

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Project management in health care**

Field of training **31.05.01 General Medicine**

Year of study/ term **2/4**

Form of the interim assessment **Pass/fail test**

Department **of Public Health, Health Care and Social Work**

Discipline workload **72** (academic hours) / **2** (credits)

Approved at the department meeting

Minutes No. 8

"03" June 2021

Head Department



E.A. Mordovsky

Author and compiler:

V.A. Postoev, Cand. of Science., PhD

Associate Professor at the Department of Public Health, Health Care and Social Work

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum

Disciplines of the curriculum prior to the study of this: the basics of research in medicine.

Disciplines of the curriculum based on the content of this: public health and health care, health economics.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: organizational and administrative.

2. Goal and tasks of the mastering of the discipline

The goal of the discipline is to prepare students for the implementation of professional activities in the field of healthcare organization: the formation of competencies in project management in medical organizations, that are necessary for the professional activity of a doctor.

Discipline objectives:

1. Formation of knowledge on the issues of project initiation, formation of the project team, tools of project activities in healthcare
2. Formation of skills in the application of modern methods and models of project management for the development and implementation of healthcare projects
3. Formation of skills for assessing the results of project implementation in medicine and healthcare.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program.

Codes of the formed competences	Indicator of the competence achievement
UC-2. Able to manage a project at all stages of its life cycle	ID-2.1. Provides ideas and defines requirements for project results ID-2.2. Substantiates the resource provision of projects ID-2.3. Promotes innovative ideas and non-standard approaches for project implementation ID-2.4. Evaluates the effectiveness of project work ID-2.5. Manages the project at all stages of the life cycle
UC-3. Able to organize and manage the work of a team, developing a team strategy to achieve a set goal	ID-3.1. Develops a teamwork strategy to achieve a set goal ID-3.2. Forms a team and leads its work in order to achieve the set goal ID-3.3. Defines the management style for effective team work ID-3.4. Arguments and defends his opinion, bears personal responsibility for the result ID-3.5. Resolves conflicts and contradictions within the team
UC-6. Able to determine and implement the priorities of his own activity and ways to improve it based on self-esteem and lifelong education	ID-6.1. Evaluates its resources and their limits (personal, situational, temporary), uses them optimally for the successful fulfillment of professional tasks ID-6.2. Plans and controls independent activities in solving professional problems ID-6.3. Builds an educational trajectory of professional development
GPC-11. Able to prepare and apply scientific, research and production, design, organizational, management and regulatory documentation in the health care system	ID-1. Knows how to search and select scientific, regulatory and organizational and management documentation in accordance with the specified conditions, their analysis and application to solve professional problems ID-3. Prepares information and analytical materials, including for the public presentation of the results of scientific work (report, abstracts, articles)

Professional competencies are established on the basis of the professional standard of a general practitioner (district therapist), approved by order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 N 293n "On the approval of the professional standard" General practitioner (district therapist) ".

4. The scope of the discipline (module) and types of training:

The total workload of the course is 2.0 credit units.

Type of educational work	Total hours	Term
		4
Students' contact work with the teacher (total)	32	32
Including:		
Lectures (L)	12	12
Seminars (Sem)		
Practical classes (PC)	24	24
Clinical practices (CPT)		
Laboratory-based practicals (LBP)		
Simulation-based practicals (SBP)		
Preparation for the examination (PE)		
Preparation for the credit (PC)		
Exam consultation (Conse)		
Coursework (CW)		
Unsupervised work (UW) (total)	36	36
Examination control (EC)		
Total discipline workload	72/2	72

5. Course content:

5.1. Contents of the sections of the course

No.	The name of the course section	Content of the section
1.	Theoretical foundations of project management	Methodological foundations of project management. Method of projects. The essence and content of project activities. Stages of project activities. The main legislative and regulatory documents for the organization of project activities. Classification of projects in health care. Products of project activities. Formation of the project team, distribution of roles and functions, the scheme of interaction of project members. Digital tools for project activities and communication
2.	Basic process in project management	Analytical activities in health care. Basics of SWOT, PEST analysis in health care. Market analysis techniques. Presentation of the results of analytical work. Design tools. Project indicators (goal, resources, expected effects, risks). Roadmap (Gantt chart). Indicative indicators of the project implementation. Financing of projects. Fundraising. Healthcare startups.
3.	Project management practices in healthcare	Products of design activities in health care. State social projects in the field of healthcare. Social projects in healthcare. Non-profit organizations, their functions and funding. Healthcare innovation. Digital projects in health care. Projects in the field of digital transformation of medicine and healthcare. Projects in the field of health-saving technologies. Health promotion. Lean technologies in healthcare. Health policies and programs at international and national level.

5.2. Sections and types of studies

No. p / p	The name of the discipline section	L	S	P	CP	LBP	SBP	UW	Total hours
1.	Theoretical foundations of project management	4		8				12	24
2.	Basic process in project management	4		8				12	24
3.	Project management practices in healthcare	4		8				12	24

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No. p / p	The name of the discipline section	Types of independent work	Forms of control
1.	Theoretical foundations of project activities	Mastering an online course on the COURSERA Filling out the project passport Drawing up a smart map of the project	Testing Review for the project passport Review of the smart card
2.	Basic project management processes	Drawing up a matrix of responsibility and a project schedule in the form of a Gantt chart Compilation of the SWOT analysis matrix	Presentation and discussion in the audience Presentation and discussion in the audience
3.	Project management practices in healthcare	Preparation of reports Preparing a project plan	Presentation of the report and its assessment by the teacher Project defense

7. Forms of control

7.1. Current forms of control

- oral (presentation, defense of projects)
- written (completing assignments and testing in an electronic course in Moodle).

A theme list of abstracts, essays, projects, typical test tasks, typical situational tasks, etc. are given in Appendix No. 4 "Evaluation Tools" to the work program.

7.2. Forms of the interim assessment: pass/fail test (defense of course projects)

An approximate list of topics for course projects is given in Appendix No. 4 "Evaluation Tools" to the work program.

8. Library and information materials of the course

8.1. Compulsory literature

1. Yakovleva, NF Project activity in an educational institution [Electronic resource]: a tutorial / NF Yakovleva. - 2nd ed., Erased. - Moscow: Flinta, 2014. -- 144 p. - URL: <http://www.studentlibrary.ru/>

8.2. Supplementary literature:

1. Santos C, Santos V, Tavares A, Varajão J: Project Management in Public Health: A Systematic Literature Review on Success Criteria and Factors. Port J Public Health 2020; 38: 37-48. doi: 10.1159/000509531
2. Trosman JR; Carlos RC; Simon MA; Madden DL; Gradishar WJ; Benson AB 3rd; Rapkin BD; Weiss ES; Gareen IF; Wagner LI; Khan SA; Bunce MM; Small A; Weldon CB, Journal of oncology practice [J Oncol Pract], ISSN: 1935-469X, 2016 Nov; Vol. 12 (11), pp. 1101-1113; Publisher: American Society of Clinical Oncology; PMID: 27577619, База данных: MEDLINE Complete

3. Maas J, Journal of healthcare protection management : publication of the International Association for Hospital Security [J Healthc Prot Manage], ISSN: 0891-7930, 2013; Vol. 29 (2), pp. 74-82; Publisher: International Association for Hospital Security; PMID: 24020323, База данных: MEDLINE Complete.
4. Hills LS, The Journal of medical practice management : MPM [J Med Pract Manage], ISSN: 8755-0229, 2010 Mar-Apr; Vol. 25 (5), pp. 271-5; Publisher: American Association for Physician Leadership; PMID: 20480774, База данных: MEDLINE Complete

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

Resource name	Url	Resource annotation
Electronic library systems (electronic libraries)		
Electronic library of NSMU	http://lib.nsmu.ru/lib/	educational, educational-methodical and scientific literature
EBS "Student's Consultant": Medicine. Healthcare. Humanities and social sciences. Natural Sciences	http://www.studentlibrary.ru/ http://www.studmedlib.ru/ http://www.medcollegelib.ru/	sets of educational and scientific literature on medicine, health care, natural, humanitarian and social sciences
EMB "Doctor's Consultant"	http://www.rosmedlib.ru	practical guides, reference books, monographs, recommendations and other publications
MedOneEducation -Электронная библиотека медицинских учебниковиздательства «Thieme»	http://medone- education.thieme.com/	online books in English
Professional databases		
Database of scientific journals. Scientific electronic library Medline	https://pubmed.ncbi.nlm.nih.gov/	PubMed comprises more than 33 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full text content from PubMed Central and publisher web sites.
WHO publications. Database "GlobalIndexMedicus". World health organization	https://www.who.int/ru	information materials, reports from WHO, etc.
Базаданных «Web of Science» (WOS)	https://www.webofscience.com	biomedical literature, life science journals, and online books
База данных «Scopus»	https://www.scopus.com/	biomedical literature, life science journals, and online books
Электронные ресурсы издательства Wiley	https://onlinelibrary.wiley.com/	biomedical literature, life science journals, and online books
Information reference systems		
reference system Federal Electronic Medical Library (FEMB)	http://femb.ru/	State Pharmacopoeia of the Russian Federation, clinical guidelines (treatment protocols), scientific and educational literature, dissertations and abstracts
Other resources		
Russian scientific fund	https://rnf.rf	The purpose of the RSF is to provide financial and organizational support for fundamental research and exploratory research, training of scientific personnel, and the development of research teams holding leading positions in a particular field of science.

Innovation Promotion Fund	https://umnik.fasie.ru	The Fund for Assistance to the Development of Small Forms of Enterprises in the Scientific and Technical Sphere (hereinafter referred to as the Fund) is a state non-profit organization in the form of a federal state budgetary institution, established in accordance with the Decree of the Government of the Russian Federation of February 3, 1994 No. 65. Programs for supporting innovative projects Umnik and Start
Presidential Grants Fund	президентскиегранты.рф	The Presidential Grants Fund is the single operator of the grants of the President of the Russian Federation, provided for the development of civil society, since April 3, 2017. The Foundation holds competitions and, based on their results, provides grants to non-profit organizations for the implementation of social projects.

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

No.	EO and bunker site	Name of the e-course, authors, URL address	E-course implementation model
1	EOS MOODLE	https://edu.nsmu.ru/course/view.php?id=6945 Postoev V.A. Tsyganova O.A. Mordovsky E.A.	+ EC

8.5. The list of the software and information & reference systems

In the implementation of the educational process, students and faculty use the following software: **operating system** - MSWindowsVistaStarter, MSWindowsProf 7 Upgr; **office suite** - MSOffice 2007; other **software** - 7-zip, AdobeReader, KasperskyEndpointSecurity

9. Material and technical facilities necessary for the educational process

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Aud. No. 2453 <i>Office of Public Health and Health Care, Organization of Professional Activities</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	30 seats Multimedia projector - 1, computer - 1 pc.
2	Aud. No. 2441 <i>Cabinet of Economics and Management in Health Care, Economics and Management of Laboratory Services</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	24 seats Multimedia projector - 1.
3	Aud. No. 2451 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	42 seats Multimedia projector - 1, computer - 1 pc.

4	Aud. No. 2442 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	30 seats Multimedia projector - 1.
5	Audit No. 2440 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	11 seats. computer - 11 pcs., connected to the Internet, multimedia projector - 1
6	Aud. No. 2445 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	28 seats, TV - 1

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Human anatomy**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **1,2 / 1,2,3**

Form of the interim assessment **Examination**

Department **of Human anatomy and operative surgery**

Discipline workload **504** (academic hours) / **14** (credits)

Approved at the department meeting

Minutes No.

June 15th 2021

Head of the department



Sukhanov S. G.

Author and compiler:

Ph. D., associate Professor M. N. Alikberova

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

Following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine». The discipline "Anatomy" refers to the cycle of mathematical and natural sciences.

Basic knowledge necessary for studying the discipline form:

- in the cycle of humanitarian and socio-economic disciplines, including: philosophy, bioethics, psychology and pedagogy, history of medicine, latin language;
- in the cycle of mathematical and natural-science disciplines, including: physics, mathematics; chemistry; biology; histology, embryology, cytology; normal physiology.

It is preceded by studying next disciplines: normal physiology; topographical anatomy and operative surgery; pathological anatomy, clinical pathological anatomy, clinical subjects.

2. Goal and tasks of the mastering of the discipline

Goal - formation of students' knowledge of human anatomy and topographic anatomy of how the whole organism and individual organs and systems, based on the latest achievements of macro and microscopy; Ability to use the knowledge gained in the subsequent study of other basic and clinical disciplines, as well as in the future professional activity of a doctor.

Tasks:

- studies structure, functions and the topography of the human body, anatomical and topographical relationships of their X-ray image, the individual features of the structure and age of the body, including prenatal development (organogenesis), variants of variability individual organs and defects of development;
- formation of students' knowledge of the interdependence and unity of the structure and function of individual organs and body as a whole, the relationship of the organism to changing environmental conditions, the impact of environmental and genetic factors, the nature of work, occupation, physical culture and social conditions for the development and the structure of the body;
- formation of students' comprehensive approach to the study of anatomy and topography of the organs and systems; synthetic understanding of the structure of the human body as a whole as the relationship of body parts; ideas about the importance of fundamental research anatomical science to applied and theoretical medicine;
- formation of students' ability to navigate the complex structure of the human body, accurately and precisely identify and define the location and the projection of bodies and their parts on the surface of the body, ie, possession "anatomical material" for understanding the pathology, diagnosis and treatment;
- education of students, guided by traditional principles of humanism and mercy, respectful and careful attitude to the studied object - the human body organs, the carcass; instilling high moral standards of behavior in the sectional rooms of the medical school.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
ОПК-№5 Способен оценивать морфофункциональные, физиологические состояния и патологические процессы в организме человека для решения профессиональных задач	ИД-1. Знает анатомию, гистологию, топографическую анатомию, физиологию, патологическую анатомию и физиологию органов и систем человека ИД-2. Умеет определять и оценивать морфофункциональные, физиологические состояния и патологические процессы в организме человека

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 14 credits.

Type of the academic work	Total hours	Term		
		1	2	3
Students' contact work with the teacher (total)	236,3	44	96	96,3
Including:				
Lectures (L)	78	8	36	34
Seminars (Sem.)				
Practical classes (PC)	156	36	60	60
Clinical practicals (CP)				
Laboratory-based practicals (LBP)				
Simulation-based practicals (SBP)				
Preparation for the examination (PE)	0,3			0,3
Preparation for the credit (PC)				
Exam consultations (EC)	2			2
Coursework (CW)				
Unsupervised work (UW) (total)	234	64	156	14
Examination control (EC)	33,7			33,7
Total discipline workload	504/14	108	252	144

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1	2	3
1.	Introduction. Musculoskeletal system.	Content of the object. The history of anatomy. History of domestic anatomy. Human development. The general structure of the human body. The concept of organs and organ systems. The position of man in nature. Anatomical Terminology. Osteology: the bones of the axial skeleton, skeleton limbs, skull. Arthrology: Connect the trunk bones and skull, limbs connection. Myology: muscles and fascia of the trunk, chest, abdomen, extremities, head and neck.
2.	Splanhnologiya. Organs of the immune system. Endocrine glands.	Digestive system. Respiratory system. Urinary system. Reproductive system. The general laws of the structure. Primary and secondary immune organs. The lymph nodes. The pituitary, pineal, thyroid, parathyroid, adrenal gland, endocrine pancreas, and gonads.
3.	Cardiovascular system	Heart. The arteries of the pulmonary circulation. The arteries of the systemic circulation: arterial trunk and extremities. Vens. Lymphatic vessels, trunks and ducts. Way lymph drainage.
4.	Neurology	The general structure. Central nervous system. Spinal cord. The brain: telencephalon, cerebral hemisphere. The brain stem. Diencephalon. Midbrain. Isthmus hindbrain. The hindbrain. The bridge, cerebellum, medulla oblongata, rhomboid fossa. Pathways of the central nervous system. Skins spinal cord and brain. The peripheral nervous system. Spinal nerves. Brachial, lumbar and sacral plexus. The autonomic nervous system: sympathetic and parasympathetic parts.
5.	Esthesiology	The eye, the ear, the organs of smell and taste. Skin.

5.2. Sections and types of studies

No	Name of the course section	L	P	S	LBP	CP	UW	Total hours
1	2	3	4	5	6	7	8	9
1.	Introduction. Musculoskeletal system.	8	36				64	78
2.	Splanhnology. Organs of the immune system. Endocrine glands.	18	27				65	110
3.	Cardiovascular system	10	18				55	83
4.	Neurology	38	56				40	134
5.	Esthesiology	2	6				10	18

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No	Name of the course section	Types of unsupervised work	Forms of control
	Introduction. Musculoskeletal system.	The study of the bones, joints and muscles; Training programs in electronic form	Oral questioning, testing
	Splanhnologiya. Organs of the immune system. Endocrine glands.	Study prepares of internal organs; Preparation of presentations on the topics in this section; Working with textbooks; Training programs in electronic form	Oral questioning, testing
	Cardiovascular system	The study of heart and vessels on the prepares; Decision of situational problems self Training schemes and drawings on the themes; Training programs in electronic form	Oral questioning, testing
	Neurology	The study the prepares; Training schemes and drawings on the themes; Filling the training tables; Decision of situational problems self ; Training programs in electronic form Training schemes and drawings on the themes; Training programs in electronic form	Oral questioning, testing
	Esthesiology	Working with textbooks; Filling the training tables	Oral questioning, testing

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, a colloquium, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks, preparation of a case history).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination, term paper)

Stages of the interim assessment

Stages of examination (pass/fail test)

1. Stage - testing
(name of the stage)

2. Stage - Name and show
(name of the stage)
3. Stage - Interview stage – examination paper
(name of the stage)

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

1.	Chaurasia's B. D. Human Anatomy. Regional and Applied. Dissection and Clinical. Volume 2: tutorial/ B. D. Chaurasia's. -6 th ed.. -New Delhi, 2013. - 463 p.
2.	Abrahams P.H. McMinn's Colour Atlas of Human Anatomy/ P.H. Abrahams, S.C. Marks Jr, R.T. Hutchings. -6th ed.. -Edinburgh; London; New York: MOSBY, 2003. -378 p.: il
3.	Prives M. . Human anatomy/ M. Prives, N. Lysenkov , V. Bushkovich Prives M. Vol. II : The science of the vessels. The science of the nervous system. The science of the sensory organs./ пер. А. Аksenov. -Moscow: Mir Publishers, 2004. -439,[1] p.: il.
4.	Prives M. . Human anatomy/ M. Prives, N. Lysenkov , V. Bushkovich Vol. 1 : The weight-bearing and locomotor system. The science of the viscera. The science of the organs of internal secretion. -2006. -608 p.
5.	Prives M.. Anatomy/ M. Prives, N. Lysenkov, V. Bushkovich Vol. 2 : The science of the vessels. The science of the nervous system. The science of the sensory organs. -1985. - 439 p.: il
6.	Prives M.. Anatomy/ M. Prives, N. Lysenkov, V. Bushkovich Vol. 1 : The weight-bearing and locomotive system. The science of the viscera. The science of the organs of internal secretion. -1985. -608 p.: il
7.	Prives. M.. Human anatomy/ M. Prives, N. Lysenkov, V. Bushkovich Prives M. Vol. I : The weight-bearing and locomotor system. The science of the viscera. The science of the organs of internal secretion./ пер. А. Аksenov. -Moscow: Mir Publishers, 2004. -608 p.: il.
8.	Prives M. G. Human Anatomy/ M.G Priwes, N. K. Lysenkov, V. I. Bushkovich Vol. 2 : The Science of the Vessels. The Science of the nervous Systems. The Science of the Sensory Organs. -2006. -439 p: il.
9.	Snell R. S. Clinical anatomy by regions [Text]: tutorial/ R. S. Snell. -9th ed. -Б.М., 2012. - 754 p..-ISBN 978-81-8473-658-8.-ISBN 978-1-60913-446-4, Б.И

8.2. Supplementary literature

1.	Agur AMR, Dalley AF. Grant's Atlas of Anatomy, 12th ed. Baltimore: Lippincott Williams & Wilkins, 2009.
2.	Dean DX, Herbener TE. Cross-Sectional Human Anatomy. Baltimore: Lippincott Williams & Wilkins, 2002.

