	<b>Wiley Online Library</b> /John Wiley & Sons. - URL: <a href="http://onlinelibrary.wiley.com">http://onlinelibrary.wiley.com</a> via IP addresses of RostSMU and remotely after registration (National Project)	Open access
	<b>Archive scientific magazines / NP NEICON.</b> - URL: <a href="https://arch.neicon.ru/xmlui/">https://arch.neicon.ru/xmlui/</a>	Open access
	<b>Federal Electronic Medical Library of the Russian Ministry of Health.</b> - URL: <a href="http://femb.rucml.ru/femb/">http://femb.rucml.ru/femb/</a>	Open access
	<b>CyberLeninka:</b> scientific electron. beep. - URL: <a href="http://cyberleninka.ru/">http://cyberleninka.ru/</a>	Open access
	<b>BEARWEST.</b> Russian doctor portal: library, knowledge base. - URL: <a href="https://medvestnik.ru">https://medvestnik.ru</a>	Open access
	<b>Medical Bulletin of the South of Russia.</b> - URL: <a href="http://www.medicalherald.ru/jour">http://www.medicalherald.ru/jour</a> or from the RostSMU website( <a href="#">search engine</a> <a href="#">Yandex system</a> )	Open access
	<b>Free Medical Books.</b> - URL: <a href="http://www.freebooks4doctors.com">http://www.freebooks4doctors.com</a>	Open access
	<b>Directory of Open Access Journals:</b> [full text journals 121 countries incl. By medicine, biology, chemistry]. - URL: <a href="http://www.doaj.org/">http://www.doaj.org/</a>	Open access
	<b>Official Internet portal of legal information.</b> - URL: <a href="http://pravo.gov.ru/">http://pravo.gov.ru/</a>	Open access
	<b>Dictionaries And encyclopedias on Academician.</b> - URL: <a href="http://dic.academic.ru/">http://dic.academic.ru/</a>	Open access
	<b>Ministry Sciences And higher education</b> Russian Federation. - URL: <a href="http://minobrnauki.gov.ru/">http://minobrnauki.gov.ru/</a>	Open access
	<b>Modern problems of science and education:</b> electron. magazine. - URL: <a href="http://www.science-education.ru/ru/issue/index">http://www.science-education.ru/ru/issue/index</a>	Open access

### **6.3. Guidelines for students on mastering the discipline**

1. A textbook for practical classes in cytology, embryology and general histology. Under the general editorship of Doctor of Medical Sciences, V.V. Alekseeva. Rostov-on-Don, RostSMU, 2023, 64 p.
2. A textbook for practical classes in private histology and human embryology. Under the general editorship of Doctor of Medical Sciences, V.V. Alekseev. Rostov-on-Don, RostSMU, 2023, 88 p.
3. Workbook for practical classes in histology. Part 1. Under General editor: Doctor of Medical Sciences, V.V. Alekseev. Rostov-on-Don, RostSMU, 2023.27 p.

## **VII. LOGISTICS**

### **DISCIPLINES(table)**

No.	Namediscipline (module), in accordance with the curriculum	Address (location) of educational lecture halls for lecturing, classrooms for practical classes, consultations, ongoing monitoring of intermediate certification in the discipline	Equipment of the classroom (technical means, sets of demonstration equipment, laboratory equipment, etc.)	Number of computers to access the Internet
1.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212- 214. Housing (No. 19) Pat. anatomy, histology and operative surgery (Liter: N) – 3rd floor, classroom No. 1	The premises are equipped with specialized furniture; teaching tables (12 pcs.), chairs (20 pcs.), 1 table for the teacher, educational board, set of educational and visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 12-15 pcs., histological microslides 10-15 pcs.	Not in classrooms
2.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212- 214. Housing (No. 19) Pat. anatomy, histology and operative surgery (Liter: N) – 3rd floor, classroom No. 2	The premises are equipped with specialized furniture; teaching tables (14 pcs.), chairs (20 pcs.), 1 table for the teacher, educational board, set of educational and visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 12-15 pcs., histological microslides 10-15 pcs.	Not in classrooms

3.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. Housing (No. 19) Pat. anatomy, histology and surgical surgery(Liter: N) – 3rd floor, classroom No. 3	The premises are equipped with specialized furniture; teaching tables (12 pcs.), chairs (20 pcs.), 1 table for the teacher, educational board, set of educational and visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 12-15 pcs., histological microslides 10-15 pcs.	Not in classrooms
4.	Histology,embryology, cytology - histology of the oral cavity.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. Building (No. 19) of pathological anatomy, histology and surgery surgery(Liter: N) – 3rd floor, classroom No. 4	The premises are equipped with specialized furniture; teaching tables (8 pcs.), chairs (20 pcs.), 1 table for the teacher, educational board, set of educational and visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 12-15 pcs., histological microslides 10-15 pcs.	Not in classrooms
5.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. Building (No. 19) of pathological anatomy, histology and operative surgery (Liter: N) – 3rd floor, classroom No. 5	The premises are equipped with specialized furniture; teaching tables (8 pcs.), chairs (20 pcs.), 1 table for the teacher, educational board, set of educational and visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 12-15 pcs., histological microslides 10-15 pcs.	Not in classrooms

6.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. Building (No. 19) of pathological anatomy, histology and surgery surgery(Liter: N) – 3rd floor, classroom No. 6	The premises are equipped with specialized furniture; study tables (1 large table), chairs (10 pcs.), 1 table for the teacher, educational board, set of educational visual aids (tables). Demonstration material for each topic (1-5). Light microscopes 10 pcs., histological microslides 10 pcs.	Not in classrooms
7	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. (Liter: N). Building (No. 19) of pathological anatomy, histology and operative surgery <b>Lecture auditorium.</b> (150 seats)	The room is equipped with specialized educational furniture (150 seats) Technical teaching aids used for presentation There is no educational information for a large audience.	
7.	Histology,embryology, cytology.	344022, Rostov region, Rostov-on-Don, lane. Nakhichevan, 38/57-59/212-214. (Liter: L). building (No. 17) of the Department of Normal Anatomy Lecture auditorium. (150 seats)	The room is equipped with specialized educational furniture (150 seats) Technical teaching aids used for presentation educational information for a large audience: multimedia presentation complex.	

### CHECKLIST

discipline: Histology, embryology, cytology

Type of certification:

**test**

Department of Histology, Cytology and Embryology

Well\_\_1\_\_Semester\_\_2\_\_Specialty 05/31/01\_ General Medicine

No.	Types of current control activities	Number of points for 1 control event	Number of events	min – max number of points Total
1	<b>Current control:</b> Performance in practical classes attendance	Lecture	3-5	16 (in each semester)
			0.5	16 (in 2 semesters)
2	<b>Frontier control:</b> 1 checkpoint: testing, oral interview 2nd control point: testing, oral interview		3-8	1
			3-8	1
Total				60 – 100

percentage of correct answers	Marks
91-100	Great
81-90	Fine
71-80	satisfactorily
Less than 71	unsatisfactory