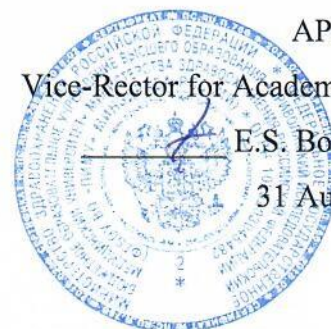


Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation



APPROVED

Vice-Rector for Academic Affairs

E.S. Bogomolova

31 August 2021

WORKING PROGRAM

Name of the academic discipline: **HISTOLOGY, EMBRYOLOGY,
CYTOLOGY - HISTOLOGY OF THE ORAL CAVITY**

Specialty: **31.05.03 DENTISTRY**

Qualification: **DENTIST**

Department: **HISTOLOGY WITH CYTOLOGY AND EMBRYOLOGY**

Mode of study: **FULL-TIME**

Labor intensity of the academic discipline: **216 academic hours**

Nizhny Novgorod
2021

The working program has been developed in accordance with the Federal State Educational Standard for specialty 31.05.03 DENTISTRY approved by Order of the Ministry of Science and Higher Education of the Russian Federation No. 984 of August 12, 2020.

Developers of the working program:

N.V. Blagova PhD, Associate Professor of the Department of Histology with Cytology and Embryology of FGBU VPO PIMU Ministry of Health of Russian Federation

The program was reviewed and approved at the department meeting (protocol No 7, 04/15/2021)

Head of the Department of Histology with Cytology and Embryology of FGBU VPO PIMU Ministry of Health of Russian Federation,

Doctor of Biology, Associate Professor, MB /M.L. Bugrova/
(signature)

04/15/2021

AGREED

Deputy Head of EMA ph.d. of biology LL Lovtsova L.V.

(signature)

04/15/2021

1. The purpose and objectives of mastering the academic discipline “Histology, embryology, cytology - histology of the oral cavity” (hereinafter – the discipline):

1.1. The purpose of mastering the discipline: (*participation in forming the relevant competencies*).

- Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment and lifelong learning (UC-6);
- Able to implement and realize monitoring the effectiveness of the patient's medical rehabilitation including in the implementation of individual rehabilitation and habilitation programs for the disabled people, assess the patient's ability to carry out work activities (GPC -8
- Able to implement the principles of quality management in the professional activity (GPC -9)

1.2. Requirements to the deliverables of mastering the discipline

As a result of completing the discipline, the student should

Know:

- general and specific structural and functional properties of cells of all body tissues and patterns of their embryonic and postembryonic development;
- functional, age-related and protective-adaptive changes in histological elements;
- basic histological international terminology;

Be able to:

- investigate histological preparations using a computer and a light microscope;
- identify organs, tissues, cells and non-cellular structures at the microscopic level;
- evaluate the hemogram and percent of leukocytes;

Possess:

- skills of working with educational and scientific literature;
- skills of independent analytical, research work.

2. Position of the academic discipline in the structure of the General Educational Program of Higher Education (GEP HE) of the organization.

2.1. The discipline “**Histology, embryology, cytology - histology of the oral cavity**” refers to the core part of Block 1 of GEP HE (B1.C.15).

The discipline is taught in 2-3 semester/1-2 year of study.

2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:

- *biology*
- *physics*
- *chemistry*

Parallel study of anatomy, physiology with histology, embryology, cytology creates a view of the human body as a whole for the further study of medical and sanitary disciplines.