3.	Essential Clinical anatomy. Fourth edition/Keith L. Moore PhD, FIAC, FRSM, FAAA; Anne M.R. Agur BSc(OT), MSc, PhD; Arthur F. Dalley I I PhD. 2011
4.	Federative Committee on Anatomical Terminology, 1998.
5.	Hardy SGP, Nafrel JP. Viscerosensory pathways. In Haines DE (ed), Fundamental Neuroscience, 2nd ed. New York:Churchill Livingstone, 2002.
6.	Haines DE. Neuroanatomy: An Atlas of Structures, Sections, and Systems, 7th ed. Baltimore: Lippincott Williams &Wilkins, 2007.
7.	Hutchins JB, Naftel JP, Ard MD. The cell biology of neurons and glia. In Haines DE (ed), Fundamental Neuroscience, 2nd ed. New York: Churchill Livingstone, 2002.
8.	Gray's Anatom, 40th Edition. The Anatomical Basis of Clinical Practice. By Susan Standring, PhD, DSc, FRC/© 2008, Elsevier Limited. All rights reserved. Fortieth edition published 2008
9.	Keegan JJ, Garrett FD. The segmental distribution of the cutaneous nerves in the limbs of man. Anat Rec 102:409,1948.
10.	Lachman N, Acland RD, Rosse C. Anatomical evidence for the absence of a morphologically distinct cranial root of the accessory nerve in man. Clin Anat 15:4, 2002.

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

1.	http://www.medicalstudent.com/
2.	http://www.anatomyatlases.org/atlasofanatomy/index.shtml
3.	http://www.anatomyatlases.org/HumanAnatomy/CrossSectionAtlas.shtml
4.	http://www.anatomyatlases.org/AnatomicVariants/AnatomyHP.shtml
5.	http://www.bartleby.com/107/
6.	http://www.stitch.luc.edu/lumen/course_detail.cfm?crs_number=3074&checkref=639D79CC857A6C76C2723B7E014FCCB0
7.	http://reference.medscape.com/guide/anatomy
8.	http://ect.downstate.edu/courseware/haonline/index.htm
9.	http://cosmos.phy.tufts.edu/~rwillson/dentgross/headneck/index2.htm
10.	http://anatomy.med.umich.edu/
11.	http://library.med.utah.edu/WebPath/HISTHTML/NEURANAT/CNS016A.html
12.	http://depts.washington.edu/msatlas/
13.	https://zygotebody.com/
14.	http://www.youtube.com/watch?v=YZcBBelhNvI
15.	http://www.gfxtr.net/435/114749-the-best-dissection-for-medical-students.html

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	MOODLE	1,2 course English medium Anatomy Human Anatomy	1,2_1554_1cEmAHA_omy
2	ZOOM		

8.5. The list of the software and information & reference systems

- software: certified, license programs of general and educational assignment, information & reference systems – Garant, Consultant and etc.

1. Multimedia lectures throughout the course of discipline

2. Films

3. Internet resources

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
110	Classroom 1	1st floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables.
120	Classroom 2	1st floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables.
108	Classroom 3	1st floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables.
129	Classroom 4	1st floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables; laptop; TV for demonstration presentations, educational videos.
149,173	Classroom 7	1st floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables; laptop; TV for demonstration presentations, educational videos.
227	Classroom 6	2nd floor	Tables; chairs; sectional table; sink for washing hands; dummies; tablets; tables.
258	computer class	2nd floor	Tables; chairs; computers; blackboard;
202	anatomical museum + classroom	2nd floor	Biologics; tables; chairs; dummies; tablets; tables; laptop; TV for demonstration presentations, educational videos.
232A	lecture hall	2nd floor	Tables; chairs; multimedia system (monoblock, projector) for demonstration presentations, educational videos.

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Histology, Embryology, Cytology**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **1,2 / 2,3**

Form of the interim assessment **Examination**

Department of **Histology, Cytology and Embryology**

Discipline workload **252** (academic hours) / **7** (credits)

Approved at the department meeting

Minutes No.

June 15th 2021

Head of the department



Professor A.L. Zashikhin

Author and compiler:

Bashilova E.N., k.m.s., docent,
Agaphonov Y.V., d.m.s., professor,
Dolgikh O.V., k.b.s., docent

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum (or to the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects and optional subjects)

The discipline is related to prior subjects of the curriculum: biology, anatomy

The discipline is related to subsequent subjects of the curriculum: normal physiology, microbiology, immunology, pathoanatomy, physiopathology.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the course

To provide with the knowledge on cytology, embryology, general and private histology and abilities of their practical use, necessary for the successful mastering of contiguous biological and clinical disciplines, and similarly in-process doctor.

The tasks of study of discipline is mastering of conformities to law of development, structure, histophysiology tissues and organs and, through cognition of intercommunication of structure and function, understanding of normal vital functions of organism of man. Implementation of these tasks in the volume indicated below provides the achievement of aims of educating on a department.

3. List of planned learning outcomes of the course (module) in connection to the planned outcomes at completion of the educational program

Codes of the formed competences	Indicator of the competence achievement
ОПК 5. Способен оценивать морфофункциональные, физиологические состояния и патологические процессы в организме человека для решения профессиональных задач	ИД-1. Знает анатомию, гистологию, топографическую анатомию, физиологию, патологическую анатомию и физиологию органов и систем человека

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the course and types of academic classes:

Total workload of the course is 7 credits.

Type of the academic work	Total hours	Term	
		2	3
Students' contact work with the teacher (total)	110,3	54	56,3
Including:			
Lectures (L)	36	18	18
Seminars (Sem.)			
Practical classes (PC)	36	18	18
Clinical practicals (CP)			
Laboratory-based practicals (LBP)	36	18	18
Simulation-based practicals (SBP)			

Preparation for the examination (PE)	0,3		0,3
Preparation for the credit (PC)			
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	108	90	18
Examination control (EC)	33,7		33,7
Total discipline workload	252/7	144	108

5. Course content:

5.1. Contents of the sections of the course

Course section 1. Cytology

Theme 1. Introduction. Histological technique.

Object and tasks of course of histology with bases of cytology and embryology. A place of these disciplines is in the system of medical education. Connection with other clinical disciplines. Their role is in practical activity of doctor. History of development of histology. Basic concepts and terms. Types of histological structures.

Theme 2. Cytology.

Substantive provisions of cellular theory. Concept about an elementary cytoplasmic membrane. Cytoplasm and organoids. Membrane and unmembrane organoids. Their structural organization and functional value. Including, classification, their role in the vital functions of cage.

Nucleus. Cellular cycle. Methods of reproduction of cells.

Structure and function of kernel of cage. Structure of karyothesis, intercommunication of kernel and cytoplasm. Organization and types of chromoplasm, sexual chromoplasm, structure of karyonucleus. Mitotically cycle, his phases and their value. Types of fission. Mitosis, amitosis, meiosis. Polyploidy and aneuploidy, their value.

Course section 2. Embryology

Theme 3. Embryology of higher vertebral and human

Object and tasks of embryology : comparative embryology as basis for understanding of embryonic development of man. Gametes their difference from somatic cages. Basic stages of embryonic development of animal and man. Determination and embryonization. Description of properties of embryonic sheets. Methods of bookmark and embryonization of mesoblast.

Embryology of human. Extraembryonic organs.

Stages of embryogenesis. Forming, sources of development and functional value of extraembryonic organs. Formation of chorion and placenta. Types of

placentas. Immunological compatibility of fruit and mother. Modern technologies of treatment of sterility (video film).

Course section 3. General histology

Theme 4. General concepts about tissue. Epitheliums.

Fabric as one of levels of organization of living substance. Updating of fabrics and by a tissue cambium. Typification of fabrics on organization of their cambium and reparative regeneration of fabrics. Classification of fabrics and basic groups of tissue.

General description of epithelial tissue. Morphological, functional and genetic description of epitheliums. Ferrous epithelium as major fabric of gland. Classification of glands. Exo- and hemadens. Types of eccrine glands.

Theme 5. Blood.

Blood, her functions. Plasma of blood. Hemocytes, their classification, morphology and functional value. Concept about hemogram and leucocyte formula, their value for a clinic. Age-related changes of hemogram. Lymph, her composition and value.

Muscular-trophic tissue. General description of fabrics of internal environment, their classification and principles of organization.

Theme 6. Fibred connecting tissue.

Actually connecting tissue (fibred). General description and value of intercellular substance. Cages of loose connecting tissue. Macrophages (histiocytes), their role in the protective reactions of organism, structure and origin. Concept about the macrophages system. Dense connecting tissue. Connecting tissue with the special properties.

Theme 7. Cartilaginous tissue.

General morphological and histochemistry description. Cartilaginous cages (chondrocytes). Intercellular substance. Types of cartilaginous tissue. Height of cartilage. Regeneration of cartilaginous tissue.

Theme 8. Bone tissue.

General description, classification. Cages of bone tissue. Intercellular substance of bone tissue. Regeneration of bone tissue. Bone as organ. Microscopic structure of tubular bone and flat bones. Direct and indirect osteogenesis. Alteration of bone during the height of organism. Factors influencing on the height of bones.

Theme 9. Muscular tissue.

Muscular tissue of somatic type, histogenesis. Muscular fibre as morphon of tissue. Muscle as organ, her structure, innervation and vascularization. Regeneration of muscles. Striated muscular tissue of coelomic type (cardiac

muscular fabric). Atypical cardiac muscular tissue her functional features. Possibilities of regeneration of myocardium. Smooth muscular tissue of mesenchymal origin. Histogenesis, smooth musculature. Cellular different organization of smooth muscular tissue. Structure of population of smooth myocytes of certain of smooth musculature. Types of leiomyocytes and features of their organization. Organization of retractive vehicle and mechanism of reduction of smooth myocytes. Regeneration of smooth musculature.

Theme 10. Nervous tissue.

Histogenesis of nervous tissue and their classification. Neurons, their morphological and functional classification. Classification, functional value and structure. Microglia, her genetic belonging to the macrophage system and properties.

Nervous fibres, nervous completions, peripheral nerve.

Classification, structure and functions, regeneration of nervous fibres.

Nervous completions. Classification of nervous completions. Synapses, and their role in the transmission of excitation on the chain of neurons. Reflex arcs - functional units of the nervous system, them composition.

Theme 11. Diagnosticum 1

Course section 4. Special histology

Theme 12. Organs of the nervous system

Spinal cord. Grey and white substance. Off-line nervous system. General morphological and functional description. Types of reflex arcs. Features of structure of reflex arcs of the off-line nervous system.

Cortex. Cerebellum Cytoarchitectonics., neuron composition and layers of bark of large hemispheres, interneuronal connection. Idea about module organization of bark. Structure and neuron composition of bark of cerebellum.

Theme 13. Sense-organs. Organs of sight, sense of smell.

Concept about analyzers. Classification of sense-organs on the structure of receptor vehicle. Organ of sight. Development, structure. Neuronal composition of retina. Auxiliary parts of eye : eyelids, tear vehicle, muscles of eyeball. Olfactory. Olfactory epithelium. Olfactory neurosensory cages. Histophysiology of sense of smell.

Ears, equilibrium and taste.

General description. Internal ear: bone and membranous labyrinths.

Vestibular part of membranous labyrinth. Receptor departments of spherical sacs and semicircular channels, their cellular composition. Histophysiology of perception of sounds. Organ of taste. General functional description.

Histophysiology of organ of taste.

Theme 14. Cardiovascular system.

Ontogenesis of the cardiovascular system. Classification of blood and lymphatic vessels. Arteries and veins. Histological elements of wall of vessels and their value. Connection of microscopic structure with the terms of hemodynamics in him. Vessels of microvasculature. Structure, hemodynamic features, value in metabolism and depositing of blood. Heart. General functional description. Ultrastructural and cytochemical description of cellular elements of the conducting system. A value of PSNS in work of heart.

Theme 15. Hematogenesis.

Development of blood, as tissues. Post-embryonic hematopoiesis. Theories of hematogenesis. AA Maksimov and his role is in creation of monophyletic. Concept and colony units. Barrel cages of blood and their property. Morphologically identified stages of development of cages of blood. Structural description of cages in different red corpuscles, granulocytes, monocytes. Adjusting of hematopoiesis. Structure and functions of marrow. System of immune defense.

Basic concepts: immunity, antigen, antibody. Lymphopoiesis. Types lymphocytes and their co-operation at development of immunoreaction. Cellular and humoral type of immunity. Central and peripheral organs of the immune system.

Theme 16. Endocrine system.

General description of the endocrine system, feature of гистофизиологии of hemadens. Classification of ductless glands. Gipotalyamo - pituitary system. Epiphysis. Structure and supposed functions of epiphysis. Peripheral glands. Physiological and reparative regeneration of fabrics of ductless glands. Change of glands in child's, elderly and senile age.

Theme 17. Digestive system. Oral cavity.

General principle of organization of structure of wall of gastrointestinal tract. Embryonic development of the digestive system. Structure of mucous membrane of oral cavity. Structure of lip, cheek, language. Teeth. Enamel, dentine, cement : structure, chemical composition. Endodontium. Periodont. Odontogeny. Amygdales, salivary glands. Salivary glands, classification. Large salivary glands. Embryonic development. Structure and histophysiology. Exo- and endocrine functions. Features of structure of amygdales. Their value.

Theme 18. Gullet, stomach, bowels.

Structure and by a tissue composition of organs. Cytophysiology of exo- and hemadens. Structure of wall and by her tissue composition in the different departments of bowels. The system is a crypt - hair, as functional unit. Types of cages of epithelium of hair and crypt, their structure and cytophysiology. Histophysiology of the wall digestion and suction. Vermicular appendix.

Features are his structure and value. Endocrine vehicle of digestive channel, him descriptions, concept about APYD to the system. Lymphoid vehicle of digestive tract. Functional description. Concept about local immunity.

Theme 19. Liver, pancreas.

General description. Features of blood supply. Structure of lobule as structural-functional unit of liver. Regeneration. Features of structure of liver new-born. Description of liver of children of early age and at aging of organism. General description of pancreas. Structure eccrine and endocrine departments.

Theme 20. Diagnosticum 1

Theme 21. Breathing organs. Skin and it's derivatives.

Description of the respiratory system. Auriferous ways and respiratory department. Features of structure of wall of auriferous ways : nasal cavity, larynx, trachea and main bronchial tubes. By a tissue composition and description of their shells. Cellular composition of epithelium of mucous membrane. Acini as functional unit of lung. Structural components of acini. Air-blood barrier and his value in the interchange of gases. Development of lung is in a postnatal period. Age-related changes of lung in the process of aging.

Description and by a tissue composition of skin. Epidermis. Concept about composition of epidermis. Local system of immunological supervision of epidermis. Derma. Papillary and reticulated layers, by their tissue composition. Glands of skin, hair, nails.

Theme 22. Urinary system

The morfo - functional characteristic of system of uric bodies. Nephron - morfo - functional as kidney unit, its structure. Concept and a structure of counterflow system of a kidney. Morfo - functional bases of regulation of process uropoiesis. The endokrinnyj device of a kidney: juxtaglomerular a complex and interstitial cages. Their structure and function.

Theme 23. Man's sexual system.

The morfo-functional characteristic of system of genitals. Man's genitals. The general morfo - functional the characteristic testes. Convolted tubules seed, a wall structure. Spermatogenesis. Endocrine function testicle. Regulation functions testicle. Features testicle the newborn, till the period of puberty in a sexual maturity and at organism ageing. Possibility of damaging action on testicle phisico - chemical factors - radiation, alcohol, temperature, etc. in connection with them morfo - functional features. Their structure and functions.

Theme 24. Female sexual system.

Female genitals. Histogeny. The general morfo - functional the characteristic ovary. Oogenesis .Differences ooogenesis from

spermatogenesis. Endokrinna function ovary: female sexual hormones and cellular elements developing them. Features ovary newborns before puberty, in a sexual maturity and at ageing. A structure and functions. A uterus. The general morfo - the functional characteristic. A menstrual cycle and its phases. Features of a structure endometrial in various phases of a cycle. Communication of cyclic changes endometrial and ovary. Uterus reorganization at pregnancy and after the delivery. Features of a uterus of newborns, girls before puberty, in puberty, at adult women and at ageing. Chest (dairy) gland. The general morfo - the functional characteristic. Functional morphology lactating and non-lactating (nonfunctioning and after a lactation) a mammary gland. nejro - endocrine regulation of functions of mammary glands in a course ovarialno menstrual a cycle and at pregnancy.

5.2. Sections and types of studies

No.	Name of the course section	L	LPB	SRS	Total hours
1	Cytology	2	9	10	21
2	Embryology	2		2	2
3	General histology	10	21	74	105
4	Private histology	22	42	22	86

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

№	Name of the course section	Types of the unsupervised work	Forms of control
1.	I.Cytology Introduction. Histological technique. Microscope	To fill a table will "Define essence of basic concepts". To study the table of basic histological dyes and reactions, chart of colouring of microsection. To study the charts of structure of different types of microscopes, motion of rays, rules of work with a microscope.	Discussion on a theory and to preparations, verification of albums, test tasks in Moodle
	General morphology of cells	To study diffraction pattern and charts of structure of cage, organoids, cellular membrane, types of transport. To fill a table the "Intercellular contacts, classification of organoids, including". To study and complement a table "Description of components of cytoskeleton". To study pictures and sign the elements of kernel, nuclear pore, levels of compaction DNP.	
	Cellular cycle. Methods of reproduction of cell s	To study and complement a table "Description of cellular cycle", "Adjusting of cellular cycle", "types of cellular death".	
2.	II.Embryology Embryology of higher animals and man (1)	To study pictures to sign: the stages of embryonic development of man, chart of impregnation, structure of embryo in the different terms of embryogenesis. To study and sign the picture of embryonization of mesoblast. To fill a summary table "Embryogenesis of man".	Discussion on a theory and to preparations, verification of albums test tasks in Moodle
	Embryology of higher animals and man (2)	To study diffraction pattern and charts of forming of placenta, formation of embryonic folds, embryonization of extraembryonic organs. To draw and sign the types of placentas. To fill a table the "Extraembryonic organs of man".	
3.	III.General histology General concepts about tissue. Epitheliums	To study pictures and sign the types of histological structures, basic determinations. To fill the table of " Kinds regenerations", "Classification of fabrics", " Morpho - functional signs and properties of epitheliums"	Discussion on a theory and to preparations, verification of albums, reports, decision of situational tasks, test tasks in Moodle
	Multi-layered epitheliums, glands	To fill the table of " Histogenetic classification of epitheliums", "Classification of glands". To study the pictures of types of secretion.	
	Mesenchyme, connecting tissues	To fill a table "Classification of connecting tissues", to study diffraction pattern and charts of structure of components of connecting tissue. To study and complement a table	Discussion on a theory and to preparations,

		"Description of components of intercellular substance", "Description of basic cellular types of connecting tissue", "Formation of collagen fibres, "Neurohumors of obese cages". To fill a table "Comparative description of connecting tissues".	verification of albums, reports, decision of situational tasks in Moodle
	Blood	To fill the table of " Morpho -functional signs and properties of fabrics of internal environment of organism". To study the chart of embryonization of mesenchyme and barrel cage of blood. To study and complement a table "Composition of plasma of blood". To study pictures and fill a table "Leucocytes". To study the chart of activating of neutrophil. To become acquainted with the table of "Disorder of phagocytic function of neutrophil ".	Discussion on a theory and to preparations, verification of albums, reports, decision of situational tasks, test tasks in Moodle
	Cartilaginous tissues	To study and sign a picture "Structure of intercellular substance of hyaline cartilage". To fill a table "Classification of cartilaginous fabrics", "Height and regeneration of cartilages", "Effects of vitamins and hormones on a hyaline cartilage".	Discussion on a theory and to preparations, verification of albums
	Bone tissue. osteogenesis	To fill a table "Classification of bone fabrics", to study pictures and sign the elements of bone fabric, stage of osteogenesis. To study the charts of regeneration of bone fabric.	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Muscular tissues	To fill a table "Classification of muscular tissues". To study pictures and sign elements "Structure of striated muscular fibre", "Structure of myofibrils", "Phase of reduction of myofibrils", "Structure of muscle as an organ", "Phenotypes and elements of cardiomyocytes ". To study charts and tables the "Albuminous structure of myofibrils", "Histogenesis and principles of reactivity of GMG of internal organs", "Phenotypes of smooth myocytes".	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Nervous tissue, neurons.	To study pictures and sign the elements of nervous tissue	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Nervous fibres, nervous completions	To study pictures and sign elements of nervous fibre, realization of nervous impulse, regeneration of nervous fibre. To study a table "Classification of nervous fibres", "Classification of nervous completions", "Classification of neurotransmitters".	
4.	IV. Private histology Organs of NS (1) are the Spinal cord, spinal knot, peripheral nerve	To study diffraction pattern organs of HC, to study the charts of "Kinds reflex arcs"	Discussion on a theory and