2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:

- *pathological anatomy*
- *pathological physiology*

3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following universal (UC) or/and general professional (GPC) or/and professional (PC) competencies

№	Competen	The content	Code and name of the	As a result of mastering the discipline, the
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	ce code	of the competence (or its part)	competence acquisition metric	students should:		
				know	be able to	possess
1.	UC-6	Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment and lifelong learning	<p>IC-1 UC 6.1 Knows: the importance of planning long-term goals of activity taking into account conditions, means, personal opportunities, stages of career growth, time perspective of development of activity and requirements of the labor market; technology and methodology of self-assessment; basic principles of self-education</p> <p>IC-2 UC 6.2 Able to: determine the priorities of professional activity and ways to improve it on the basis of self-assessment; control and evaluate the components of professional activity; plan independent activities in solving professional problems</p> <p>IC-3 UC 6.3 Has practical experience in: planning their own professional activities and self-development, studying additional educational programs</p>	The importance of planning learning goals taking into account the conditions, means, personal capabilities, time prospects of development in the study of the subject; technology and methodology of self-assessment; basic principles of self-education and self-education	To determine the priorities of educational activity and ways to improve it on the basis of self-assessment; to monitor and evaluate the components of learning; to plan independent work on the study of the subject	Skills of planning their own activities for better assimilation of the material and self-development, study of additional educational programs
2.	GPC-8	Able to use basic physico-chemical, mathematical and natural science concepts and methods in solving professional problems	<p>IC-1 GPC 8.1 Knows: basic physico-chemical, mathematical and natural science concepts and methods that are used in medicine</p> <p>IC-2 GPC 8.2 Is able to: interpret the data of the basic physico-chemical, mathematical and natural science research methods in solving professional problems</p> <p>IC-3 GPC 8.3 Has practical</p>	The main physico-chemical and natural science terms and methods used in the study of histology	To interpret the data of the main physico-chemical and natural science research methods when giving a histophysiological assessment	The main physico-chemical and scientific methods of research in the interpretation of histological structures on samples and

			experience in the application of basic physico-chemical, mathematical and natural science research methods in solving professional problems		of the state of various cellular, tissue and organ structures in humans	electron micrographs
3.	GPC-9	Able to assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional problems	<p>IC1^{GPC-9.1} Knows: anatomy, histology, embryology, topographic anatomy, physiology, pathological anatomy and physiology of human organs and systems</p> <p>IC2^{GPC 9.2} Able to: evaluate the basic morphological and functional data, physiological conditions and pathological processes in the human body</p> <p>IC2^{GPC 9.3} Has practical experience in: assessment of basic morphological and functional data, physiological conditions and pathological processes in the human body when solving professional problems</p>	Basic laws of development, structure and vital activity of the human body based on the structural and functional organization of cells, tissues and organs; methods of histological examination; systemic properties in the relationship of structural elements of the human body; knowledge of basic natural science and, in particular, medical terminology.	To work with a light microscope; to give a histophysiological assessment of the state of various cellular, tissue and organ structures in humans; to use educational and scientific literature, the Internet for professional activities.	The technique of light microscopy of histological preparations; the skills of describing histological preparations and electronic microphotographs.

4. Sections of the academic discipline and competencies that are formed when mastering them

№	Competence code	Section name of the discipline	The content of the section in teaching units
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1.	Introduction to the subject. Histological technique. Cytology	4		12		6	22
2.	Human embryology	2		3		6	11
3.	General histology	6		24		16	46
4.	Special histology	12		45		44	101
	TOTAL	26		82		72	180

* - L – lectures; LP – laboratory practicum; P – practicals; S – seminars; SIW – student's individual work.