	Organs of NS are Cortex, cerebellum.	To study the chart of synaptic connections in the bark of cerebellum, changes in a nerve after his cut. To fill a table "Intercommunication and types of neurons of bark of cerebellum". To study and sign the charts of structure of the mixed and amyelenic nerve.	to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Sense-organs are Organs of sight, sense of smell	To study charts transmissible and sweepable diffraction pattern on development and ultrastructural organization of sense-organs. To fill a table the "Functional vehicles of eye", "Organogeny of sight".	Discussion on a theory and to preparations, verification of albums, decision of situational tasks
	Sense-organs are Ears, equilibrium, taste	To study charts transmissible and sweepable diffraction pattern on development and ultrastructural organization of sense-organs 2 groups. To fill a table "Comparative description of sense-organs".	
	Cardiovascular system	To fill a table "Tissue composition of organs of the cardiovascular system". To study charts, transmissible and sweepable diffraction pattern hearts and blood vessels.	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Myeloid hematogenesis. Red marrow	To diagrammatize process of development of red corpuscles, granulocytes. To study transmissible and sweepable diffraction pattern cages of red marrow.	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Lymphopoiesis. Organs of immune defence	To study charts, transmissible and sweepable diffraction pattern of post-embryonic hematopoiesis, thymus new-born, spleen. To study the types of immunoreactions. To fill a table "Tissue composition of organs of lymphopoiesis".	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Endocrine system	To study charts transmissible and sweepable diffraction pattern of endocrine cages of different organs. To study classification of organs of the endocrine system, adjusting mechanisms.	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Digestive system. Organs of oral cavity.	To study charts transmissible and sweepable diffraction pattern organs of oral cavity	Discussion on a theory and to preparations,

	Salivary glands. Amygdales	To study charts transmissible and sweepable diffraction pattern of salivary glands	verification of albums, decision of situational tasks, test tasks in Moodle
	Teeth, periodont. Development, changing of teeth	To study charts transmissible and sweepable diffraction pattern elements of tooth, study a tissue composition and age-related features of teeth.	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Gullet, stomach, bowels	To study charts transmissible and sweepable diffraction pattern organs of the digestive system, study cellular composition of glands of stomach, bowels. To fill the comparative table of structure of different departments of bowels	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Liver, pancreas	To study charts, transmissible and sweepable diffraction pattern acinar of pancreas, pancreatic small island, hepatocyte, their relationship with sinewave vessels. To study the morphological features of different types of icteruses	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Respiratory system	To study charts, transmissible and sweepable diffraction pattern of cellular composition of epithelium of aeriferous ways, air-blood barrier. To fill the table of distinctive features of bronchial tubes of different calibers	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Skin and her derivatives	To study charts, transmissible and sweepable diffraction pattern epidermis, structure and innervation of hair, development of skin, hair, sweat-glands	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Secretory system	To study charts, transmissible and sweepable diffraction pattern of the vascular system of bud, lamb's-feet of kidney Taurus. To fill the chart of development of primary bud and sexual glands, tissue composition of organs of the secretory system	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle

	Masculine sexual system	To study charts, transmissible and sweepable diffraction pattern spermatogenesis for a man, structures and functions of testicles, structure and functional value of prostate gland	Discussion on a theory and to preparations, verification of albums, decision of situational tasks, test tasks in Moodle
	Woman sexual system	To study charts, transmissible and sweepable diffraction pattern of integumentary epithelium of ovary, shells of oocyte. To study the hormonal adjusting of ovarian-menstrual cycle	

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, a colloquium, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks, preparation of a case history).

7.2. Forms of the interim assessment (examination)

Course examination is conducted in oral, consists of three parts:

1. Stage - final test control (all students hand over on the last control employment of semester), in an examination session;
2. Stage - answer on two histological preparations (practical part);
3. Stage - answer for three questions of examination ticket and situational task.

Students collecting a final rating point in size of 93 and more than points can be released from 2th and 3 parts of examination.

8. Library and information materials of the course

8.1 Compulsory literature

1. Inderbir Singh's Textbook of Human Histology with Colour Atlas and Practical Guide [Text]: учебное пособие/ ed. N. Vasudeva. -7 th ed. -New Delhi, 2014. - 439 p.-ISBN 978-93-5152-322-2, Б.п
2. Singh I. Textbook of human histology : [with colour atlas]/ I. Singh. -5th. ed.. -Delhi: Jaypee brothers medical publishers (P) LTD, 2007. -365 p.
3. Singh I. Textbook of Human Histology : учебное пособие/ I. Singh. -5th. ed.. -New Delhi: Jaypee brothers medical publishers (P) LTD, 2006. -365 p: il.
4. S. I. Yushkantseva, V.L. Bykov A brief atlas of histology, cytology and embryology: St. Petersburg, 2007.-120p.
5. Textbook of Histology, 4 Edition, Gartner, Leslie P., PhD 2017 by Elsevier, Inc.
6. Stevens & Love's Human Histology, 4 Edition, Lowe, James S., 2015, by Mosby, an imprint of Elsevier Limited. ClinicalKey.

8.2 Supplementary course literature

1. Kuznetsov S.L. Histology, cytology and embryology : a course of lectures: The English version was edited by E.V. Babchenko/ S.L. Kuznetsov, T.V. Boronikhina, V.L. Goryachkina. -Москва: Medical Informational Agency, 2004. -239 p.
2. Bashilova E.N. Materials of monitoring students' knowledge of the special histology/ methodical development for students 1 and 2 courses of faculty of English medium.- NSMU,dep. of histology.-Arkhangelsk:2008.-108p.
3. Bashilova E.N. Materials final control of students' knowledge of general and special histology/ methodical development for students 2 course of faculty of English medium.- NSMU,dep. of histology.-Arkhangelsk:2008.-22p.
4. Visceral smooth muscle tissue A. Zashihin , Ya.Selin / Arhangelsk.- 2001.
5. Bykov VL Cytology and general histology (functional morphology of cells and tissues) . - SPb .: SOTIS 2002
6. Bykov VL Private histology (functional morphology of cells and tissues) . - SPb .: SOTIS 2002
7. Singh I. Textbook of Human Histology/ I. Singh. -4th ed.. -New Delhi: Jaypee Brothers Medical Publishers(P) LTD, 2002. -355 p.: il
8. Textbook of Histology, 4 Edition, Gartner, Leslie P., PhD 2017 by Elsevier, Inc. ClinicalKey.
9. Netter's Essential Histology, 2 Edition, Ovalle, Wiliam K., PhD, 2013, by Saunders, an imprint of Elsevier Inc. ClinicalKey.

10. Histology: Identification Manual, Tallitsch, Robert B., PhD., 2009 by Mosby, Inc., an affiliate of Elsevier Inc. ClinicalKey.
11. Concise Histology, Gartner, Leslie P., PhD, 2011 by Saunders, an imprint of Elsevier Inc. ClinicalKey.

8.3. List of Internet resources required for mastering of the course (module)

№	Resources	URL address	Resource Annotation
1	Digital library system "IPRbooks"	http://www.iprbookshop.ru/	
2	Digital Library of Medicine "Doctor's consultant"	http://www.rosmedlib.ru/	
3	Digital versions of publications scientific digital library – "eLIBRARY"	http://elibrary.ru/	Научная электронная библиотека eLIBRARY.RU - это крупнейший российский информационно-аналитический портал в области науки, технологии, медицины и образования, содержащий рефераты и полные тексты более 29 млн научных статей и публикаций, в том числе электронные версии более 5600 российских научно-технических журналов, из которых более 4800 журналов в открытом доступе.
4	University digital library	http://lib.nsmu.ru/lib/	
5	Digital library card of the Central Scientific Library of Medicine	http://www.emll.ru/newlib/	

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
	Moodl	English medium Histology, Embryology, Bashilova E.N., k.m.s., docent, Agaphonov Y.V., d.m.s., professor, Dolgikh O.V., k.b.s., docent A.Zashikhin d.m.s., professor, https://edu.nsmu.ru/course/view.php?id=395	Web- support

8.5. The list of the software and information & reference systems

При осуществлении образовательного процесса студентами и профессорско-преподавательским составом используются следующее программное обеспечение:

операционная система - MS Windows Vista Starter, MS Windows Prof 7 Upgr; **офисный пакет** - MS Office 2007; **другое ПО** - 7-zip, AdobeReader, Kaspersky Endpoint Security.

9. Material and technical facilities necessary for the educational process

No.	The name of the school's office	Location of the study room	List of the main equipment of the study room
1	Laboratory-based practicals	1243	36 specialized tables with illumination Microscopes "Biola », microscope model - 9-10, projection microscope
2	Laboratory-based practicals	1236	24 specialized tables with illumination Microscopes "Biola », microscope model - 9-10, projection microscope
3	Laboratory-based practicals	1234	20 specialized tables with illumination Microscopes "Biola », microscope model - 9-10, projection microscope
4	Laboratory-based practicals	1241	36 specialized tables with illumination Microscopes "Biola », microscope model - 9-10, projection microscope

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Normal Physiology**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2 / 3,4**

Form of the interim assessment **Examination**

Department **of Normal Physiology**

Discipline workload **288** (academic hours) / **8** (credits)

Approved at the department meeting

Minutes No.

June 3rd 2021

Head of the department



S.L. Sovershaeva

Author and compiler:

A.K. Sherstennikova, Dean of the Faculty of General Practitioner,
Associate Professor of the Department of Normal Physiology, Candidate of Medical
Sciences

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum.

The discipline is related to prior subjects of the curriculum natural-science disciplines including: physics and mathematics; medical informatics; chemistry; biology; biochemistry; anatomy; histology, embryology, cytology.

The discipline is related to subsequent subjects of the curriculum: Public health and health care, health economics; Safety of life activity, Catastrophe medicine; pathological anatomy, clinical pathological anatomy; pathophysiology, clinical pathophysiology; pharmacology; medical rehabilitation; Clinical Pharmacology; Dermatology; neurology, medical genetics, neurosurgery; psychiatry, medical psychology; otolaryngology; ophthalmology; forensic Medicine; obstetrics and gynecology; pediatrics; propaedeutic internal medicine, X-ray diagnostics; faculty therapy, professional diseases; Hospital Therapy, endocrinology; infectious diseases; phthisiatry; polyclinic therapy; general surgery, X-ray diagnostics; anesthesiology, intensive care, intensive therapy; Faculty surgery, urology; Hospital surgery, pediatric surgery; dentistry; oncology, radiation therapy; traumatology, orthopedics.

2. Goal and tasks of the mastering of the discipline:

Goal of the discipline	The goal of the discipline is to form a systematic knowledge about vital activity of the whole organism and its individual parts, about main regularity of functioning and mechanisms of regulation of the interaction between themselves and with environmental factors, about a physiological basis of clinical and physiological methods of investigation which are applied in the functional diagnostics and the study of integrative human activity.
Tasks of the discipline	<ul style="list-style-type: none">- formation of fundamental knowledge about physiological mechanisms underlying the life and regulation of functions of a healthy person's body;- formation of the necessary skills to assess physiological processes;- formation of skills for assessing functional state of a person, the state of regulatory and homeostatic in different types of purposeful activities.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
General professional competencies (GPC) -№ 5 The ability to assess morphofunctional, physiological conditions and pathological processes in human body for solving professional tasks	5.1. Knows anatomy, histology, topographic anatomy, physiology, pathological anatomy and physiology of human organs and systems. 5.2. Is able to identify and evaluate morphofunctional, physiological states and pathological processes in the human body 5.3. Knows the methods of clinical, laboratory and functional diagnostics for solving professional problems.

The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the course and types of academic work:

Total workload of the course is **8** credits.

Type of the academic work	Total hours	Term	
		3	4
Students' contact work with the teacher (total)	128,3	62	66,3
Including:			
Lectures (L)	42	20	22
Seminars (Sem.)			
Practical classes (PC)	84	42	42
Clinical practicals (CP)			
Laboratory-based practicals (LBP)			
Simulation-based practicals (SBP)			
Preparation for the examination (PE)			
Preparation for the credit (PC)	0,3		0,3
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	126	82	44
Examination control (EC)	33,7		33,7
Total discipline workload	288/8	144	144

5. Course content:

5.1. Content of the course sections

No.	Name of the course section	Contents of the section
1.	Introduction to the subject. Physiology of excitable tissues	Normal physiology - the science that studies the life processes of a healthy person. The concept of the body, its constituent elements. Levels of morphological and functional organization of the human body. The cell and its function. Body tissues (epithelial, connective, muscular and nervous), their main functional features. The concept of the organ,

	<p>its structural and functional unit of the body. The physiological function of its norm. The relationship of the structures and functions. The unity of the body and the environment. The concept of the internal environment of the body and its components (blood, lymph, intercellular fluid). The concept of physiological constants. Notions of soft and hard constants. The concepts of homeostasis, homeokinesis. The physiological adaptive response. An analytical and systematic approach to the study of the physiological processes and functions. Brief description of the stages of development of normal physiology: empirical and anatomical and physiological, functional (principal role U. Garveya work and R. Descarte). Formation and development of physiology in the XIX-XX centuries (the scientific papers U. Garveya and R. Descartes and I. Myuller and K. Bernar and E. Dyubua-Reymond and Helmholtz and Ch. Sherrington and U. Kennon). The contribution of foreign and domestic physiologists in the development of the global physiological science (A.M. Filomafitskiy and I.T. Glebow and D.V. Ovsyannikov and I.M. Sechenov and N.A. Mislavsky and I.P. Pavlov and N.E. Vvedensky and A.A. Ukhtomsky, A.F. Samoylov and L.A. Orbeliv and K.M. Bykov and E.A. Hasratyan and V.V. Parin and V.N. Chernigov and G. I. Kositsky and L.S. Stern, P.K. Anokhin and P.V. Simonov). Physiological basis functions. Irritability as the basis of tissue response to irritation. Classification stimuli. The concept of excitability and excitement. Excitation and inhibition as the active state of the excitable tissue.</p> <p>System organization functions (I.P. Pavlov and P.K. Anokhin). The concept of the system. The levels of systemic organization. Physiological system. The concept of the regulation of functions. Basic principles of formation and regulation of physiological functions: on the deflection and indignation forecasting.</p> <p>Levels and mechanisms (nervous, humoral) regulation functions. The idea of self-regulation of the internal environment of the body.</p> <p>A functional system, its components (P.K. Anokhin). The concept of system-forming factor. Principles of organization and interaction of functional systems. Age characteristics of the formation and regulation of physiological functions.</p> <p>The social significance of modern physiology. The dialectical materialist basis of physiology. Physiology as the scientific basis of medicine, health assessment, functional status, and human performance. The structure and function of biological membranes. Types of membrane transport proteins, classification and properties of ion</p>
--	--

		<p>channels. History of the discovery of bioelectric phenomena in living tissues (L. Galvani, J. Du Bois-Reymond, C. Matteucci). Membrane and ionic mechanisms of origin of biopotentials alone. Methods of recording membrane potentials. Physiological properties of excitable tissues. Types of stimulation of excitable tissues. Features local and spreading excitation processes. Electrophysiological characteristics of the excitation process (A. Hodgkin, A. Huxley, B. Katz). The action potential and phase. Ionic mechanisms of excitation. Changes in permeability of the cell membrane during excitation. The excitement and anxiety. Changes in excitability when excited. Characteristics of refractory and exaltation. Laws irritation single and integral excitable structures, "force", "all or nothing", "strength-duration" (Weiss-Lapicque). The concept of rheobase chronaxy and productive time. Laws irritation under the influence of DC on excitable tissues: the physiological electrotonus, polar action DC (E. Pfluger). The concept of kationelektrotone cathodically depression ,anode exaltation. The concept parabiosis (N.E.Vvedensky),parabiosis development phase. Changing the excitability of tissue during slow increase depolarizing, current property accommodation. Classification of nerve fibers. Mechanisms of excitation along the nerve fibers. Laws of excitement in the nerves. Types of signaling between excitable cells. The concept of the synapse. Classification synapses. Functional properties of electrical and chemical synapses. The mechanism of signal transduction in the chemical synapse. Types of synaptic neurotransmitter and neuromodulators. Features of the signal transmission in the nerve-muscular and central synapses; in excitatory and inhibitory synapses. The physical and physiological properties of skeletal muscles. The concept of the motor unit, the physiological characteristics of the fast and slow motor units. Electromyography. Feature types and modes of muscle contraction. Temporary ratio cycle of excitation and excitability of skeletal muscle contraction single fibers. The mechanism of tetanic contraction. Terms of occurrence optimum and pessimum. Features of the structure of the membrane and the fibers of skeletal muscle sarcomere. The mechanism of muscle contraction. Electromechanical coupling. The dependence of the force of contraction of the muscles of its original length. Energy muscle contraction. Ways of re-synthesis of ATP. The power and capacity of the energy systems</p>
--	--	--

		<p>of the body. A functional system of energy supply of muscle activity.</p> <p>Physiological characteristics and properties of smooth muscle. Their importance in myogenic regulation of motor functions of internal organs.</p>
2.	Physiology of the nervous system	<p>Functional organization of the neuron as a unit of the nervous system. The emergence of local and spreading excitation in neurons. The integrative function of the neuron. Classification of neurons.</p> <p>The concept of neural networks, their types. Modular concept of the central nervous system.</p> <p>The concept of a nerve center in the broad and narrow sense. The physiological properties of the nerve centers</p> <p>The basic principles of propagation of excitation in the nerve centers, in neural networks.</p> <p>The principles of coordination of the CNS</p> <p>The reflex principle of the nervous system and the principles of the reflex theory. Reflex - the basic mechanism of the body's adaptive response to changes in internal and external environment. The units and components of morphological basis reflex from the position of Descartes and P.K. Anohin. Morphological basis of simple physical reflex. The concept of adaptive result of a reflex action. Types of reflexes.</p> <p>The value of inhibition in the CNS. History of discovery of peripheral and central braking.</p> <p>Braking functions (protective and coordinates).</p> <p>Types of central inhibition (depolarization and hyperpolarization; presynaptic and postsynaptic, forward, lateral, reflexive, reciprocal).</p> <p>Unitarily chemical and binary-chemical theory of central inhibition.</p> <p>Mechanisms of interaction of excitatory (EPSP) and inhibitory (IPSP) effects on neuron. Mechanisms of depolarizational (pessimal) inhibition and hyperpolarizing the neuron.</p> <p>The role of the various departments of the central nervous system in the regulation of physiological functions. Afferent, efferent and association areas of the cerebral cortex. Kolinsky organization crust. Irradiation and convergence of different modalities of excitations in the cortex. The role of inhibitory neurons in providing analytical and synthetic activity of the cortex. The plasticity of the cortex (E.A.Hasratyan). Cortico-subcortical and cortical-visceral relationship (K.M. Bykov). The functional asymmetry of the hemispheres in humans.</p> <p>The concept of muscle tone. Reflex nature and functional significance of muscle tone.</p> <p>Types proprioceptors, their localization, structure, role in maintaining muscle tone. Morphological basis of tendon reflexes. The mechanism of regulation of muscle tone and at the spinal level (spinal tone).</p> <p>Ways and mechanisms of action of the structures of</p>

		<p>the medulla oblongata and cerebellum to the muscle tone. The mechanism of state decerebrate rigidity (contractile tone) in the bulbar animal. The structures of the midbrain involved in the formation of mesencephalic tone. Plastic tone at diencephalic animal.</p> <p>Participation striapallidarnoy components of the system and the cerebral cortex in the regulation of muscle tone.</p> <p>The concept of tonic reflex. Types of tonic reflexes (static and stato-kinetic). Terms and conditions of their occurrence. Participation of the spinal structures, oblong and midbrain in their implementation.</p> <p>Autonomous (vegetative) nervous system. Its functions.</p> <p>Physiological characteristics of the sympathetic, parasympathetic and metasympathetic divisions of the autonomic nervous system. The main types of neurotransmitters and receptors.</p> <p>The role of the various departments of the central nervous system (spinal, bulbar, mesencephalic centers, hypothalamus, cerebellum, reticular formation of the cerebral cortex) in the regulation of the autonomic nervous system.</p> <p>The concept of typological features of vegetative regulation of hemodynamics. Methods for determination of the autonomic nervous system dysfunctions.</p> <p>Types of response to emotional burden in terms of the autonomic nervous system.</p>
3.	Physiology of the endocrine system	<p>Main components of the endocrine system (local and diffuse endocrine system). The concept of the endocrine glands. Biopotentials of gland blogsites. Secretory cycle. Types of endocrine glands. Central and peripheral glands. Operating system of endocrine glands (the hypothalamic-pituitary, sympathoadrenal, gastroenteropancreatic and others.). The concept of endocrine and neuroendocrine cells. Types of biologically active substances, hormones, hormone peptides, neurohormones, neurotransmitters, modulators.</p> <p>Functional characteristics of hormones that distinguish them from other biologically active substances. Classification of hormones: chemical nature (protein-peptide, steroid, amino acid derivatives), on a functional basis (tropic, launchers, effector).</p> <p>Forms of transfer of regulatory influences using biologically active substances (autocrine, izokrine, paracrine, endocrine, neyrocrine).</p> <p>Methods of transport of hormones in blood. The value of transport of hormones in a bound state.</p> <p>The mechanisms of action of hormones on target cells (membrane, cytosol-core).</p>