6.2. Thematic schedule of educational work types:

6.2.1 Thematic schedule of lectures

№	Name of lecture topics	Volume in AH	
		2 semester	3 semester
1.	INTRODUCTION TO THE COURSE OF HISTOLOGY. CYTOLOGY. The subject and tasks of histology, its significance for medicine, research methods. The main manifestations of the vital activity of cells. Synthetic processes in the cell. Intracellular regeneration. Intercellular interactions. The reaction of cells to external influences. The cell nucleus. The life cycle and reproduction of the cell.	4	
2.	HUMAN EMBRYONIC DEVELOPMENT. The meaning and periods of embryogenesis: fertilization, cleavage, gastrulation, histogenesis and organogenesis. Medical periodization of human embryogenesis.	2	
3.	TISSUES: general presentation and classification. Criteria for the classification of tissues. EPITHELIUM. Morphofunctional characteristics of epithelium. Classification. Regeneration. Glands. Principles of classification of glands. Types of secretion.	2	
4.	CONNECTIVE AND SUPPORTING TISSUES. Classification. BLOOD AND LYMPH. Blood cells and cellular elements: structure and meaning. CONNECTIVE TISSUES PROPER. Loose fibrous connective tissue. Cells and intercellular substance. Dense connective tissue. Special types of connective tissues.	2	
5.	SKELETAL TISSUE. CARTILAGE: structure and development. BONE: types, structure, development and regeneration. Age-related changes.	2	
6.	MUSCLE TISSUE. Classification. Features of the structure, functioning, histogenesis and regeneration of various types of muscle tissue. Receptor elements of the motor analyzer.		
7.	NERVOUS TISSUE. Types of neurons and neuroglia. Peripheral departments of analyzers. Nerve fibers. Nerve endings. Synapses. Interneuronal connections and principles of the organization of neural systems. Histogenesis and regeneration of nervous tissue.		
8.	NERVOUS SYSTEM. Interneuronal connections and principles of the organization of neural systems. Central and peripheral nervous system. Principles of structural and functional organization of nerves,		

	peripheral ganglia, spinal cord and brain.		
9.	SENSE ORGANS. Classification of sensory organs. The organ of vision. The shells of the eye. Accommodation-dioptic apparatus of the eye. Neural organization of the retina. The organ of hearing and balance.		
10.	CARDIOVASCULAR SYSTEM. Blood and lymphatic vessels: classification, features of structure and functioning. Heart. Histogenesis and structure of the heart wall. Types of cardiomyocytes. The conducting system of the heart. Innervation. Regeneration. Age-related changes.		2
11.	INTEGUMENTARY SYSTEM. Embryonic sources. The structure and functions of different skin parts. Types of human skin. Skin glands, hair, nails.		
12.	RESPIRATORY SYSTEM. Sources of respiratory organs development. The mucosa of the nasal cavity. Larynx. Trachea. Lung: features of portions of the bronchial tree, alveoli. Acinus. Air-blood barrier.		
13.	ORGANS OF HEMATOPOIESIS AND IMMUNOGENESIS. Embryonic and postembryonic hematopoiesis. Unitary theory of hematopoiesis. Stem cells. Characteristics of hematopoietic elements at different stages of development, cellular compartments of the bone marrow. Regulation of hematopoiesis, the role of reticular tissue. Development, structure and vital activity of the bone marrow, thymus, spleen, lymph nodes. Lymphoid tissue of internal organs.		
14.	ENDOCRINE SYSTEM. General structural and functional characteristics and classification of endocrine organs. The concept of neurotransmitters, target organs and the principles of their interaction. Hypothalamic-pituitary relationship. Pituitary gland. Thyroid gland. Parathyroid glands. The adrenal glands. Sources of their embryonic development, structure, structural and functional characteristics.		2
15.	HISTOLOGY OF THE ORAL CAVITY. TEETH: structure and development. Age-related changes.		2
16.	HISTOLOGY OF THE ORAL CAVITY. Types of mucosa. Sources of development and structure. Tongue, lips, cheeks, gums, hard and soft palate, pharyngeal tonsils. Minor salivary glands. Saliva, its composition and physiological significance.		2
17.	ALIMENTARY CANAL. Embryonic sources. The general plan of the wall structure. Esophagus, wall features throughout. Stomach. Intestine. Structure, cellular composition of the mucosa, histophysiology, blood supply and innervation; structural and functional features in different departments.		2
18.	GLANDS OF THE DIGESTIVE SYSTEM: salivary, pancreas, liver with gallbladder. Their embryonic sources and structure. Essential characteristics of the blood supply of the liver.		2
19.	URINARY SYSTEM. Kidney: development, structure of the nephron, blood supply. Histophysiology of urine formation. Juxtaglomerular apparatus, its structure and significance. Endocrine function of the kidney. Excretory passages.		
20.	REPRODUCTIVE SYSTEM. MALE REPRODUCTIVE SYSTEM. Testis: generative and endocrine structures. Genital ducts. FEMALE REPRODUCTIVE SYSTEM. Ovaries, oviducts, uterus.		