		<p>Types of physiological action (metabolic, morphogenetic, kinetic, flavoring) and the importance of hormones. Nervous (trans and paracrine) and humoral control of the endocrine glands. The role of negative feedback (ultra-short, short, long) in the self-regulation of the endocrine glands. The hormones of the endocrine glands (hypothalamus, pituitary, pineal gland, thyroid, thymus, parathyroid, pancreas, adrenal glands, sex glands, placenta), and their effect on metabolism and body functions.</p> <p>Stress, mechanisms, role in the processes of life. The role of H. Selye and Russian scientists in the development of the doctrine of stress. Stress as a phase of adaptation. Short-term and long-term adaptation. Crossadaptation. its role in clinical practice.</p>
4.	Metabolic bases of physiological functions. The physiology of thermoregulation	<p>The metabolism - as a basic condition for life and preservation of homeostasis. Plastic and energetic role of nutrients. The processes of assimilation and dissimilation substances.</p> <p>The regulation of the content of nutrients in the body. The importance of water to the body. The concept of regulation of water and mineral metabolism, self-regulation principle of these processes. Vitamins and their importance.</p> <p>The idea of the energy balance of the body. Caloric value of various nutrients. Principles of organization of a balanced diet. The methods of direct and indirect (complete and incomplete gas analysis) calorimetry. The concept of the caloric value, the respiratory quotient and the caloric equivalent of oxygen, their values for different types of oxidation of nutrients.</p> <p>Daily exchange and its components. The main exchange, the conditions determining the basal metabolism, factors affecting its value. Specific dynamic action of nutrients. Working increase, work of men. The magnitude of the working exchange for different types of work.</p> <p>The concept of thermoregulation. Heat production. Heat transfer.</p> <p>The constancy of the temperature of the internal environment, as a prerequisite for the normal course of metabolic processes.</p> <p>The temperature of the body scheme, its daily fluctuations. Poikilotherms, homeothermy, hibernation.</p> <p>A functional system that provides maintenance of constant temperature of the internal environment.</p>
5.	Physiology of blood	<p>The concept of blood, the blood system. Number of circulating blood, its composition.</p> <p>Functions of blood.</p> <p>Basic constants of blood, their value and functional value. The concept of the osmotic pressure of blood. The idea of self-regulation principle mechanism for maintaining constant blood. Functional systems, ensuring the maintenance of constant pH and</p>

		<p>osmotic pressure of blood.</p> <p>The concept of hemolysis, its forms and plasmolysis.</p> <p>Blood cells, their physiological importance. The concept of erythro, leuco and thrombocytopoiesis their neural and humoral regulation.</p> <p>Hemoglobin and its compounds, the functional significance. Lymph, its composition and functions.</p> <p>The idea of the protective function of the blood and its manifestations (immune reactions, blood clotting). Blood groups as a manifestation of the body's immune specificity. Types of systems of blood groups (AB0, Rh - accessory). Their importance for obstetric and surgical practice.</p> <p>Blood clotting (hemostasis), its value.</p> <p>The main factors involved in blood clotting (tissue, plasma, platelet, erythro and leukocyte), their functional characteristics.</p> <p>The idea of external (tissue) and internal (blood) blood coagulation system, blood coagulation phases, processes retraction and fibrinolysis.</p> <p>Factors that accelerate and slow down blood clotting.</p> <p>The concept of the first and second blood anticoagulation system. Understanding of the principles of their functioning.</p> <p>The notion of functional system that ensures the maintenance of liquid blood. Coagulation, anticoagulant and fibrinolytic system of blood as the main unit of the reaction of the FUS.</p>
6.	Physiology of blood circulation	<p>The concept of physiological circulatory system (cardiovascular system). Injection (pumping) function of the heart.</p> <p>Morpho-functional features of the organization of the heart. Typical and atypical (P and T cells) cardiomyocytes, cardiac conduction system, the valve apparatus of the heart cavity.</p> <p>The physical and physiological properties of the cardiac muscle. The concept of functional syncytium for the heart.</p> <p>The emergence and spread of excitation in the heart. Automatic, its nature, and the gradient center. Ion excitation mechanisms of atypical myocardiocytes. Mechanisms of slow diastolic depolarization.</p> <p>The changes in excitability in the excitation typical cardiomyocytes. Electromechanical coupling. Extrasystoles. Compensatory pause.</p> <p>Cardiac cycle, its phase structure. Changes in muscle tone of the walls of the cavities of the heart, to change their volume, blood pressure and the state of the valve device in different phases of the cardiac cycle.</p> <p>The concept of chrono-, bathmo -, dromo -, ino- and tonotropny effects as manifestations regulatory influences on the heart.</p> <p>Types of cardiovascular regulation. Autoregulation: myogenic (hetero- and gomeometrichesky) and neurogenic mechanisms. Laws of manifestations myogenic autoregulation (the law of Frank -</p>

		<p>Starling; Anrep law; ritmoinotropic dependence). Nervous and humoral mechanisms extracardiac regulation cardiac activity. Humoral influence of hormones, electrolytes, mediators and other factors on the parameters of the heart.</p> <p>Nervous regulation. Features of the sympathetic and parasympathetic innervation of the heart muscle. The mechanisms of the parasympathetic and sympathetic effects on the heart. Reflex regulation of the heart. The nerve centers of regulation of cardiac activity.</p> <p>The endocrine function of the heart. Influence atrionatriuretic peptide on vascular tone and the process of urine formation. Functional classification of blood vessels (elastically stretchable, resistance, exchange, capacitive, shunt).</p> <p>The basic laws of hydrodynamics and their use to explain the physiological functions and patterns of blood flow through the vessels. Factors enabling the movement of blood through the vessels.</p> <p>The parameters of peripheral blood (blood pressure, linear and volumetric flow rate, while the circulation of the blood). Changing the resistance, blood pressure and blood flow in different areas of the vascular bed.</p> <p>The nervous, humoral and myogenic regulation of vascular tone. The concept of basal vascular tone and autoregulation of vascular tone. Vasomotor center (pressor and depressor departments). Peripheral and central effects on neuronal activity vasomotor center. The concepts of systolic, diastolic, pulse and mean arterial pressure. Factors determining the amount of blood pressure. A functional system maintain normal blood pressure.</p> <p>Microcirculation and its role in the mechanisms of exchange of fluids and a variety of substances between blood and tissues. Vascular module microcirculation.</p> <p>Capillary blood flow. Types of capillaries. Mechanisms transcapillary exchange in the capillaries of large and small circulation.</p> <p>External manifestation of cardiac activity (electric, acoustic, mechanical)</p> <p>Mechanisms of EMF heart. Theory of Einthoven. Methods of recording the electrical activity of cardiac manifestations. Basic ECG in humans (standard, enhanced, chest). Monopolar and bipolar ECG.</p> <p>Structural analysis of normal ECG in standard lead II. Jags, complexes, intervals segments; their time and amplitude characteristics.</p> <p>The spread of excitation in the myocardium (wave of depolarization and repolarization). Potentials of de- and repolarization of on the active electrode. Vector theory of the genesis of the ECG.</p> <p>Electrical axis of the heart. Physiological variations of its location (normal, horizontal and vertical). The characteristic features of these options in the</p>
--	--	--

		<p>standard leads.</p> <p>ECG type «rS» in the right thoracic, «Rs» in the left chest leads. The concept of the transition zone.</p> <p>Methods of study of sound manifestations of the heart (auscultation, phonocardiography). The origin of the heart sounds, their species and the best listening.</p> <p>Methods study blood (sphygmography) and venous (venography) pulse. Clinical assessment of heart rate in humans.</p> <p>Methods for measuring blood pressure (direct and indirect). Methods of Riva-Rocci and Korotkoff and technique of their application. The concept of vascular tone, understanding of the mechanisms of their occurrence. The definition of functional change index as a method for rapid diagnosis of the cardiovascular system.</p> <p>Method of variation pulsometry. Statistical analysis of the ECG, its use to assess the nature of regulatory effects on heart rate.</p> <p>Cardiac activity during exercise. Cardiac output - an integral component of the heart. Mechanism of changes of cardiac output during exercise. Changing the structure of the heart rate in a physically strenuous activity.</p> <p>Regulation of vascular tone during physical exertion. Mechanisms to enhance venous return during muscular work (venous, muscular, respiratory "pump").</p> <p>Methods of assessing human physical performance in terms of the heart: Harvard step test, PWC170 (method of testing, evaluation data for middle-aged).</p>
7.	Physiology of respiration	<p>The value of breathing for the organism. The main stages of the process. External respiration. Biomechanics of inhalation and exhalation. The pressure in the pleural cavity, its changes during inhalation and exhalation. Lung volumes and capacities. Backup possibilities of the respiratory system. Spirometry, spirometry. Composition inhaled, exhaled, and alveolar air. The anatomical, physiological and functional dead space. Ventilation and perfusion factors, their importance in clinical practice.</p> <p>Blood barrier. The diffusion capacity of the lungs. Transport of blood gases. Schedule oxyhemoglobin dissociation. Factors influencing the formation and dissociation of oxyhemoglobin. The concept of oxygen-carrying capacity of blood.</p> <p>Nasal and oral breathing, their features. The functional relationship between the processes of breathing, chewing and swallowing. Speech breathing. The concept of the respiratory center in the broad and narrow sense. The concept of containment and organization structure of the respiratory center in the broadest sense. The types of respiratory neurons in the medulla oblongata, their automatia.</p>

		<p>The role of different receptors and the respiratory center in the mechanisms of the respiratory phase change. The idea of breathing regulation on the basis of the principle of indignation and rejection.</p> <p>Protective breathing reflexes.</p> <p>The mechanism of first breath of the newborn.</p> <p>Breathing at elevated and reduced barometric pressure.</p> <p>Scheme of the functional system that ensures the maintenance of the constancy of the gaseous environment of the body.</p> <p>Breathing in a performance of physical activity.</p> <p>Assessment of respiratory minute volume.</p> <p>Regulation of breathing during muscular work (humoral and neural mechanisms). Maximum oxygen consumption.</p> <p>The link between oxygen consumption and heart rate. The true steady state. Oxygen request, oxygen consumption and oxygen debt during exercise.</p>
8.	Physiology of excretion	<p>The concept of excretion its role in the maintenance of homeostasis. Kidney - the main excretory organ. Morpho-functional characteristics of the nephron, the features of its blood supply. The mechanism of glomerular filtration, its regulation. Primary urine, unlike its composition of blood plasma.</p> <p>Reabsorption. Required (obligate) and Election (optional) reabsorption.</p> <p>Active and passive processes underlying reabsorption. The concept of threshold and non-threshold substances.</p> <p>Swing-counter mechanism of urine concentration at the level of the loop of Henle and the collecting tube.</p> <p>Mechanisms of regulation of the process of reabsorption. The role of the main humoral factors: aldosterone and antidiuretic hormone.</p> <p>Secretion in the renal tubules. Secondary urine.</p> <p>The idea of gomeostatic renal function (regulation of the volume of fluid, the osmotic pressure, acid-base balance, the amount of inorganic and organic substances, blood pressure, blood formation).</p> <p>The mechanism of micturition, its regulation.</p>
9.	Physiology of digestion	<p>Meaning, types and forms of digestion.</p> <p>Neurohumoral mechanisms of hunger and satiety.</p> <p>Analysis of components of the functional system maintain a constant level of nutrients in the blood.</p> <p>Legitimacies the organization of activity of the gastrointestinal tract according to the principle of the digestive conveyor.</p> <p>General principles of neuro-humoral regulation of functions of the digestive tract. Chewing, its nature, self-regulation. Features chewing while chewing different consistencies. Face-bow, analysis mastikatsiogrammy. The formation saliva and salivation. Nervous and humoral regulation mechanisms of these processes. Phase salivation, salivary reflex, adaptive nature of salivation.</p> <p>Swallowing, its phases and mechanisms.</p>

		<p>The functions of the stomach. The number, composition and properties of the gastric juice. Meaning of hydrochloric acid and other components of gastric juice. Phases of gastric secretion their neuro-humoral mechanisms.</p> <p>The idea of the features of the experimental operations on the stomach and their use for the study of neural and humoral influences on gastric secretion.</p> <p>The motor activity of the stomach. Nervous and humoral factors affecting the motor and evacuation function of the stomach.</p> <p>The importance and role of digestion in the duodenum.</p> <p>Functions of the pancreas.</p> <p>The number, composition and properties of pancreatic juice. The enzymes of pancreatic juice, isolated in the active state in the form of zymogens.</p> <p>Mechanisms of regulation of pancreatic secretion. The contours of self-regulation of secretion of the pancreas, their meaning.</p> <p>Liver function.</p> <p>Bile, its quantity, composition, value for digestion. The mechanisms of bile formation, deposition and biliary excretion, and their regulation. Enterohepatic recirculation of bile acids.</p> <p>The importance and role of digestion in the small intestine.</p> <p>The mechanism of formation of intestinal juice. Quantity property enzymatic composition of intestinal juice. Regulation Branch intestinal juice.</p> <p>Cavitary and membrane digestion, their interaction and expression in different parts of the gastrointestinal tract. Intracellular digestion. Gastrointestinal immune cells.</p> <p>The motor activity of the small and large intestine, its features, value, mechanisms of regulation.</p> <p>Features of digestion, the value of the microflora in this process. Enzymatic composition juice colon. The act of defecation as the end result of digestion in the colon.</p> <p>Absorption of digestion products in various parts of the digestive tract and its mechanisms.</p>
10.	Physiology of sensory systems. Physiology of higher nervous activity	<p>The concept of the sensory system. The concept of the analyzer with the teachings of Pavlov position. Correlation of the notions "touch system" and "Analyzer".</p> <p>The concept of a sensory organ. The notion of the main and auxiliary structures of the senses.</p> <p>The concept of peripheral (receptor) department of the sensor system, the receptor neuron's receptive field.</p> <p>The functional properties and characteristics of receptors: specificity, high irritability, poor accommodation, the ability to adapt; rhythmic generation of impulses of excitement. Classification of receptors on the criteria: the reception of internal</p>

		<p>or external stimuli; Nature of adequate stimulus; the nature of feelings; modality; threshold of stimulation; speed of adaptation; communication of receptor with sensor neuron.</p> <p>The mechanism of excitation of the receptor. The receptor and generator potentials. Coding of signals in the receptors.</p> <p>The functional properties and characteristics of the organization department of conductive sensor system (multi-level, multi-channel, the presence of "sensory funnels" specific and nonspecific way transmission of information). The idea of three neural organization conductor department. Participation conductor department in conducting and processing of afferent impulses.</p> <p>Features of the organization department of the cortical sensory system. Functional differences of neurons that make up the different cortical areas. The idea of mono- and polymodality neurons of the mechanism of interaction of sensory systems (convergence and divergence of the excitation, the lateral and recurrent inhibition, mediator interaction, synthesis of synaptic receptors).</p> <p>The encoding of information in different parts of the sensory systems. The ratio of the intensity of the anger and intensity of feeling. Weber-Fechner law.</p> <p>The main methods of regulation of the activity of sensory systems through the use of various forms of inhibition of downstream effects from the higher divisions to the underlying. The concept of functional mobility. Adaptation of sensor systems.</p> <p>Morpho-functional characteristics of the visual parts of the sensor system.</p> <p>The concept of the field of vision and visual acuity. The methods of their determination.</p> <p>The concept of refraction, accommodation and adaptation of the eye. The mechanisms of these processes, their anomalies (astigmatism, myopia, hyperopia, presbyopia). Pupillary reflex.</p> <p>Mechanisms for the reception and perception of color. The main types of disorders of color perception.</p> <p>Auditory system. Sound-catching education, sound-conducting paths and sound-machine auditory system. Mechanisms for the reception of sound. The binaural hearing. Research Methods auditory system.</p> <p>General morphological and functional organization of the departments of cutaneous sensory system. Tactile and temperature sensor systems as the components thereof. Classification of tactile receptors and their structural and functional differences. Research Methods tactile sensor system. The concept of spatial threshold of tactile sensitivity. Classification thermoreceptors. Methods of study of the temperature sensor system.</p> <p>General morphological and functional organization</p>
--	--	---

	<p>of the departments of gustatory system. Receptors gustatory system. Taste buds, the taste buds. Types taste buds. The mechanism of reception and perception of flavor. Research Methods gustatory system (gustometriya and functional mobility).</p> <p>General morphological and functional organization of the olfactory sensory system departments. The mechanism of reception and perception of smell. Methods of study of the olfactory sensory system (olfactometer). The role of the interaction between olfactory and other sensory systems in the formation of taste sensations.</p> <p>The concept of HNA. Submission forms of HNA (congenital and acquired forms of behavior, higher mental functions).</p> <p>The concept of the conditioned reflex. History of the discovery of conditioned reflexes. The value of the work of Pavlov and his followers in the creation theory of conditioned reflexes and physiology of HNA.</p> <p>Comparative characteristics of the conditioned and unconditioned reflexes. The value of conditioned reflexes in animals and humans adapt to the conditions of existence.</p> <p>Rules and stage of development of conditioned reflexes. Classification of conditioned reflexes on the criteria: the nature of the relations conditioned and unconditioned stimuli (natural and artificial); the biological significance of the unconditioned stimulus (food, defense, and others.); type receptors excited conditioned stimulus (sound, lighting, etc.); the relationship of the conditioned stimulus to the first or second signal system; the complexity of the conditioned reflex (reflex 1, 2, 3, and so orders); changes in the nature of the organism (positive or negative); the ratio of the time of the conditioned and unconditioned stimuli (cash, lagging, trace).</p> <p>The concept of a temporary connection. Pavlov and modern ideas about the level of localization, time communication and the mechanisms of its formation.</p> <p>Braking in HNA and its types: unconditional (transcendent and external), conditional (extinction, differential, conditioned inhibition, delayed), the conditions of their occurrence. Modern understanding of the mechanisms of inhibition in HNA. The value of inhibition of conditioned reflexes for the organization of adaptive human activity. The concept of the type of HNA (according to Pavlov). Classification and characterization of types of HNA. The role of the HNA and other types of individually-typological characteristics of the person in the realization of adaptive activity.</p> <p>The concepts of mental and higher mental functions. Types of basic mental functions (sensation, perception, representation, attention, emotion, motivation, memory, language, thinking and consciousness).</p>
--	---

		<p>The concept of sensation. The idea of the nature of feeling.</p> <p>The concept of perception. The idea of its mechanism.</p> <p>The notion of attention. Types of attention. The idea of the mechanisms of attention from the viewpoint of Pavlov, Ukhtomski and modern science. Physiological correlates of attention.</p> <p>The concept of motivation. Classification motivations. The idea of the mechanism of their occurrence. The role in this process, the hypothalamus and the cerebral cortex.</p> <p>The concept of emotion. Types of emotions. The idea of the mechanism of their occurrence. The role of different brain structures in the formation of emotional states. The value of emotion for the organization of behavior.</p> <p>The notion of memory. Types of memory. The idea of the mechanisms of short-term and long-term memory.</p> <p>The concept of thinking. Types of thinking. The role of different brain structures in the implementation of the process of thinking. The development of abstract thinking in human ontogeny.</p> <p>The concept of speech. Types of speech and speech function. The idea of the mechanisms of speech, functional asymmetry of the cerebral cortex of the brain, associated with the development of speech in humans.</p> <p>The concept of consciousness. The concept of sub and super, their relation to consciousness.</p> <p>The concept of physiological and psycho-physiological methods of research of mental functions.</p> <p>The concept of goal-directed behavior. An analysis of the components of the functional system behavior act.</p> <p>Biologically and socially determined forms of purposeful activity. The notion of work as one of the manifestations of purposeful human activity. "Quantum" behavior of both phases of work.</p> <p>The concept of pain, nociception. Fitting pain functional system maintain the integrity of the organism. Functions of pain.</p> <p>Classification of pain.</p> <p>Morpho-functional characteristics of the pain sensory system departments.</p> <p>Notion of the theory of the mechanism of pain (intensity, timing afferent flow, specificity, gate control, generators).</p> <p>Pain as an integrative body's response to the damaging effects of the stimulus. Components of the pain reaction.</p> <p>The role of the thalamus and the cerebral cortex of the brain in the integration and analysis of painful stimulation. Sensory-discriminative and semantic analysis of the damaging effects.</p>
--	--	---