21.	FETAL MEMBRANES AND HUMAN PRIVISIONAL ORGANS. Placenta, amnion and umbilical cord. Their formation, structure and significance in human embryogenesis.		
	TOTAL (total – 24 AH)	12	12

6.2.2. The thematic plan of laboratory practicums (*this type of classes is unstipulated in the curriculum*)

6.2.3. Thematic plan of practicals

№	Name of the topics of practicals	Volume in AH	
		2 semester	3 semester
1.	Methods and techniques of histological studies. Cells. Intercellular substance	3	
2.	The structure of the cytoplasm	3	
3.	The nucleus. Cell reproduction	3	
4.	Human embryology	3	
5.	<i>Current monitoring</i>	3	
6.	Epithelial tissue. Glands	3	
7.	Mesenchyme. Blood. Lymph. Reticular tissue	3	
8.	Connective tissue proper. Adipose tissue	3	
9.	Cartilage tissue. Cartilage	3	
10.	Bone tissue. Bone formation. Bone	3	
11.	Muscle tissue. Muscle	3	
12.	Nervous tissue		
13.	<i>Current monitoring</i>	3	
14.	Peripheral nervous system	3	
15.	Central nervous system	3	
16.	Sensory organs		3
17.	Cardiovascular system		3
18.	Integumentary system		3
19.	Respiratory system		3
20.	Endocrine system		3
21.	<i>Current monitoring</i>		3
22.	Digestive system. Organs of the oral cavity 1		3
23.	Digestive system. Organs of the oral cavity 2		3
24.	Digestive system. Organs of the oral cavity 3 - Teeth		3
25.	Digestive system. Esophagus. Stomach		3
26.	Digestive system. Intestine		3
27.	Digestive system. Digestive glands		3
28.	Digestive system. Liver. Gallbladder		3
29.	<i>Current monitoring</i>		3
	TOTAL (total – 84 AH)	42	42

6.2.4. Thematic plan of seminars (this type of classes is unstipulated in the curriculum)

6.2.5. Types and topics of student's individual work (SIW)

№	Types and topics of SIW	Volume in AH	
		2 semester	3 semester
1.	Working with electronic educational resources on the distance education portal of PIMU	18	18
2.	Working with literature and other sources of information	18	18
	TOTAL (total – 72 AH)	36	36

7. Types of assessment formats for ongoing monitoring and mid-term assessment

№	Semester No.	Types of control		Name of section of academic discipline	Competence codes	Assessment formats		
						types	number of test questions	number of test task options
1	2	Current monitoring	Control of mastering the topic	Introduction to the subject. Histological technique. Cytology. Human embryology	UC-6 GPC-8 GPC-9	Test	30	1
			Monitoring the student's individual work			Light microscopy technique. Diagnostics of histopreparations and electron micrographs	2	1
2	2		Control of mastering the topic	General histology	UC-6 GPC-8 GPC-9	Test	30	1
			Monitoring the student's individual work			Diagnostics of histopreparations and electron micrographs	2	1
3	2-3		Control of mastering the topic	Special histology	UC-6 GPC-8 GPC-9	Test	30	1
			Monitoring the student's individual work			Diagnostics of histopreparations and electron micrographs	2	1
4	3		Control of mastering the topic	Special histology (Digestive system)	UC-6 GPC-8 GPC-9	Test	30	1

			Monitoring the student's individual work			Diagnostics of histopreparations and electron micrographs		2 1
5	3	Mid-term assessment	Exam	Histology, embryology, cytology - histology of the oral cavity	UC-6 GPC-8 GPC-9	Test control	50	1
						Diagnostics of histopreparations and electron micrographs		3 1
						Job interview		1

EXAMPLES OF EVALUATION MEANS:

1. The skills of mastering the technique of light microscopy are tested during the first thematic control.
2. Protocols of practical classes, drawn up by students personally on the basis of studying histopreparations, are used for the current control.
3. The assimilation of theoretical knowledge is discussed during the interview on questions to the topic of the lesson.
4. The assimilation of key terms and classification is controlled by sets of test tasks.

Test tasks examples:

	Questions	Select one or more correct answers
1	CONSTANT ESSENTIAL CYTOPLASMIC PARTICLES	<u>organelles</u> inclusion fibrils cisternae granules
2	FUNCTION OF GOLGI APPARATUS	protein synthesis synthesis of steroids and lipids calcium deposit <u>modification of proteins and lipids</u> <u>formation of secretory products</u>
3	PART OF TOOTH DEVELOPMENT AT EARLY STAGE OF DEVELOPMENT	<u>enamel organ</u> osteogenic elements <u>dental papilla</u> blastema <u>dental sac</u>
4	THE CELLS FORMING THE ENAMEL	odontoblasts (dentinoblasts) inner cells of the enamel organ <u>enameloblasts (ameloblasts)</u> intermediate cells of enamel organ outer cells of the enamel organ
5	TUNICS OF THE ESOPHAGEAL WALL	<u>mucosa</u> <u>submucosa</u> <u>muscularis</u> propria <u>outer</u>

5. For the Current monitoring of the assimilation of educational material, thematic control classes are used, combining diagnostics and "reading" histopreparations and electronic

microphotographs, as well as test tasks on relevant topics.

6. The course examination control includes examination testing and an interview on the issues of the examination ticket.

There are only 54 exam tickets.

3 histopreparations and an electronic micrograph are attached to each ticket. The ticket contains three questions. The first question is purely practical, requires recognition and description of histopreparations and electronic micrography. The answer to the second question requires a detailed description of one of the histopreparations and involves a combination of theoretical knowledge and the ability to apply them to its analysis. The third question is devoted to one of the major topics of the course.

Examples of exam tickets:

EXAMINATION CARD

STOMATOLOGICAL FACULTY

DEPARTMENT OF HISTOLOGY, CYTOLOGY AND EMBRYOLOGY

1. Names and characteristics of histological preparations.
2. Oral cavity. The precursors of development. General morpho-functional characteristics of mucosa. The oral mucosa. Lip. Tongue: layers, papillae, organ of taste, minor salivary glands. Gingiva or gum. Cheek. Hard Palate. Soft Palate. Tonsils.
3. Female reproductive system. Ovary. The structural organization and functions. Gametogenesis and steroidogenesis. Uterus. Cyclic changes. Mammary gland.

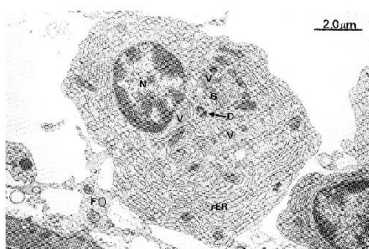
EXAMINATION CARD

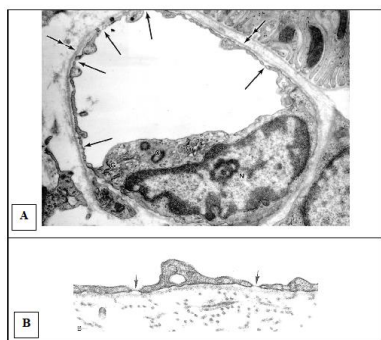
STOMATOLOGICAL FACULTY

DEPARTMENT OF HISTOLOGY, CYTOLOGY AND EMBRYOLOGY

1. Name and specific structures of the histological preparation.
2. Teeth: structure and development. Tooth parts. Hard and soft tissues of a tooth, their origin, structure and functions.
3. The central nervous system. Brain and spinal cord. Spinal cord. Origination in embryogenesis. Tissue organization. White and gray matter structure. Internal and external interneuronal connections. Ability for regeneration.