		<p>Concepts antinociception and antinociceptive system (ANTSS). Components and functions ANTSS.</p> <p>Levels ANTSS: System descending inhibitory control of primary afferents and the first relay nuclei; limbic-hypothalamic level; cortical level (secondary somatosensory and orbit-frontal cortex).</p> <p>The neurochemical and neurophysiological mechanisms ANTSS. Presynaptic and postsynaptic changes in the activation ANTSS.</p> <p>The concept of the pain threshold. Algometriya.</p> <p>The physiological basis of pain relief. The concept of the functional state. Methods for evaluating the functional state. The optimal level of functional state. Individual differences in functional status. Regulation of functional states. Communication with the level of the functional state of the effectiveness and efficiency of purposeful activity.</p> <p>Functional condition of human beings in an emotionally charged activity.</p> <p>Features of formation architectonics of purposeful behavior act when physically strenuous activity. Concept and types of physical activity.</p> <p>Features of work in modern production (hypokinesia, monotonous work). Concept and types of monotonous work. Features of a functional state at monotonous work. Status as a result of monotony monotonous work. Factors contributing to the development of the state and prevent monotony. The role of the personal characteristics of the person in the development of the state of monotony. Prevention of monotony.</p> <p>The concepts of health and disease. Criteria for evaluation. Factors influencing health status. Features health preservation today. Health and labor. The concept of a healthy lifestyle. Features living and working of students.</p> <p>Serviceability. Stages of performance. Fatigue its mechanisms. Fatigue and its characteristics. Recovering his views. Geterochronism of recovery processes. Overreduction. The concept of passive and active recreation.</p> <p>The concept of stress. Types of stress. Stages of development of stress G.Selje. Stressimplementing and stresslimiting system. The role of emotional stress in the development of somatic pathology. Role of individually-typological features in resistance to emotional stress. Prevention of mental and emotional stress.</p>
--	--	--

5.2. Course sections and types of studies

5.2. Sections and types of studies

№ п/п	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
----------	----------------------------	---	---	---	----	-----	-----	----	----------------

1	Introduction to the subject. Basic concepts of physiology. Physiology of excitable tissues	4		9				19	32
2	Physiology of the nervous system	6		9				18	33
3	Physiology of the endocrine system	6		9				18	33
4	Metabolic bases of physiological functions. The physiology of thermoregulation	-		3				18	21
5	Physiology of blood	4		12				18	34
6	Physiology of blood circulation	6		12				15	33
7	Physiology of respiration	4		9				14	27
8	Physiology of excretion	4		6				14	24
9	Physiology of digestion	6		9				14	29
10	Physiology of sensory systems. Physiology of higher nervous activity.	2		6				14	22

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

№	Title Name of discipline	Types of independent work	Forms of control
1.	Introduction to the subject. Basic concepts of physiology. Physiology of excitable tissues	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
2.	Physiology of the central nervous system	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
3.	Physiology of the endocrine system	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
4.	Metabolic bases of physiological functions. The physiology of thermoregulation	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
5.	Physiology of blood	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
6.	Physiology of blood circulation	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational	Checking assignments.

		problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	
7.	Physiology of respiration	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
8.	Physiology of excretion	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
9.	Physiology of digestion	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.
10.	Physiology of sensory systems. Physiology of higher nervous activity.	Perform tasks listed in the workbook (charting, filling the tables, the decision of situational problems, a plan on writing abstracts, preparing summaries of articles, abstracts, educational research work of students). Testing in MOODLE	Checking assignments.

7. Forms of control

7.1. Current forms of control

- oral (an interview)
- written (tests, solving of practical tasks).

A subject list of test collections and cases are shown at the section «Assessment tools».

7.2. Forms of interim attestation (pass/fail test, examination)

Written exam

Questions for a pass/fail test and examination are listed at the section «Assessment tools».

8. Library and information materials of the course

8.1. Compulsory literature :

1. Silbernagl S, Despopoulos jr. A, ed. Color Atlas of Physiology. 7th Edition. Thieme; 2017. (Режим доступа: <http://medone-education.thieme.com>.)
2. Jain A.K. Textbook of Physiology, Vol.2/ A. K. Jain. – 4th ed., New Delhi. - Avichal Publishing Company, 2010. -1154 p.
3. Jain A.K. Textbook of Physiology, Vol.1/ A. K. Jain. - 4th ed. -New Delhi: Avichal Publishing Company, 2010. -667 p.
4. Michael J. Fundamentals of Medical Physiology. [Электронный ресурс]/ J. Michael, S. Sircar. -1st ed.: Thieme, 2010- URL: https://medone-education.thieme.com/ebooks/2141760?fromSearch=true#/ebook_2141760_SL81805771

5. Silbernagl S. Color Atlas of Physiology. [Электронный ресурс]/ S. Silbernagl, A. Despopoulos jr.. -7th ed.: Thieme, 2015- URL: https://medone-education.thieme.com/ebooks/2107923?fromSearch=true#/ebook_2107923_SL80819404
6. TannerThies R. Physiology-An Illustrated Review. [Электронный ресурс]/ R. TannerThies. -1st ed.: Thieme, 2011- URL: https://medone-education.thieme.com/ebooks/2147268?fromSearch=true#/ebook_2147268_SL81941623

8.2. Supplementary course literature

1. General physiology (workbook of Normal physiology) [Электронный ресурс] : методический материал / S. L. Sovershaeva [и др.]. - Архангельск : Изд-во Северного государственного медицинского университета, 2019. - 69 с
2. Workbook in normal physiology for foreign students of MD-program [Электронный ресурс]: практическая работа. Pt. II / S. L. Sovershaeva [и др.]. - Архангельск : Изд-во Северного государственного медицинского университета, 2018. - 100 с
3. Workbook in normal physiology for foreign students of MD-program [Электронный ресурс] : практическая работа, Pt. II/ S. L. Sovershaeva [и др.]. -Архангельск: Изд-во Северного государственного медицинского университета, 2018. -100 с.- URL: http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/W83-521899
4. Workbook of normal physiology for foreign students of MD-programm [Электронный ресурс] : методический материал, Pt. 1/ S. L. Sovershaeva [и др.]. -Архангельск: Изд-во Северного государственного медицинского университета, 2018. -72 с.- URL: http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/W83-872491
5. Лапкин М.М. Избранные лекции по нормальной физиологии = Selected Lectures on Normal Physiology [Электронный ресурс] : учебное пособие на русском и английском языках/ М. М. Лапкин, Е. А. Трутнев. -Москва: ГЭОТАР-Медиа, 2021. -544 с.- URL: <https://www.studentlibrary.ru/ru/book/ISBN9785970459720.html>

8.3. List of the Internet resources required for mastering of the course (module)*

1. ELS "Consultant of a student" <http://www.studmedlib.ru/>
2. Link to Virtual physiology: <http://physiology.sgu.ru/node/18>
3. Scientific electronic library eLibrary open resource <http://www.elibrary.ru>
4. Electronic catalogue and full-text electronic library of NB SSMU <http://lib.nsmu.ru/>
5. PubMed Central (PMC) full-text archive of biomedical journals the National library of medicine, USA <http://www.pubmedcentral.nih.gov>
6. Web-medicine <http://webmed.irkutsk.ru>
7. Cardiovascular physiology concept. R. E. Klabunde (see Tutorials/Quizzes +surveys, video) URL: <http://www.cvphysiology.com>
8. International Journal of Cardiology. <http://www.internationaljournalofcardiology.com>
9. Meduniver human physiology <http://meduniver.com/Medical/Physiology/12.html>

8.4 . List of the information and telecommunications Internet resources required for mastering of the course (module)

1. The program for training test «TTester».
2. Program computer simulation "Virtual Physiology», INTERNICH - practical work in all areas of physiology.
3. Programs created by Associate Professor V. Zashihina
 - Work of sodium channels of plasmatic membranes
 - Work sodium-potassium pump of plasmatic membranes
 - The mechanism of presynaptic inhibition
 - Mechanism of development inhibitory postsynaptic potential
 - The mechanism of muscle contraction.
 - The mechanism of muscle contraction. Participation of ATP.
 - The mechanism of excitation.
 - cycle of mediator.
 - The motor activity of the stomach.
 - The motor activity of the intestines.

Audiovisual, technical and computer means of teaching:

1. Audiovisual - educational films
 - Physiology of excitable tissues, Moscow
 - The cardiac cycle, Moscow
 - ECG, Moscow
 - Physiology of blood. Zakharov U.M, MD, prof., Academician, Chairman of the RAMN, Head of Department of normal physiology of the Chelyabinsk State Medical Academy.
 - Fast and slow action potentials in the cells of the heart. The automaton of the heart. Rozenshtauh LV., Sc.D., Academician of the RAN, A.M. RAMN, Head of Laboratory of Electrophysiology of the Heart Department of Physiology RKNPK of RF (Moscow).
 - General questions of physiology of the endocrine system. Smirnova O.V., Sc.D., prof., Leading Researcher of lab. Dept. of Endocrinology Human and Animal Physiology of the Faculty of Biology, Moscow State University (Moscow)
 - Physiology of the kidney. Natochin U.V., Sc.D., Prof., Academician of RAN, President of the Physiological Society of RF named by Pavlov, Head of the lab. physiology of kidneys and water-salt metabolism of the Institute of Evolutionary Physiology and Biochemistry named by Sechenov RAN
 - Structure and function of the central and neuromuscular synapses. Magazanik L.G., Sc.D., Prof., Corr. RAN, Head of Laboratory of Biophysics of synaptic processes of the Institute of Evolutionary Physiology and Biochemistry of Sechenov RAN
 - Reception and intracellular organization. Tkachuk V.A., Sc.D., prof., Academician of the RAN and RAMN, Head of the Department Med. and biol. Chemistry, Dean of the Faculty of Fundamental Medicine of Lomonosov`s Moscow State University; Head of the Department of Biochemistry RKNPK of RF
 - Resting membrane potential and action potential. Zefirov AL, prof., Corr. RAMN, Head of the department of normal physiology of Kazan State Medical University. (Kazan) 2006.
 - The pumping function of the heart and its regulation. Kapelko V.I., MD, prof., Head of the Laboratory of Experimental Pathology of the heart Department of Physiology RKNPK of RF.

Software:

Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403.

MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно
 Radmin Viewer 3. Radmin Server 3. Номер документа 11001793
 Traffic inspector. Лицензионное соглашение №1051-08 от 10.04.2008, бессрочно

9. Material and technical facilities necessary for the educational process

Наименование помещений для проведения всех видов учебной деятельности, предусмотренной учебным планом, в том числе помещения для самостоятельной работы, с указанием перечня основного оборудования, учебно-наглядных пособий и используемого программного обеспечения	Адрес (местоположение) помещений для проведения всех видов учебной деятельности, предусмотренной учебным планом (в случае реализации ФГБОУ ВО СГМУ (г. Архангельск) Минздрава России программы в сетевой форме дополнительно указывается наименование организации, с которой заключен договор)
<p>Учебная аудитория для проведения занятий лекционного типа № 2403 Морской медицины, административный учебный корпус, 4 этаж</p> <p><i>а) перечень основного оборудования:</i> Комплект учебной мебели (столы, стулья, экран, доска) рабочее место преподавателя, рабочие места обучающихся на 300 мест.</p> <p><i>б) наборы демонстрационного оборудования</i> колонки, моноблок, проектор, экран</p> <p><i>в) перечень учебно-наглядных пособий:</i> стенд</p> <p><i>г) используемое программное обеспечение:</i> Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403. MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно Radmin Viewer 3. Radmin Server 3. Номер документа 11001793 Traffic inspector. Лицензионное соглашение № 1051-08 от 10.04.2008, бессрочно</p>	<p>163000, г. Архангельск, просп. Троицкий, д. 51</p>
<p>Учебная аудитория для занятий семинарского типа, групповых и индивидуальных консультаций, текущего контроля и промежуточной аттестации № 1435, главный учебный корпус, 4 этаж</p> <p><i>а) перечень основного оборудования:</i> Комплект учебной мебели (столы, стулья, экран, доска) рабочее место преподавателя, рабочие места для обучающихся на 38 мест.</p> <p><i>б) наборы демонстрационного оборудования</i> ноутбук, проектор</p> <p><i>в) перечень учебно-наглядных пособий:</i> Наглядные пособия, раздаточный материал к практическим занятиям по всем темам дисциплины. Велоэргометр, Модель нейроанатомическая головного мозга (8 частей), Реограф «Реоспектр-3», Неврологические молоточки, Камертон виолочный, Термометр медицинский электронный, Электрокардиограф Поли-Спектр, Комплекс для психофизиологических исследований «НС-Психотест», Комплекс анатомических плакатов размером 50*67 см, ламинированных с 2-х сторон, на русском языке, Весы напольные, Измеритель артериального давления, Тонометр OMRON автомат M10-IT</p> <p><i>г) используемое программное обеспечение:</i> Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403.</p>	<p>163000, г. Архангельск, просп. Троицкий, д. 51</p>

<p>MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно</p> <p>Radmin Viewer 3. Radmin Server 3. Номер документа 11001793</p> <p>Traffic inspector. Лицензионное соглашение № 1051-08 от 10.04.2008, бессрочно</p>	
<p>Учебная аудитория для занятий семинарского типа, групповых и индивидуальных консультаций, текущего контроля и промежуточной аттестации № 1441, главный учебный корпус, 4 этаж <i>а) перечень основного оборудования:</i> Комплект учебной мебели (столы, стулья, экран, доска) рабочее место преподавателя, рабочие места для обучающихся на 26 мест. <i>б) наборы демонстрационного оборудования</i> Мультимедиапроектор, компьютер <i>в) перечень учебно-наглядных пособий:</i> Наглядные пособия, раздаточный материал к практическим занятиям по всем темам дисциплины. Ростомер SECA, Измеритель артериального давления, Пульсотахограф SANITAS, Шагомер электронный OMRON, Пикфлоуметр OMRON, Спирометры, Фонендоскопы <i>г) используемое программное обеспечение:</i> Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403. MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно Radmin Viewer 3. Radmin Server 3. Номер документа 11001793 Traffic inspector. Лицензионное соглашение № 1051-08 от 10.04.2008, бессрочно</p>	<p>163000, г. Архангельск, просп. Троицкий, д. 51</p>
<p>Учебная аудитория для занятий семинарского типа, групповых и индивидуальных консультаций, текущего контроля и промежуточной аттестации № 1404, главный учебный корпус, 4 этаж <i>а) перечень основного оборудования:</i> Комплект учебной мебели (столы, стулья, экран, доска) рабочее место преподавателя, рабочие места для обучающихся на 26 мест. <i>б) наборы демонстрационного оборудования</i> Мультимедиапроектор, компьютер <i>в) перечень учебно-наглядных пособий:</i> Наглядные пособия, раздаточный материал к практическим занятиям по всем темам дисциплины Модель классическая туловища унисекс с открытыми шеей и спиной, Модель классическая туловища унисекс, 16 частей, Микроскоп бинокулярный БИОМЕД, Микроскоп Лабомед Старт, Кожа, модель в виде блока, увеличение в 70 раз, Макет «Глаз», Модель «Спиномозговая циркуляция». <i>г) используемое программное обеспечение:</i> Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403. MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно Radmin Viewer 3. Radmin Server 3. Номер документа 11001793 Traffic inspector. Лицензионное соглашение № 1051-08 от 10.04.2008, бессрочно</p>	<p>163000, г. Архангельск, просп. Троицкий, д. 51</p>

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Microbiology, virology**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2,3 / 4,5**

Form of the interim assessment **Examination**

Department **of clinical biochemistry, microbiology, laboratory diagnostics**

Discipline workload **252** (academic hours) / **7** (credits)

Approved at the department meeting

Minutes No 10.

June 8th 2021

Head of the department



T.A. Bazhukova

Author and compiler:

Simonova Galina Vladimirovna, PhD in Biological sciences, associate professor, training
Associate Professor

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum

The discipline is related to prior subjects of the curriculum: history of medicine; psychology and pedagogy; Latin language; physics; medical informatics; biological chemistry; biology; human anatomy, histology, embryology, cytology; normal physiology.

The discipline is related to subsequent subjects of the curriculum: infectious diseases, phthysiology, skin and venereal diseases, obstetrics and gynecology, faculty and hospital therapy, surgery, traumatology and orthopedics, ophthalmology.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the discipline

The purpose of mastering the discipline is to prepare students for the implementation of professional activities in the field of healthcare. Formation of students' knowledge of the discipline for a clear understanding of the world of microorganisms, the structure and functioning of bacteria and viruses, the nature of their relationship with humans, microbiological diagnosis of opportunistic and infectious diseases that manifest themselves in the body, as well as ways to protect humans from the pathogenic action of microorganisms; the ability to use the acquired knowledge in the subsequent study of fundamental and clinical disciplines, as well as in future professional activities in order to recognize a condition or establish the presence or absence of a disease.

Discipline tasks:

1. formation of knowledge on the main theoretical issues of microbiology and virology;
2. formation of the skills necessary to use the acquired knowledge in future professional activities in order to recognize the state or establish the fact of the presence or absence of a disease;
3. formation of skills for conducting basic microbiological and virological studies.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Коды формируемых компетенций/формулировки компетенций	Индикатор достижения компетенции
УК-8 Способен создавать и поддерживать в повседневной жизни и в профессиональной деятельности безопасные условия жизнедеятельности для сохранения природной среды, обеспечения устойчивого развития общества, в том числе при угрозе и возникновении чрезвычайных ситуаций и военных конфликтов	ИД-8.1. Идентифицирует опасные и вредные факторы в рамках осуществляемой деятельности ИД-8.2. Обеспечивает безопасные условия жизнедеятельности ИД-8.3. Демонстрирует навыки использования средств индивидуальной и коллективной защиты и средств оказания первой помощи ИД-8.4. Оказывает первую помощь

<p>ОПК-2. Способен проводить и осуществлять контроль эффективности мероприятий по профилактике, формированию здорового образа жизни и санитарно-гигиеническому просвещению населения</p>	<p>ИД-2.1. Умеет назначать профилактические мероприятия пациентам с учетом факторов риска для предупреждения и раннего выявления заболеваний, в том числе социально значимых заболеваний.</p> <p>ИД-2.2. Осуществляет методы групповой и индивидуальной профилактики, разрабатывает и реализовывает программы формирования здорового образа жизни, в том числе программы снижения потребления алкоголя и табака, предупреждения и борьбы с немедицинским потреблением наркотических средств, и психотропных веществ.</p> <p>ИД-2.3. Организует и проводит иммунопрофилактику инфекционных заболеваний у взрослого населения в соответствии с действующими порядками оказания медицинской помощи, клиническими рекомендациями (протоколами лечения) по вопросам оказания медицинской помощи с учетом стандартов медицинской помощи.</p> <p>ИД-2.4. Владеет навыками по оценке эффективности профилактической работы с пациентами.</p>
--	--

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 7 credits.