Examples of electron micrographs for credit:





8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1.	Ross, M.H. Histology: a Text and Atlas / M.H. Ross, G.I. Kaye, W. Pawlina – Philadelphia.: Lippincott W&W, 2016. – 876 pp.	no	50
2.	Gartner, L.P. Color Textbook of Histology / L.P. Gartner, J.L. Hiatt – W.B.Saunders Company, 2017. – 577 pp.	no	50
3.	Yushkantseva, Sophia I. A brief atlas of histology, cytology and embryology / S.I. Yushkantseva, V. Bykov. – St.Petersburg : s.n., 2007. – 120 p.: 279 ill.	no	100

8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1.	Textbook of oral and maxillofacial anatomy, histology, and embryology. Oxford University Press, 2006.-286c.	no	Electronic library system
2.	Carlson, B.M. Human Embryology and Developmental Biology: textbook / B.M. Carlson. – Elsevier, Mosby, 2004. – 528 pp.	no	Electronic library system
3.	Sadler, T.W. Langman's Medical Embryology: textbook / T.W. Sadler. – Lippincott W&W, 2000. – 504 pp.	no	Electronic library system
4.	Methodological manuals for practical classes for students in modules	for each student (in the SDE)	

8.3. Electronic educational resources for teaching academic subjects

8.3.1. Internal Electronic Library System of the University (IELSU)

№	Name of the electronic resource	Brief description (content)	Access conditions	Number of users
1.	Internal electronic library system (IELS) http://nbk.pimunn.net/MegaPro/Web	Proceedings of the faculty of the university: textbooks, teaching aids, collections of problems, methodological manuals,	From any computer and mobile device with an individual login and password.	Not limited

		laboratory work, monographs, collections of scientific papers, scientific articles, dissertations, abstracts of dissertations, patents	Access mode: http://nbk.pimunn.net/MegaPro/Web	
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8.3.2. Electronic educational resources acquired by the University

№	Name of the electronic resource	Brief description (content)	Access conditions	Number of users
1.	ELS "Student Advisor" (Electronic database "Student Advisor". Database "Medicine. Healthcare (VO) and "Medicine. Healthcare (SPO)") http://www.studmedlib.ru	Educational literature, additional materials (audio, video, interactive materials, test tasks) for higher medical and pharmaceutical education	From any computer and mobile device with an individual login and password. Access mode: http://nbk.pimunn.net/MegaPro/Web	Not limited
2.	Database "Doctor's Consultant. Electronic Medical Library» https://www.rosmedlib.ru	National guidelines, clinical guidelines, textbooks, monographs, atlases, pharmaceutical guides, audio and video materials, ICD-10 and ATC	From any computer and mobile device with an individual login and password. Access mode: http://nbk.pimunn.net/MegaPro/Web	Not limited
3.	Electronic library system "Bukap" https://www.books-up.ru	Educational and scientific medical literature of Russian publishing houses, incl. translations of foreign publications. Within the framework of the Big Medical Library project, publications of universities participating in the project are available	From any computer and mobile device using an individual login and password; access from university computers is automatic. Publications from the "My Books" section are available for reading. Access mode: http://nbk.pimunn.net/MegaPro/Web	Not limited
4.	Electronic periodicals as part of the database "Scientific electronic library eLIBRARY" https://elibrary.ru	Electronic medical magazines	From university computers. Access mode: https://elibrary.ru	Not limited
5.	Integrated information and library system (IBS) of the scientific and educational medical cluster of the Volga Federal District - "Srednevolzhsky" (contract free of charge)	Electronic copies of scientific and educational publications from the funds of the libraries participating in the scientific and educational medical cluster of the Volga Federal District	Access by individual login and password from any computer and mobile device. Access mode: sites of libraries participating in the project	Not limited

		"Srednevolzhsky"		
6.	National Electronic Library (NEL) (contract free of charge) http://нэб.рф	Electronic copies of publications (including scientific and educational) on a wide range of knowledge	Scientific and educational works that have not been republished for the last 10 years are in the public domain. Works limited by copyright – from the computers of the scientific library. Access mode: http://нэб.рф	Not limited