Type of the academic work	Total hours	Term	
		4	5
Students' contact work with the teacher (total)	110,3	52	58,3
Including:			
Lectures (L)	36	16	20
Seminars (Sem.)			
Practical classes (PC)	16	8	8
Clinical practicals (CP)			
Laboratory-based practicals (LBP)	54	28	28
Simulation-based practicals (SBP)			
Preparation for the examination (PE)	0,3		0,3
Preparation for the credit (PC)			
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	108	92	16
Examination control (EC)	33,7		33,7
Total discipline workload	252/7	144	108

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1	General microbiology	<p>Introduction to the profession. The object and purpose of Microbiology The morphology of microorganisms. Microscopic method of diagnostics Physiology of microorganisms Bacteriological method of diagnostics. Bacteriophages. Bakteriofagiya. Infection, infectious process Antibiotics. Mechanism action of antibiotics. Problems of antibiotic resistance, the way it overcome. Methods for determining the sensitivity of microorganisms to antibiotics. The genetics of microorganisms. Genetic engineering.</p>
2	Serological and molecular genetics diagnostic methods	<p>Diagnostic preparations. Antigens of microorganisms. Preparation and use of antigens for diagnosis. Production and use of sera for diagnostics. Serological laboratory diagnostics. The reaction mechanism of antigen – antibody. Kinds of serological tests. Agglutination reactions. Reactions of precipitation. Reactions of lysis. Complement fixation. Immunoassay. Immunoblotting. Radioimmunoassay. Immunofluorescence. Molecular-genetic method diagnostics of infectious diseases Stages of statement of the polimerazno-chain reaction (PCR) Application of PCR for diagnostics bacterial and viral infections</p>
3	General and private virology	<p>The main methods of diagnosis of viral infections. Virus method of diagnosis of infections. Stages of Virus method. Indication of viruses in cell culture, on experimental animals, on chick embryos. Methods for detection of virus (PCR, electron microscopy). Serological methods of detection viruses (ELISA, IFA). Characteristics of respiratory viruses, enteroviruses Reaction of inhibition hemagglutination for serodiagnostics flu.</p>

		<p>Characteristics of dermatological viruses, arboviruses.</p> <p>Complement fixation test for serodiagnosis encephalitis.</p> <p>Characteristics of hepatitis viruses.</p> <p>Enzyme immunoassay for the determination of HBV antigen.</p> <p>Characterization of oncogenic viruses.</p> <p>Enzyme immunoassay for serodiagnosis of hepatitis</p>
4	Private microbiology	<p>Pathogens septic processes.</p> <p>Modern etiological structure of hospital-acquired infections. Characteristics and equipment taking the pathological material of the patient.</p> <p>The morphological and cultural properties of staphylococci, streptococci, enterococci. Gram-negative bacteria of the genus: Esherichia, Proteus, Klebsiella, Neisseria, Serracia, Citrobacter, Pseudomonas. Strict anaerobes (Fusobacterium, Clostridium, Bacteroides, peptococci, peptostreptococci, veylonella, prevotella, porfiromonada); opportunistic fungal genera: Candida, Aspergillus, Penicillium, Mucor.</p> <p>Methods for the isolation of pure cultures of microorganisms. Factors of aggression, methods of their determination.</p> <p>The sources and routes of transmission.</p> <p>Methods for determining the sensitivity of bacteria to antibiotics.</p> <p>Specific prevention and treatment</p> <p>The causative agents of acute intestinal infections and food poisoning.</p> <p>Systematics of acute intestinal infections and food poisoning. The sources and routes of transmission.</p> <p>Characteristic of material for bacteriological research. The causative agents of acute intestinal infections and food poisoning</p> <p>Differential diagnostic and elective nutrient media.</p> <p>Bacteriological method of diagnosis of acute intestinal infections and food poisoning.</p>

		<p>Serological method and rapid diagnosis of infections.</p> <p>The causative agents of respiratory infections</p> <p>The technique of taking material for isolation agents of respiratory infections.</p> <p>The sources and routes of transmission. Pertussis, diphtheria, scarlet fever.</p> <p>The causative agents of pneumonia and meningitis. Haemophilus influenzae.</p> <p>The morphology and physiology of pathogens. Laboratory diagnosis. Specific treatment and prevention.</p> <p>The causative agents of tuberculosis and actinomycosis</p> <p>The causative agents of tuberculosis.</p> <p>The sources and routes of transmission. Tuberculin and its practical application. Methods of laboratory diagnostics. Specific treatment and prevention tuberculosis.</p> <p>The causative agents of actinomycosis. The sources and routes of transmission. Methods of laboratory diagnostics. Specific prevention and treatment.</p> <p>The causative agents of sexually transmitted diseases</p> <p>Treponema pallidum, Nesseria gonorrhoeae, Chlamydia trachomatis, Haemophilus ducreyi.</p> <p>Sources and modes of transmission. Morphology. Cultural characteristics. Determinants of pathogenicity and virulence factors. Biochemical reactions. Laboratory diagnostics.</p> <p>Medical mycology</p> <p>The chemical composition, structure, morphology of fungus . Factors aggression of fungus. Methods of cultivation of fungus.</p> <p>Microscopic method of diagnosis.</p> <p>Pathogens deep mycoses (blastomycosis, histoplasmosis, cryptococcosis, sporotrichosis).</p> <p>Pathogens dermatomycoses (pathogens scab, Trichophyton, Microsporum, Epidermophyton).</p> <p>Pathogens Candidiasis. Mold mushrooms</p>
--	--	---

		<p>(Aspergillus, Penicillium, Mucor). The role of mold fungi in human pathology.</p> <p>Zoonotic disease</p> <p>Bacillus anthracis, Yersinia pestis, Francisella tularensis, Brucella melitensis, Leptospira.</p> <p>Sources and modes of transmission. Morphology. Cultural characteristics. Determinants of pathogenicity and virulence factors. Biochemical reactions. Laboratory diagnostics. Specific prevention and treatment.</p> <p>Clinical Microbiology</p> <p>The objectives of clinical microbiology. The role of the clinical microbiology in the diagnosis of nosocomial infections. The selection and transportation of material for research. Drug resistance of infectious agents.</p>
--	--	---

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	General microbiology	4				15			19
2	Serological and Molecular Genetics diagnostic methods	2				6			8
3	General and private virology	12				18			30
4	Private microbiology	18				33			51
	Total hours	36				72		144	252

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	2,3 course English medium Microbiology and virology	Lecture video clip filling in tables science articles	table check final test

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination)

Stages of the interim assessment

Stages of examination (pass/fail test)

1. Stage - testing
(name of the stage)
2. Stage - examination (interview under the ticket)
(name of the stage)

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

1. **Harriott M.** Microbiology in Your Pocket. Quick Pathogen Review. [Электронный ресурс] / M. Harriott. - 1st ed.: Thieme, 2017 - URL: https://medone-education.thieme.com/ebooks/2129335?fromSearch=true#/ebook_2129335_SL81446290
2. **Medical Microbiology, Virology and Immunology.** Lecture Notes [Электронный ресурс] : textbook / M. N. Artamonova [и др.]. - Москва : ГЭОТАР-Медиа, 2021. - 352 с. - URL: <https://www.studentlibrary.ru/book/ISBN9785970460436.html>
3. **Medical Microbiology, Virology, Immunology** [Электронный ресурс] : textbook.; 2 vol.; Vol. 1 / V. V. Zverev, M. N. Boichenko. - Москва : ГЭОТАР-Медиа, 2020. - 384 с. - URL: <https://www.studentlibrary.ru/ru/book/ISBN9785970456071.html>
4. **Taylor, T. A.H.** Learning Microbiology and Infectious Diseases: Clinical Case Prep for the [Электронный ресурс] / T. A.H. Taylor, D. Baxa, M. Sims. - [Б. м.] : Thieme, 2020. - URL: https://medone-education.thieme.com/ebooks/cs_11090573#/ebook_cs_11090573_cs78
5. **Medical Microbiology, Virology, Immunology** [Электронный ресурс] : textbook.; 2 vol.; Vol. 2 / V. V. Zverev, M. N. Boichenko. - Москва : ГЭОТАР-Медиа, 2020. - 392 с. - URL: <https://www.studentlibrary.ru/ru/book/ISBN9785970457191.html>

8.2. Supplementary literature

1. **Workbook on discipline "Microbiology, virology"** [Электронный ресурс] : for students in the field of training 31.05.01 - General Medicine / comp. G. V. Simonova [и др.]. - Архангельск : Изд-во Северного государственного медицинского университета, 2020. - 102 с. - URL: http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullweb&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I&S21STR=elb/W83-988002
2. **Thieme Test Prep for the USMLE®: Medical Microbiology and Immunology** [Электронный ресурс] / M. Harriott, M. Swanson-Mungerson, S. Ragheb, M. Jackson. - New York : Thieme, 2019. - URL: https://medone-education.thieme.com/ebooks/2439321?fromSearch=true&context=search#/ebook_2439321_SL91224481

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	EBS "Student's Consultant" HPE, SPO.	http://www.studentlibrary.ru/	Sets: Medicine. Healthcare. Humanities and social sciences. Natural Sciences

		http://www.studmedlib.ru/ http://www.medcollegelib.ru/	Access is activated through registration on any computer of the university.
2	Scientific electronic library eLIBRARY.RU	http://www.elibrary.ru	Open resource

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	Microbiology, virology The authors are teachers of the department <u>2 к 1660 2кРm ogy</u>	web-based training

8.5. The list of the software and information & reference systems

Operating system - MS Windows Vista Starter, MS Windows Prof 7 Upgr; office suite - MS Office 2007; other software - 7-zip, AdobeReader, Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Training room for laboratory and practical classes	№2629	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
2	Training room for laboratory and practical classes	№ 2611	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
3	Training room for laboratory and practical classes	№ 2627	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
4	Training room for laboratory and practical classes	№ 2612	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological

			loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
5	Training room for laboratory and practical classes	№ 2613	Number of seats -14 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants/

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Hygiene**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2 / 3, 4**

Form of the interim assessment **Exam**

Department of Hygiene and Medical Ecology

Discipline workload **252** (academic hours) / **7** (credits)

Approved at the department meeting

Minutes No. 12

June 10th 2021

Head of the department



A.B. Gudkov

Author and compiler:

Smolina Victoria Candidate of Medical Sciences, Associate Professor of
The Department of Hygiene and Medical Ecology

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum.

The discipline is related to prior subjects of the curriculum: Physics, Biology, General and Biological Chemistry, Microbiology, Virology, Immunology, Normal Physiology.

The discipline is related to subsequent subjects of the curriculum: Propaedeutics of Internal Diseases, Public Health and Healthcare, Health Economics, Emergency Medicine, Epidemiology.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive.

2. Goal and tasks of the mastering of the discipline

The goal of the discipline is to form systematic knowledge and ideas of influence of factors of the environment on a human body and to master skills of carrying out preventive actions directed on the preservation and promotion of a person's health.

Tasks:

- to train students to carry out actions for hygienic education and prevention of diseases among adults and teenagers;
- to study methods of assessment of natural and medico-social factors of the environment and their value in the development of diseases;
- to develop skills of carrying out organizational actions for prevention of occupational diseases, monitoring of keeping and ensuring ecological safety.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
Universal competencies (UC)	
УК-8 Способен создавать и поддерживать в повседневной жизни и в профессиональной деятельности безопасные условия жизнедеятельности для сохранения природной среды, обеспечения устойчивого развития общества, в том числе при угрозе и возникновении чрезвычайных ситуаций и военных конфликтов.	ИД-8.1. Идентифицирует опасные и вредные факторы в рамках осуществляемой деятельности ИД-8.2. Обеспечивает безопасные условия жизнедеятельности
General professional competencies (GPC)	

ОПК-2. Способен проводить и осуществлять контроль эффективности мероприятий по профилактике, формированию здорового образа жизни и санитарно-гигиеническому просвещению населения	<p>ИД-2.1. Умеет назначать профилактические мероприятия пациентам с учетом факторов риска для предупреждения и раннего выявления заболеваний, в том числе социально значимых заболеваний.</p> <p>ИД-2.2. Осуществляет методы групповой и индивидуальной профилактики, разрабатывает и реализовывает программы формирования здорового образа жизни, в том числе программы снижения потребления алкоголя и табака, предупреждения и борьбы с немедицинским потреблением наркотических средств, и психотропных веществ.</p> <p>ИД-2.4. Владеет навыками по оценке эффективности профилактической работы с пациентами.</p>
Professional competencies *(PC)	
ПК-1. Способность и готовность к ведению санитарно-гигиенического просвещения населения, обучению пациентов и медицинских работников с целью предупреждения возникновения (или) распространения заболеваний, их раннюю диагностику, выявление причин и условий их возникновения и развития	<p>ИД-1.1. Умеет проводить санитарно-гигиеническое просвещение среди детей и взрослых (их законных представителей) и медицинских работников с целью формирования здорового образа жизни и профилактики наиболее распространенных заболеваний; формировать у детей и взрослых (их законных представителей) поведение, направленное на сохранение и повышение уровня соматического здоровья.</p> <p>ИД-1.2. Владеет методами и формами организации общения, техникой и приемами привлечения населения к обучению гигиеническим мероприятиям оздоровительного характера.</p> <p>ИД-1.3. Осуществляет анализ проведенных мероприятий по санитарно-гигиеническому просвещению среди населения.</p>

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 7 credits.

Type of the academic work	Total hours	Term	
		3	4
Students' contact work with the teacher (total)	110,3	40	70,3

Including:			
Lectures (L)	36	16	20
Seminars (Sem.)			
Practical classes (PC)	72	24	48
Clinical practicals (CP)			
Laboratory-based practicals (LBP)			
Simulation-based practicals (SBP)			
Preparation for the examination (PE)	0,3		0,3
Preparation for the credit (PC)			
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	108	68	40
Examination control (EC)	33,7		33,7
Total discipline workload	252/7	108	144

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1.	Fundamentals of preventive medicine.	<p><i>1. The science of hygiene and its place and importance in the system of other sciences.</i> Place and importance of hygiene in the system of medical sciences, its aims and tasks. Content, object, subject of hygiene studies. Concept about primary and secondary prophylaxis, diseases. Methodology of hygiene, methods of hygiene investigations.</p>
2.	Air environment Hygiene.	<p><i>2. Hygienic assessment of microclimate.</i> Thermal control mechanism. Physical properties of air and their value for an organism (temperature, humidity, barometric pressure and speed of air movement). Types of a microclimate and influence of a discomfortable microclimate on heat exchange and health of the person (overcooling and overheating). Concept about optimum and admissible microclimatic conditions inhabited, public and production places. Assessment of temperature, moisture conditions indoors.</p> <p><i>3. Climate and health.</i> Climate and weather. The factors influencing climate and weather. Weather types. Meteotropic reactions. Climate types. Influence of climatic factors on a state of health of the population.</p> <p><i>4. Hygienic problems of acclimatization.</i> Definition of acclimatization. Acclimatization in frigid climate. Preventive measures favor the adaptation of people to the conditions of cold climate.</p> <p><i>5. Hygienic assessment of light.</i> Hygienic assessment of natural lighting of rooms. Hygienic assessment of artificial lighting of rooms. Types of sources of artificial lighting their hygienic characteristic. Hygienic standards of artificial</p>

		<p>illumination of rooms. Determination of illumination on a workplace.</p> <p><i>6. Hygiene of atmospheric air.</i> Chemical composition of atmospheric air and its hygienic value. Pollution and protection of atmospheric air as hygienic and ecological problem. Hygienic characteristic of the main sources of pollution of atmospheric air. Qualitative and quantitative structure of emissions in the atmosphere on primary branches of the industry. Degree of danger of industrial emissions to environment and state of health of the population. Main nature protection actions and their hygienic efficiency. The legislation in the field of protection of atmospheric air.</p>
3.	Water Hygiene and Hygiene of water-supply of inhabited places.	<p><i>7. Water as a health factor. Sanitary condition of water sources.</i> Importance of water for human (physiologic, sanitary, national ones). Epidemiological importance of water. Sanitary conditions of water sources, polluters. Preservation of water sources.</p> <p><i>8. Hygienic requirements to quality of potable water. Methods of an assessment of physical and chemical properties of water.</i> Physiological and hygienic value of water. Norms of water consumption for the population. A water role in spread of infectious and parasitic diseases. The diseases bound to the use of the water containing chemical impurity. Principles of prophylaxis of diseases of water character. Hygienic requirements to quality of potable water at the centralized water supply.</p> <p><i>9. Methods of water treatment. Chemical methods of water disinfection.</i> The centralized water handling, the main methods of purification of potable water: decolouration, coagulation, settling, filtration; disinfecting with application of chemical methods (chlorination, ozonization, etc.). Water chlorination (ways, preparations, assessment of effectiveness of a chlorination of water).</p> <p><i>10. Physical and special methods of water treatment.</i> Physical and special methods of improvement of quality of potable water (fluorination, defluorinating, deactivation, decontamination, deferrization, etc.).</p>

		<p><i>11. Water supply sources. Hygienic requirements to water supply sources. Sanitary protection of sources of water supply.</i></p> <p>Comparative hygienic characteristic of sources of water supply. Requirements to a water supply source choice. Characteristic of anthropogenous pollution of reservoirs. Zones of sanitary protection of water sources. Sanitary protection of reservoirs. Hygienic requirements to the device and operation of mine wells and other constructions of local water supply.</p>
4.	Hygiene of the soil.	<p><i>12. Soil Hygiene.</i> Hygienic value, structure and properties of the soil. Processes of self-cleaning of the soil. Characteristic of natural and artificial biogeochemical provinces. Migration and circulation of microcells in the biosphere. Endemic diseases and their prevention. Characteristic and sources of anthropogenous pollution of the soil. Epidemiological value of the soil.</p> <p><i>13. Sanitary purification of settlements from liquid and hard wastes.</i></p> <p>Classification of wastes. Epidemiological significance of waste. Toxicological significance of waste. Purification systems of settlements from liquid and hard wastes.</p>
5.	Hygiene of children.	<p><i>14. Hygiene of children and teenagers.</i></p> <p>Law of growth and development of an organism of the teenagers. The factors forming a state of health of children and teenagers. Organization of educational process in general educational establishments. Hygiene of food of children and teenagers.</p>
6.	Hospital Hygiene.	<p><i>15. Hygiene of medical preventive establishments.</i></p> <p>Tasks of hospital hygiene. Requirements for the territory. Requirements for architectural-planning and structural solutions of buildings. Requirements for interior trim of apartments. Requirements for furniture and inventory. Requirements for heating ventilation, microclimate and air in apartments.</p> <p>Hygienic requirements to natural and artificial lighting. Sanitary maintenance of apartments, equipment, inventory. Sanitary requirements to the nutrition unit and cafeteria rooms. Hospital environment and safety.</p>
7.	Labour Hygiene.	<p><i>16. Labour and health. Hygienic characteristic of general professional hazards.</i></p> <p>The conception of manufacturing hazards and occupational diseases. Professional hazards.</p> <p>The principles of prevention of the harmful effects of manufacturing factors.</p> <p><i>17. The basic questions of physiology of work. Over fatigue prevention.</i></p>

		Concept of physiology of work. Classification of labor activity. Functional changes of organs and systems during physical and intellectual work. Exhaustion. Preventive maintenance of over fatigue during physical and intellectual work.
		<i>18. Basic principles of industrial toxicology.</i> Concept of industrial poisons. Classification and properties of industrial poisons. Ways of penetration of poisons to an organism, their laws. Distribution and transformation of harmful substances in an organism. Concept of doses. Combined and joined effect of industrial poisons. The general principles of preventive maintenance professional poisonings.
		<i>19. Particular toxicology.</i> Types of occupational intoxications. Entrance pathways, pathogenesis, clinical picture and prophylaxis of intoxication. Carbon Monoxide poisoning (CO) - pathogenesis, clinical picture and prophylaxis of intoxication.
		<i>20. Dust as a harmful industrial factor.</i> Classification and characteristic features of industrial dust. Dust diseases. Prevention of dust diseases.
		<i>21. Harmful industrial factor. Noise, Vibration</i> The definition and classification of noise. Impact of noise on the human body. Noise control. The definition of vibration, classification. Impact of vibration on workers. Prevention of harmful impact.
		<i>22. Occupational hygiene.</i> The roles of the occupational health professional. Industrial processes and health outcomes. Basic principles of industrial toxicology. Particular toxicology. Dust as a harmful industrial factor. Harmful industrial factor. Noise. Vibration.
		<i>23. Theoretical and applied bases of Radiation Hygiene.</i> The aim and tasks of Radiation Hygiene. Kinds of radioactive decay.
8.	Radiation Hygiene.	<i>24. Radiation Biology. Action of ionizing radiation on living things.</i> Biological effects of the ionizing radiation. The factors defining radiation hazard. Radiotoxicity. Standards of radiation safety.
		<i>25. Radiation Hygiene.</i> The main components of the radiation background. Natural background radiation . Technologically modified radiation background. Artificial background radiation. Types of ionizing radiation. Characteristics of ionizing and penetrating ability of ionizing radiation. The notion of radioactivity , the concept of doses of radioactivity. Radiation safety of the population. Standards of radiation safety.