8.3.3 Open access resources

№	Name of the electronic resource	Brief description (content)	Access conditions
1.	Federal Electronic Medical Library (FEML) http://нэб.рф	Full-text electronic copies of printed publications and original electronic publications in medicine and biology	From any computer on the Internet. Access mode: http://нэб.рф
2.	Scientific electronic library eLIBRARY.RU https://elibrary.ru	Abstracts and full texts of scientific publications, electronic versions of Russian scientific journals	From any computer and mobile device. Access mode: https://elibrary.ru
3.	Scientific electronic library of the open Access CyberLeninka http://cyberleninka.ru	Full texts of scientific articles with annotations published in scientific journals in Russia and neighboring countries	From any computer and mobile device. Access mode: http://cyberleninka.ru
4.	Springer Electronic Collection https://rd.springer.com	Full-text scientific publications (journals, books, articles, scientific protocols, conference proceedings)	From university computers. Access mode: https://rd.springer.com
5.	Wiley Periodicals Database www.onlinelibrary.wiley.com	Wiley Periodicals	From university computers, from any computer using an individual login and password Access mode: www.onlinelibrary.wiley.com

6.	Electronic collection of periodicals "Freedom" on the Science Direct platform https://www.sciencedirect.com	Elsevier Periodicals	From university computers, from any computer using an individual login and password Access mode: https://www.sciencedirect.com
7.	Scopus database www.scopus.com	International Science Citation Abstract Database	From university computers, from any computer using an individual login and password Access mode: www.scopus.com
8.	Web of Science Core Collection Database https://www.webofscience.com	International Science Citation Abstract Database	From university computers, from any computer using an individual login and password Access mode: https://www.webofscience.com
9.	Questel Database Orbit https://www.orbit.com	Questel Patent Database	From university computers Access mode: https://www.orbit.com
10.	PubMed https://www.ncbi.nlm.nih.gov/pubmed	Search engine of the US National Library of Medicine on the databases "Medline", "PreMedline"	From any computer and mobile device. Access mode: https://www.ncbi.nlm.nih.gov/pubmed
11.	Directory of Open Access Journals http://www.doaj.org	Directory of open access to the full-text collection of periodicals	From any computer and mobile device. Access mode: http://www.doaj.org
12.	Directory of open access books (DOAB) http://www.doabooks.org	Directory of open access to the full-text collection of scientific books	From any computer and mobile device. Access mode: http://www.doabooks.org

9. Material and technical support for mastering an academic discipline

9.1. List of premises for classroom activities for the discipline

1. Large lecture hall - 303 seats
2. Classrooms for practical classes (6 rooms for 84 workplaces)

9.2. List of equipment for classroom activities for the discipline

1. Multimedia complexes (laptop, projector, screen) in the lecture hall
2. Computers for individual work of students in classrooms
3. Sets of scanned histopreparations for the discipline
4. Laptops in classrooms to demonstrate materials on televisions
5. Televisions in classrooms
6. Light microscopes in classrooms to demonstrate histopreparations
7. Sets of histopreparations on all topics
8. Sets of multimedia visual materials

9. Blackboards in classrooms
10. A set of electronic microphotographs for the course
11. Test tasks on the topics of classes

9.3. A set of licensed and freely distributed software, including domestic production

Item no.	Software	number of licenses	Type of software	Manufacturer	Number in the unified register of Russian software	Contract No. and date
1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	
4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN10030 LLC "Softline Trade" from 04.12.2020

10. List of changes to the working program (to be filled out by the template)

Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation
(FSBEI HE "PRMU" of the Ministry of Health of Russia)

Department of
Name of the department

CHANGE REGISTRATION SHEET

working program for the academic discipline
NAME OF THE ACADEMIC DISCIPLINE

Field of study / specialty / scientific specialty: _____ (code, name)

Training profile: _____
(name) - for master's degree programs

Mode of study: _____
full-time/mixed attendance mode/extramural

Position	Number and name of the program section	Contents of the changes made	Effective date of the changes	Contributor's signature
1				

Approved at the department meeting
Protocol No. _____ of _____ 20__

Head of the Department

department name, academic title signature / print name