		Stochastic and nonstochastic reactions. The opened and sealed sources of ionizing radiation. The principles of work with the opened and sealed sources of ionizing radiation.
9.	Hygienic aspects of nutrition.	<p>26. <i>Nutrition as health factor.</i> Health nutrition. Basis principles of health nutrition. The value of proteins, fats, carbohydrates in human nutrition. Energy balance.</p> <p>27. <i>Hygienic aspects of rational nutrition.</i> Nutrition significance for health. Conception and foundations of rational nutrition. Quantitative and qualitative nutrition usefulness, ration balance. Nutrition regime. Satiety of food. Role of proteins, fats, carbohydrates in human nutrition.</p> <p>28. <i>Vitamins, prevention of hypovitaminosis.</i> History of vitamin discovery. Definition and classifications of vitamins, importance for human organism. Hypovitaminosis, their prevention.</p> <p>29. <i>Role of water-soluble vitamins in nutrition.</i> Water-soluble vitamins, their sources, hygienic significance. Daily need.</p> <p>30. <i>Role of fat-soluble vitamins in nutrition.</i> Fat-soluble vitamins, their sources, hygienic significance. Daily need.</p> <p>31. <i>Mineral substances, their role in the vital activity of an organism. Microelementoses, their preventive measures.</i> Mineral substances, classification, their role in the vital activity of an organism. Definition and classifications of microelementoses. Characteristics of microelementoses, their preventive measures.</p> <p>32. <i>Role of minerals in nutrition.</i> Minerals, their sources, hygienic significance. Macro- and microelements.</p> <p>33. <i>Nutritional and biological value of food products</i> Nutritional and biological value of basic food products groups (cereal, dairy, meat, fish, vegetables and fruits).</p> <p>34. <i>Nutritional and biological value of fruits and vegetables.</i> Significance of food products of vegetative nature (fruits and vegetables).</p> <p>35. <i>Food poisonings.</i> Toxic infections of different etiology. Botulism, staphylococcal toxicosis. Microtoxycosis, ergotism, aflatoxicosis.</p> <p>36. <i>Food poisonings and preventive measures.</i> Classification of food poisonings. Toxicoinfections. Toxicosis. Botulism. Preventive measures of food poisonings. Public catering enterprises, hygienic requirements. Hygienic demands for personal of staff.</p>

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1.	Fundamentals of preventive medicine.	2						8	10
2.	Air environment Hygiene.	2		16				24	42
3.	Water Hygiene and Hygiene of water-supply of inhabited places.	2		16				10	28
4.	Hygiene of the soil.	2		4				8	14
5.	Hygiene of children.			4				10	14
6.	Hospital Hygiene.	2						8	10
7.	Labour Hygiene.	12		4				24	40
8.	Radiation Hygiene.	4		4				6	14
9.	Hygienic aspects of nutrition.	10		24				10	44
Total		36		72				108	216

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1.	Fundamentals of preventive medicine.	Work with self-assessment questions, notes.	Oral, written
2.	Air environment Hygiene.	Interview, notes, work with normative documents and legal framework, work with self-assessment questions, situational problems solving, report in the form of presentation	Oral, written
3.	Water Hygiene and Hygiene of water-supply of inhabited places.	Interview, notes, work with self-assessment questions, situational problems solving,	Oral, written
4.	Hygiene of the soil.	Interview, work with self-assessment questions, notes,	Oral, written
5.	Hygiene of children.	Interview, notes, work with self-assessment questions, report in the form of presentation	Oral, written
6.	Hospital Hygiene.	Interview, notes, work with self-assessment questions, report in the form of presentation	Oral, written
7.	Labour Hygiene.	Interview, notes, work with	Oral, written

		self-assessment questions, report in the form of presentation	
8.	Radiation Hygiene.	Interview, notes, report in the form of presentation	Oral, written
9.	Hygienic aspects of nutrition.	Interview, notes, work with self-assessment questions, situational problems solving, report in the form of presentation	Oral, written

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, presentations of projects)
- written (checking of tests, review papers, abstracts, lecture notes, solving of practical tasks).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (examination).

Stages of the interim assessment

Stages of examination

1. Stage - test control
(name of the stage)
2. Stage - oral exam.
(name of the stage)

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

1. Pivovarov Y.P. Short textbook of Hygiene and ecology [Текст] : For foreign students/ Y. P. Pivovarov, A. A. Al-Sabounchi; Russian state medical university. Departament of hygiene and basis of man ecology. - 3th. ed.: IKAR Publisher, 2006. - 343,[1] p.: il.

8.2. Supplementary literature

1. Гигиена и экология человека [Электронный ресурс] : учебник / ред. В. М. Глиненко. - Москва : ГЭОТАР-Медиа, 2019. - 256 с. - Режим доступа:

<http://www.studentlibrary.ru/book/ISBN9785970448663.html>

2. Королев, Алексей Анатольевич. Гигиена питания [Электронный ресурс] : руководство для врачей / А. А. Королев. - Москва : ГЭОТАР-Медиа, 2016. - 624 с. - Режим доступа:

<http://www.studentlibrary.ru/book/ISBN9785970437063.html>

3. Гигиена и экология человека. [Электронный ресурс] : учебник / ред. Н. А. Матвеева. - 3-е изд., стер. - Москва : КНОРУС, 2016. - 328 с. - Режим доступа:

<http://www.studentlibrary.ru/book/ISBN9785406030806.html>

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	Student's Consultant Electronic Library Sets: Medicine. Health care. Humanities and social sciences. Natural sciences.	http://www.studmedlib.ru	sets of educational and scientific literature on medicine, health care, the natural sciences, the humanities and the social sciences
2	Scientific journals database. Scientific electronic library eLIBRARY.RU	http://www.elibrary.ru	Russia's largest information and analytical portal in science, technology, medicine and education, containing abstracts and full texts of over 34 million scientific publications and patents, including electronic versions of over 5600 Russian scientific and technical journals, of which over 4800 are open access

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	2,3 cours English medium Hygiene Authors: Candidate of Medical Sciences, Associate Professor of the Department of Hygiene and Medical Ecology Smolina V.S.; Doctor of Medical Sciences, Professor of the Department of Hygiene and Medical Ecology Popova O.N. URL адрес: https://edu.nsmu.ru/course/view.php?id=594	blended learning

8.5. The list of the software and information & reference systems

The following software is used by students and teaching staff in the education process:
operating system - MS Windows Vista Starter, MS Windows Prof 7 Upgr; office suite - MS Office 2007; other software -7-zip, AdobeReader, Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Classroom	51 Troitsky Ave., study room 1309	Number of seats 44. Screen and sound aids: multimedia projector, laptop, speakers.
2	Classroom	51 Troitsky Ave., study room 1306	Number of seats 26. Screen and sound aids: multimedia projector, laptop, speakers.

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Medicine of disasters**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2,3 / 4,5**

Form of the interim assessment **Exam**

Department **of Mobilization Training of Public Health and Disaster Medicine**

Discipline workload **144** (academic hours) / **4** (credits)

Approved at the department meeting

Minutes No. 12

June 11th 2021

Head of the department



Yu.E. Barachevsky

Author and compiler:

Kubasov Roman Viktorovich, professor assistance of Mobilization Training of Public Health and Disaster Medicine Dpt., PhD, professor assistance

Arkhangelsk, 2021

1. Position of the Life Safety discipline (module) within the structure of the educational program

The Medicine of disasters discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The Medicine of disasters discipline is related to the disciplines of the Basic part of the curriculum.

The Medicine of disasters discipline is related to prior subjects of the curriculum: law, chemistry, biology, anatomy, normal physiology, life safety

The Medicine of disasters discipline is related to subsequent subjects of the curriculum: pathophysiology, biochemistry, pharmacology, hygiene, public health and public health, epidemiology, clinical pharmacology, psychiatry, medical psychology, forensic medicine, faculty therapy, infectious diseases, traumatology, fundamentals of clinical and laboratory diagnostics.

The Medicine of disasters discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the discipline

The aim of mastering the Medicine of disasters discipline is training of students to carry out professional activities in terms of issues of readiness and ability to take practical actions to organize and provide medical assistance to victims in various types of emergency situations (emergencies) in peacetime and wartime.

Objectives of the Medicine of disasters discipline:

1. formation of knowledge about the functional subsystems of the Integrated State System for Preventing and Eliminating the Consequences of Emergencies and Civil Defense, responsible for the state of public health: the service of disaster medicine, sanitary supervision, and provision of medical property.

2. development of skills in the organization and provision of emergency, primary health care, specialized, palliative types of medical care for victims of emergencies.

3. creation of skills to develop and make management decisions in the provision of medical care in an emergency competently and reasonably.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
Universal competencies (UC)-№8/ Is able to create and maintain safe living conditions in everyday life and in professional activities for the protection of the natural environment, ensuring the sustainable development of society, including in the event of a threat and occurrence of emergencies and military conflicts	IA-8.1. Identifies dangerous and harmful factors within the framework of the activities carried out IA -8.2. Provides safe living conditions IA-8.3. Demonstrates the skills of using individual and collective protective equipment and first aid equipment IA-8.4. Provides first aid
General professional competencies (GPC) -№6/ He is able to organize patient care, provide primary health care, ensure the organization of work and professional decision-making in urgent conditions at the prehospital stage, in emergency situations, epidemics and in centers of mass destruction	IA-4. He has an algorithm for providing first aid in emergency situations, epidemics and in centers of mass destruction. IA-5 He is able to organize the work of medical personnel in emergency situations, in emergency situations, epidemics and in centers of mass destruction

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 4 credits.

Type of the academic work	Total hours	Term	
		4	5
Students' contact work with the teacher (total)	74,3	28	28,3
Including:			
Lectures (L)	18	10	8
Seminars (Sem.)			
Practical classes (PC)	36	18	18
Clinical practicals (CP)			
Laboratory-based practicals (LBP)			
Simulation-based practicals (SBP)			
Preparation for the examination (PE)	0,3		0,3

Preparation for the credit (PC)			
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	54	44	10
Examination control (EC)	33,7		33,7
Total discipline workload	144/4	72	72

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1	2	3
1.	Types of predicted centers of emergencies and their medical and tactical characteristics.	<p>The concept of the medical and tactical characteristics of the forecasted center of emergencies. The role of the information environment in predicting of emergencies and organizing of medical care for victims.</p> <p>Types of transport accidents (road, water, railway, aviation) and their medical and tactical characteristics.</p> <p>Medical and tactical characteristics of terrorist acts.</p> <p>Medical and tactical characteristics of technogenic emergencies at national economy facilities, including healthcare (fire-explosive, chemical, radiation).</p> <p>Medical and tactical characteristics of natural and biological-social emergencies.</p> <p>Information, telecommunication systems and infrastructures designed for emergency protection, crisis management: models and technologies for emergency prevention, civil defense management, notification and informing the population.</p>
2.	National Service of Disaster Medicine, as a functional subsystem of the Integrated State System for Preventing and Eliminating the Consequences of Emergencies and Civil Defense.	<p>The structure of administrative bodies and health care institutions of the province, as the basis for the creation of a territorial disaster medicine system: types of administrative bodies and medical organizations in the regions, their tasks and functions in daily activities; the role of these structures and their personnel in the event of an emergency. Their creation of forces and means to work in emergencies and options for their use.</p> <p>Fundamentals of Disaster Medicine System management organization.</p> <p>National Disaster Medicine System: history of development, purpose, tasks, levels of functioning and legal basis of activity.</p> <p>Types of institutions and formations of the disaster medicine system, their characteristics, the procedure for staffing, equipping with property and options for use in emergencies.</p>
3.	Fundamentals of the organization of medical evacuation support for the population in emergency situations.	<p>The essence of the system of medical evacuation of the population in an emergency. The concept of the stage of medical evacuation, evacuation routes, types and scope of medical assistance to victims in emergencies, the procedure for their supply. Medical triage and medical evacuation of emergency victims, types, methods and organization of their carrying out, their role in the medical evacuation process.</p>
4.	Organization of sanitary and hygienic and anti-epidemic measures in emergency situations. Fundamentals of organizing medical supplies in peacetime emergencies.	<p>The structure of the sanitary service and its tasks, levels and mode of operation. The formation of a sanitary service to work in emergencies, their characteristics, capabilities. Types of sanitary condition of territories.</p> <p>Regime-restrictive measures carried out in an emergency.</p>
5.	Fundamentals of organizing medical supplies in emergencies	<p>The concept of medical supplies in emergencies, its goals, objectives, principles. Classification of medical property, its characteristics, organization of accounting and reporting.</p>

		Types of medical property reserves. Options for using medical property reserves. Organization of protection of medical property in emergency situations from their damaging factors.
6.	Civil defense in the field of healthcare.	Civil defense in the sphere of healthcare: the history of development, purpose, tasks, structure and principles of functioning. Medical facilities and civil protection units. Medical support for evacuation and dispersal of the population to the countryside. Types of evacuation points and the organization of medical support for the evacuated population in them.

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1.	Types of predicted centers of emergencies and their medical and tactical characteristics.	6		8				10	24
2.	National Service of Disaster Medicine, as a functional subsystem of the Integrated State System for Preventing and Eliminating the Consequences of Emergencies and Civil Defense.	2		8				10	20
3.	Fundamentals of the organization of medical evacuation support for the population in emergency situations.	4		8				10	22
4.	Organization of sanitary and hygienic and anti-epidemic measures in emergency situations. Fundamentals of organizing medical supplies in peacetime emergencies.	2		4				8	14
5.	Fundamentals of organizing medical supplies in emergencies	2		4				8	14
6.	Civil defense in the field of healthcare.	2		4				8	14
Total hours		18		36				54	108

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1.	Types of predicted centers of emergencies and their medical and tactical characteristics.	- study of educational material, search and review of scientific publications and electronic sources of information on the topic of the class - study of the materials presented in the Moodle	- holding a discussion on the designated topic - review of the abstract - solving tasks presented in the Moodle
2.	National Service of Disaster Medicine, as a functional subsystem of the Integrated State System for Preventing and Eliminating	- study of educational material, search and review of scientific publications and electronic sources of information on the topic of the class - study of the materials presented in the Moodle	- review of the abstract - solving tasks presented in the Moodle

	the Consequences of Emergencies and Civil Defense.		
3.	Fundamentals of the organization of medical evacuation support for the population in emergency situations.	- study of educational material, search and review of scientific publications and electronic sources of information on the topic of the class - study of the materials presented in the Moodle - preparation for the work game "Organization of medical evacuation in a locality in the case of an emergency on its territory".	- oral interview; - review of the abstract - solving tasks presented in the Moodle
4.	Organization of sanitary and hygienic and anti-epidemic measures in emergency situations. Fundamentals of organizing medical supplies in peacetime emergencies.	- study of educational material, search and review of scientific publications and electronic sources of information on the topic of the class - study of the materials presented in the Moodle - preparation for solving the case on the topic	- oral interview; - development of practical skills in the order of use of personal protective equipment. - solving tasks presented in the Moodle
5.	Fundamentals of organizing medical supplies in emergencies	- study of educational material, search and review of scientific publications and electronic sources of information on the topic "Organization of medical supplies in emergency situations in the territory where the future professional activity of the student is planned" with the preparation of an abstract, report. - study of the materials presented in the Moodle	- oral interview; - review of the abstract - solving tasks presented in the Moodle
6.	Civil defense in the field of healthcare.	- study of educational material, search and review of scientific publications and electronic sources of information on the topic of the class - study of the materials presented in the Moodle	- oral interview; - review of the abstract - solving tasks presented in the Moodle

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the "Evaluation tools for the current control of the course's (module's) academic performance, interim assessment of students" part of the syllabus of the course (module).

7.2. Forms of the interim assessment – pass exam

Stages of examination

1. Stage - testing with using of the Moodle platform.
2. Stage - oral interview

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the "Evaluation tools for the current control of the course's (module's) academic performance, interim assessment of students" part of the syllabus of the course (module).

8. Library and information materials of the course

8.1. Compulsory literature

1. Левчук, И. П. Disaster Medicine = Медицина катастроф : учебник на английском и русских языках / И. П. Левчук, А. П. Назаров, Ю. А. Назарова. - Москва : ГЭОТАР-Медиа, 2021. - 240 с. - URL: <https://www.studentlibrary.ru/book/ISBN9785970460740.html>
2. Levchuk, I. P. Life Safety in Medicine : учебное пособие / I. P. Levchuk. - Москва : ГЭОТАР-Медиа, 2021. - 112 p. - URL: <https://www.studentlibrary.ru/book/ISBN9785970459980.html>

8.2. Supplementary literature

1. Organization of public protection in emergency situations: study guide / R.V. Kubasov, A.G. Kalinin, Y.E. Barachevsky. - Arkhangelsk: NSMU Publishing, 2020. - 120 p.

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1.	Student's electronic library "Student's Consultant": Medicine, Humanities and Social Sciences, Natural sciences.	http://www.studentlibrary.ru/	access by contract through registration on all computers of NSMU (under the IP address of the university)
2.	Scientific Electronic Library Web of Science	https://login.webofknowledge.com/	open access journals, personal registration is required to access the full texts. Journals by subscription of the university - access is carried out on university computers (1st, 2nd building of NSMU, WI-FI access, personal registration is required)
3.	Scientific Electronic Library Scopus	https://www.scopus.com/	open access journals, personal registration is required to access the full texts. Journals by subscription of the university - access is carried out on university computers (1st, 2nd building of NSMU, WI-FI access, personal registration is required)
4.	Electronic catalog and full-text electronic library of NSMU	http://lib.nsmu.ru/lib/	access to the full-text electronic library by password issued in the electronic information room (room 2317)
5.	PubMedCentral (PMC) - full-text archive of biomedical journals of the US National Library of Medicine	http://www.pubmedcentral.nih.gov	open access
6.	ClinicalKey	https://www.clinicalkey.com/	access to the full-text electronic library by password issued in the electronic information room (room 2317)

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	E-course in EL Moodle " Medicine of Disasters " for 2-3-nd year students.	Medicine of Disasters 2-3 course Medicine of Disasters https://edu.nsmu.ru/course/view.php?id=1006 Roman Kubasov	mixed EL training+

8.5. The list of the software and information & reference systems

MS Windows 10; MS Office 365; AdobeReader, SPSS, ABBYYLingvo, ISpring, Zoom

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	2406, 2409, 2428, 2429	Arkhangelsk, Troitskiy ave., 51.	multimedia projectors with laptop or PC

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Propaedeutics of Internal Diseases**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2,3 / 4,5**

Form of the interim assessment **Exam**

Department **of Family Medicine and Internal Diseases**

Discipline workload **360** (academic hours) / **10** (credits)

Approved at the department meeting

Minutes No. 12

June 11th 2021

Head of the department



V.V. Popov

Author and compiler:

Khlopina I.A., Candidate of Medical Sciences, Associate Professor of the Department of
Family Medicine and Internal Diseases of NSMU

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum (or to the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects and optional subjects)

The discipline is related to prior subjects of the curriculum: anatomy, normal physiology, pathological physiology, histology, embryology, cytology.

The discipline is related to subsequent subjects of the curriculum: faculty therapy, hospital therapy, outpatient therapy.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: diagnostic/ therapeutic/research

2. Goal and tasks of the mastering of the discipline

The purpose of mastering the discipline: preparation of students for the implementation of professional activities in the field of formation of skills in the methodology of examination of the patient (p.1.12. FGOS).

Tasks of the discipline:

1. Formation of knowledge of leading syndromes in the clinic of internal diseases.
2. Formation of skills to collect complaints and anamnestic data from patients.
3. Formation of skills to evaluate laboratory and instrumental research data.
4. Formation of skills of physical examination of the patient.
5. Formation of skills in providing emergency pre-medical care.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
General professional competencies (GPC) - №5 Able to assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional problems	ID-5.1. Knows anatomy, histology, topographic anatomy, physiology, pathological anatomy and physiology of human organs and systems. ID-5.2. Is able to identify and evaluate morphofunctional, physiological states and pathological processes in the human body ID-5.3. Knows the methods of clinical,

	<p>laboratory and functional diagnostics for solving professional tasks.</p> <p>ID-5.4. Is able to analyze the results of clinical, laboratory and functional diagnostics to assess morphofunctional, physiological conditions and pathological processes in the human body.</p>
<p>Professional competencies *(PC)- №2</p> <p>The ability and willingness to conduct a patient examination in order to establish a diagnosis</p>	<p>ID-2.1. Is able to collect complaints, anamnesis of the patient's life and illness and analyze the information received, conduct a complete physical examination of the patient (examination, palpation, percussion, auscultation) and interpret its results.</p> <p>ID-2.2. Has the skills to determine the patient's main pathological conditions, symptoms, disease syndromes, nosological forms in accordance with the current international statistical classification of diseases and health-related problems.</p> <p>ID-2.3. Is able to justify the necessity and scope of laboratory and instrumental examination of the patient in accordance with the current procedures for medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care and interpret its results.</p> <p>ID-2.4. Performs early diagnosis of diseases of internal organs and performs differential diagnosis of diseases of internal organs from other diseases</p>

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 10 credits.

Type of the academic work	Total hours	Term	
		4	5
Students' contact work with the teacher (total)	164,3	82	82.3
Including:			
Lectures (L)	54	30	24
Seminars (Sem.)			

Practical classes (PC)			
Clinical practicals (CP)	100	48	52
Laboratory-based practicals (LBP)			
Simulation-based practicals (SBP)	8	4	4
Preparation for the examination (PE)	0,3		0,3
Preparation for the credit (PC)			
Exam consultations (EC)	2		2
Coursework (CW)			
Unsupervised work (UW) (total)	162	134	28
Examination control (EC)	33,7		33,7
Total discipline workload	360/10	216	144

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1	Objective and subjective methods of study patients	<p>Subject and tasks propaedeutics internal diseases. The scheme of history.</p> <p>Internal medicine and its place among other medical disciplines. Ask-chi propaedeutic therapy. The types and methodology of diagnosis. The scheme of the history of the disease - the importance of history as a science and medical and legal documents.</p> <p>Scheme Questions sick. The classification of complaints. Diagnostic value of disease history and the history of life of patients.</p> <p>The general condition of the patient. Consciousness, the types of violations. The situation of the pain-tion. Build. The temperature of the body. Condition of skin. Subcutaneous fatty cellular tissue. Edema, their localization and distribution. A study of lymph nodes, muscle and bone and joint systems. Diagnostic value of the identified changes.</p>
2	Methods of research and semyology for diseases of the respiratory system	The main complaint, and the mechanism of their formation: a cough, pain in the chest cells Cayes, dyspnoea, sputum

		<p>production department, hemoptysis. Features a general examination in the pathology of the respiratory system: forced, the type of fever. Chest: the types of breath, chest definition format (normal or pathological maximum) and its symmetry.</p> <p>The technique of chest palpation. Definition of pain points, resistant study of voice tremor. The diagnostic value of identifying certain changes.</p> <p>General rules and percussion equipment. Topographic percussion light: urban Nice light in normal conditions and in pathology. Comparative light percussion: diversity percussion sound: clear lung, dull, tympanic. Because of changes percussion sound with lung diseases.</p> <p>General rules and lung auscultation technique. The basic and additional (side) breathing noises, the mechanism of their formation and diagnostic value: vesicular and bronchial breath, dry and wet bubbling rale, crepitating, rubbing sound pleura. Brochophony and its diagnostic value.</p> <p>The method of sputum collection, inspection, microscopy of native and pre-painted bacterioscopy. Characteristics of sputum at various bronchopulmonary syndromes. Tech pleural puncture study of pleural effusion, diagnosis transsudate and exudation.</p> <p>Semiotics infiltrative compression syndrome (complaints, palpation, percussion, auscultation). Localized and croupous pneumonia: overview of the etiology and pathogenesis, clinical and laboratory features. Of croupous complicated by pneumonia.</p>
--	--	--

		<p>Semiotics accumulation of fluid in pleural cavity (syndrome hydrothorax). Semiotics accumulation of air in the pleural cavity (syndrome pnevmo-RAXEN). Semeiology dry and exudative plevritis.</p> <p>Semiotics of bronchial obstruction syndrome (complaints, palpation, percussion, auscultation). Semeiology acute bronchitis. Chronic bronchitis: a general understanding of the etiology and pathogenesis, clinical and laboratory features. Bronchial asthma: overview of the etiology and pathogenic, clinical and laboratory signs, asthmatic status.</p> <p>Semiotics syndrome ethereality high light (complaints, palpation, percussion, auscultation). Emphysema lung: the concept and the primary and secondary emphysema.</p> <p>Semiotics syndrome air cavities in the lungs (complaints, palpation, perkus-Federation, auscultation). Lung abscess: clinical and laboratory signs, depending on the stage of disease. The notion of bronchiectasia, types and mechanism of formation. Semeiology bronchiectasis disease.</p> <p>Types of atelectasis, the cause of. Semiotics syndrome obturatsion-tion atelectasis (complaints, palpation, percussion, auscultation). Semiotics syndrôme compression atelectasis (complaints, palpation, percussion, auscultation).</p> <p>The concept of respiratory failure, the causes, types of respiratory-of-failure. Semiotics syndromes restrictive respiratory insufficiency and obstructive types (complaints, palpation, percussion).</p>
--	--	---

		<p>A study of respiratory function - spirometry. The notion of basic governmental lung volumes and capacities. Methods of analysis spirometry, the calculation of basic indicators and indices, the definition of the functions of external respiration.</p>
3	Methods of research and semyology for diseases of the digestive system	<p>The main complaint, and the mechanism of their formation: the pain syndrome (diurnal rhythm of pain), gastrointestinal syndrome (nausea, vomiting, belching, heartburn) and intestinal term (rumbling stomach, flatulence, diarrhea, constipation), dyspepsia, a violation of appetite. Features a general examination of patients. Examination of the abdomen: topography-profit area, shape and volume of the stomach, his participation in the act of breathing.</p> <p>The main complaint, and the mechanism of their formation: the pain syndrome (distantion pain, colic liver), liver syndrome dyspepsia, change in skin color, urine and stools, itchy skin. Features a general examination of patients: the changes of consciousness (hepatic coma), the state of the skin (small signs, jaundice), the formation of edema, ascites. Examination of the abdomen: limited protrusion front abdominal wall, the overall increase in the abdomen (ascites), extension of venous network, the umbilical ring.</p> <p>The technique of surface indicative abdominal palpation, the definition of pain, degree of strain the abdominal wall, the divergence of muscles. Palpation of the liver and spleen, the definition of a free liquid-bone in the abdominal cavity method of balloting. Diagnostic value of results of palpation.</p> <p>Percussion stomach of percussion sound. Defining the lower limit of the stomach.</p>

		<p>The method of fractional gastric sensing, the concept of basal and stimulated secretion, the study of physical and chemical properties of gastric contents, the notion of flow-hour with hydrochloric acid.</p> <p>Chronic gastritis: the concept of the etiology, pathogenesis, classification, clinical symptoms of chronic gastritis with low and normal (or increased) acid function.</p> <p>Peptic ulcer disease: classification, the main causative factor, especially semeiology pathogenesis of stomach ulcer, peptic ulcer disease KDP. Complications of peptic ulcer disease.</p> <p>Semiotics major clinical syndromes: the type of jaundice (parenchymal, hemolytic, mechanical), portal hypertension, liver encephalopathy, liver cell failure.</p> <p>Chronic hepatitis and cirrhosis of the liver: classification, etiology, pathogenesis, clinical and laboratory symptoms, complications.</p> <p>Semeiology biliary tract disease.</p> <p>Semiotics of pancreatic disease: particularly of pain syndrome, dyspeptic manifestations, diagnostic value koprologich research.</p>
4	Methods of research and semyology for diseases of the circulatory system	<p>The main complaint, and their pathogenesis: pain in the heart (ischemic, muscle, neurogenic), dyspnea, edema, palpitation, cough. Features a general inspection of the patient: diagnostic entity, forced the situation, change of skin, revealing edema. Examination of vessels (venous pulse, dance karotid). Examination of the</p>

		<p>heart area: cardiac hump, and cardiac apical impulse, pulsation epigastrium.</p> <p>Palpation of the area of the heart: identification of the properties of apical push, a study of cardiac shock, epigastrium pulsation, systolic and diastolic tremor, other fluctuations.</p> <p>Palpation of peripheral vessels: a study of the properties of the pulse at the radial artery, the definition of the pulse in the other peripheral arteries.</p> <p>Delimitation of the relative and absolute cardiac dullness, the width of vascular bundle, width heart. Diagnostic value of identified governmental changes.</p> <p>Methods of cardiac auscultation. The projection of heart valves in the chest, place and sequence of their listening. Heart tones, how they arise, parts I and II heart tones. Changing the colors of heart: the basis, amplification, separation. Noises of heart, the mechanism of their occurrence. Classification. The difference between functional noise from organic, systolic and diastolic sounds. Di-agnostic value of auscultation.</p> <p>Electrocardiography. Engineering registration of ECG, ECG formation, the notion of ECG-aside. Decoding algorithm of ECG, standard rates.</p> <p>An overview of the methodology fonokardiografii diagnostic possibilities FKG. The concept of the diagnostic capabilities of echocardiography.</p> <p>Methods of measuring blood pressure, the concept of systolic, diastolic, pulse pressure, diurnal blood pressure monitoring.</p>
--	--	--

		<p>The concept of atherosclerosis and its major forms, the classification of ischemic heart disease. Semyology ischemic heart disease: clinical, laboratory and electrocardiographic signs of angina pectoris, when, myocardial infarction. Atypical forms, and complications of IM.</p> <p>The definition of hypertension, the WHO classification. Semiotic syndrome and pathogenesis of hypertension. Clinical symptoms of hypertensive disease, stage of GB, the notion of hypertensive crisis. Classification of secondary (symptomatic) hypertension.</p> <p>The concept of rheumatism, congenital and acquired heart disease. Symptoms: stenosis of left atrioventricular opening is not enough of the mitral valve, aortic stenosis mouth, aortic valve insufficiency, tricuspid valve insufficiency: changes in hemodynamics, semiotics, the importance of auscultation, ECG, and FKG in the diagnosis of PPP.</p> <p>ECG-diagnosis of major violations of the cardiac rhythm and conduction: SEA-nusovaya tachy-and bradycardia, sinus-arrest, sinus (breathing) arrhythmia. The concept of the mechanism of re-entry of excitation (re-entry). Extrasystoles (auricular, nodal, ventricular), the notion of alloritmia. Parocsizmal loss tachycardia (supraventricular, ventricular). Flutter and fibrillation atrium and ventricle. Heart block: atrioventricular, ventricular. Definition of circulatory insufficiency, classification, and patogenesis. Heart failure: acute left ventricular semeiology good heart failure (cardiac asthma, pulmonary edema), acute right ventricular heart failure, chronic mental heart failure. Syndrome</p>
--	--	---

		of acute circulatory failure: definition, pathogenesis and semiotics fainting, collapse.
5	Methods of research and semyology for diseases of kidneys and urinary tract	<p>The main complaints, and their pathogenesis: urine excretion disorders, kidney domestic settings, pain syndrome (inflammatory pain, renal colic), changes in properties of urine. General examination patient: especially renal edema, uremic coma, changes in the lumbar area. Palpation and percussion kidneys, pain points. Auscultation renal arteries.</p> <p>General urine analysis, physical-chemical studies, microscopic studies following urinary sediment and its diagnostic value. Quantitative methods for the study of urine Nechiporenko, Qualitative methods to study urine Zimnitskomu, Reberg. Diagnostic importance of biochemical analysis of blood in Nephrology: determination of urea, creatinine, residual nitrogen.</p> <p>Semiotics of clinical and laboratory syndromes in nephrology: uric, jade-cal, renal hypertension, renal eclampsia,</p> <p>Semeiology of acute and chronic glomerulonephritis, chronic pyelonephritis. The clinic, diagnosis and complications.</p>
6	Methods of research and semyology for diseases of endocrine system	<p>Definition of diabetes, classification, pathogenesis. Semiotics of diabetes types 1 and 2. Laboratory Methods: determination of the content of glucose in the blood and urine, acetone in the urine, glycemic Cree-tries, the test of tolerance to glucose. Micro-and makroangiotatii diabetes. Diabetic coma and hypoglycemic.</p> <p>Syndromes increase and decrease the function of thyroid gland (tireotoksi-goats and myxedema): main complaint,</p>

		<p>especially the appearance of the patient, cardiac and eye symptoms. Palpation of the thyroid gland.</p> <p>Obesity: definition, pathogenesis, classification, complications. The main clinical signs of pituitary (nanism, gigantism, acromegaly), and hypersteroidism, adrenal insufficiency, laboratory research methods.</p>
7	Methods of research and semyology for diseases of blood	<p>The definition of anemia, classification, pathogenesis. Clinical and laboratory diagnosis of anemia: iron, B12-folate deficiency (complaints, especially the clinical manifestations and haematological picture). The notion of hemolytic anemia.</p> <p>The definition of acute and chronic leukemia. Clinical and hematologic features of acute leukemia. Semyology of leukemia: acute, chronic myeloid leukemia.</p>
8	Critical condition in the clinic of internal diseases	Clinical manifestations of choking, asthmatic status, gastrointestinal bleeding, pulmonary edema, anaphylactic shock, hypertonic-civil crisis. Methods to medical care.
9	Semyology disease of bone and muscular system and joints	The main clinical syndromes: inflammatory dysfunction, degenerative-dystrophic lesions. Semyology of spinal osteochondrosis. Semyology of rheumatoid arthritis, nonspecific arthritis.
10	Observation patients	<p>Writing an academic history.</p> <p>Individual work with the patient: Questions, inspection of (total and in systems), analysis of the results of laboratory and instrumental methods of investigation, systematization of the</p>

		data, a clinical diagnosis and its rationale.
--	--	---

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	Objective and subjective methods of study patients			8			10		18
2	Methods of research and semyology for diseases of the respiratory system	10		24	4		20		58
3	Methods of research and semyology for diseases of the digestive system	10		24			20		54
4	Methods of research and semyology for diseases of the circulatory system	18		32	4		20		64
5	Methods of research and semyology for diseases of kidneys and urinary tract	4		4			15		23
6	Methods of research and semyology for diseases of endocrine system	4		4			15		23
7	Methods of research and semyology for diseases of blood	4		4			15		23
8	Critical condition in the clinic of internal diseases	4					15		19
9	Semyology disease of bone and muscular system and joints						15		15
10	Observation patients						17		17

11		54		100	8		162		324
----	--	----	--	-----	---	--	-----	--	-----

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	Objective and subjective methods of study patients	Preparation of the medical history.	Written presentation of the medical history.
2	Methods of research and semyology for diseases of the respiratory system	1. Listening to audio recordings. 2. Viewing on the website of the department of spiograms, sputum tests. 3. Preparation for classes.	Testing. Situational tasks.
3	Methods of research and semyology for diseases of the digestive system	1. Viewing on the site of biochemical blood tests. 2. Preparation for classes	Testing. Situational tasks.
4	Methods of research and semyology for diseases of the circulatory system	1. Listening to audio recordings. 2. Viewing on the website of the ECG department. 3. Preparation for classes.	Testing. Situational tasks.
5	Methods of research and semyology for diseases of kidneys and urinary tract	1. Viewing on the website of the department of urine tests with a conclusion. 2. Preparation for classes.	Testing. Situational tasks.
6	Methods of research and semyology for diseases of endocrine system	Preparation for classes.	Testing. Situational tasks.
7	Methods of research and semyology for diseases of blood	1. Viewing on the website of the Department of blood tests with a conclusion. 2. Preparation for classes.	Testing. Situational tasks.

8	Critical condition in the clinic of internal diseases	1. Introduction to the lecture.	Testing. Situational tasks.
9	Semiology disease of bone and muscular system and joints	1. Introduction to the lecture.	Testing. Situational tasks.

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, a colloquium, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks, preparation of a case history).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination, term paper)

Control of formation of practical skills in a discipline during the practical classes number 33. Each student must have a bed patient to demonstrate the practical skills you mentioned in the ticket-branes (total - 3 on the key sections of discipline). The audit recorded on a special form and included in the overall rating evaluation of the student.

7.3 Stages of examination (pass/fail test)

Form of final control - an examination that is conducted in three phases:

1. Test of theoretical knowledge - a test control using paper.
2. Testing the practical skills of the patient's bed.
3. Interviewing for the tickets.

The contents of the final test of control

For final verification tests used 2-3 levels of complexity. Total developed the 10 test cards, each of which consists of 15 tasks: 13 tasks lines closed and 2 open-ended assignments. The test event is held during the practical sessions number 34, towards the test-ticket reads 50 minutes. Test results are included in the student's overall rating.

The list of questions to verify the practical skills of the discipline:

1. Name the sequence reflect this state of a patient.
2. Determine the general condition of the patient. List the types of general condition of the.
3. Determine the position of the patient. List major types of patient.
4. Determine the patient's state of consciousness. Give a description of various types of violations of consciousness.
5. Determine the patient's body type. Give a description of types of body-building.
6. Assess skin color, define the degree of purity. Give the characteristics of core-kulose skin.
7. Rate elasticity of the skin, the skin appendages and the degree of development subcutaneous adipose tissue.
8. Determine the existence of edema, their location, extent of. Re-number methods for detection of edema.
9. Show the sequence of palpation of peripheral lymph node-ance. What are the signs needed to be assessed in the study of lymph node?
10. Assess the state of the muscular system of the patient.
11. Determine that the development of bony skeleton, establish the presence of misshapen bones, spinal curvature.
12. Give a description of the state of joints, determine their mobility, object-eat movements configuration.
13. Define the shape of the patient's chest. What are the normal and pathological form of the thorax.
14. Perform inspection of the chest in a patient with pathology of respiratory organs. Give a description of breath.
15. Perform palpation of the chest in a patient with pathology-tion of Haniyeh.
16. Show method of determining a voice tremor, give characteristics of normal and pathology.
17. Show perkutornogo variety of sound, let characterized by stiku in norm and pathology.
18. Determine the height of standing light tops front and rear, give the characteristics of normal and pathology.
19. Determine the width of fields Kreniga give a characterization of normal and Pathologies.
20. Determine the bottom of the left lung, allow characterization of normal and pathology.
21. Determine the bottom of the right lung, give description of standard measures and pathology.
22. Determine the maximum mobility of the lower edge of light, let the characteristics of normal and pathology.

23. Show how to conduct a comparative light percussion.
24. Spend lung auscultation; give basic description dyhatel-governmental noise.
25. Spend lung auscultation; call differential-diagnostic signs of moist rale.
26. Spend lung auscultation; call differential-diagnostic signs of dry rale
27. Spend lung auscultation; call differential-diagnostic signs krepitatsii.
28. Spend lung auscultation, call differential-diagnostic signs of friction noise pleura.
29. Show bronhofonii research methodology.
30. Conduct a general inspection of the patient with cardiovascular disease, say the most frequent pathological signs
31. List the sequence of objective research on the heart area. As identified in the inspection area of the heart?
32. Perform palpation of apical push, give his testimonial in norm and pathology.
33. Show method of palpation of cardiac shock, epigastrium pulsation, symptoms «feline purr».
34. Show method of study of pulse and call its properties. Which arteries are exploring the pulse?
35. Determine the right border of the relative cardiac dullness, give its characteristics in normal and pathological.
36. Determine the right border of the absolute cardiac dullness, give its characteristics in normal and disease.
37. Determine the upper limit of relative cardiac dullness, give its characterization in normal and disease.
38. Determine the upper limit of the absolute cardiac dullness, give its characteristics in normal and disease.
39. Define the left edge of the relative cardiac dullness, give its characteristics in normal and disease.
40. Define the left edge of the absolute cardiac dullness, give its characteristics in normal and disease.
41. Determine the width of vascular bundle, let his performance in normal and disease.
42. Show the sequence of cardiac auscultation. Name differential diagnostic signs I tone.
43. Spend cardiac auscultation. Name differential diagnostic signs II tone.
44. Determine the focus of tone in the aorta II explain the mechanism and causes him to events.
45. Determine II focus on the tone of pulmonary trunk, and call arrangements with the causes of its emergence.

46. Spend cardiac auscultation. Give a description of systolic vnutriserdechnyh noise.
47. Spend cardiac auscultation. Give a description of diastolic vnutriserdechnyh noise.
48. Spend cardiac auscultation. Name differential diagnostic signs of friction noise pericardiocentesis.
49. Define blood pressure using the NS Korotkova. Give the characteristics pulse pressure, assess the degree of hypertension.
50. Conduct a general inspection of a patient with liver disease, tell them the most frequent pathological signs.
51. Perform inspection of the stomach, tell them how to clarify the reasons for the increase in the stomach.
52. Spend a superficial palpation of the abdomen.
53. Palpate sigmoid colon.
54. Palpate cecum.
55. Palpate ascending colon department.
56. Palpate downstream division large intestine.
57. Palpate transversely your colon.
58. Palpate greater curvature of stomach.
59. Palpate pyloric stomach.
60. Palpate liver.
61. Palpate spleen.
62. Determine the size of the liver by method Kurlov. What is their value in the norm?
63. Show how to increase the differences between the liver of omission.
64. Determine the size of the spleen. What is their value in the norm?
65. Determine the presence of free fluid in the patient's abdominal cavity.
66. Determine the bottom of the stomach.

Control of formation of practical skills in a discipline during the practical classes number 33. Each student must have a bed patient to demonstrate the practical skills you mentioned in the ticket-branes (total - 3 on the key sections of discipline). The audit recorded on a special form and included in the overall rating evaluation of the student.

1. The subjective method of examination of patients. Complaints of detail, research, thorium disease, history of life.
2. An objective method of examination of patients, their sequence. Type body. Diagnostic entity.
3. An objective method of examination of patients, their sequence. Situation the patient. Types of violations of consciousness. Signs of the coma, the main types of components.
4. An objective method of examination of patients, their sequence. Characteristics of skin, skin types syepy.
5. An objective method of examination of patients, their sequence. Assessment of subcutaneous adipose tissue. Periferiche palpation of lymph node-based, consistency and performance evaluation.
6. Questions of patients with diseases of the respiratory system. The mechanism of formation of the major complaints of their characteristics.
7. Examination of patients with diseases of the respiratory system. Inspection and palpation of the chest. Changes in voice tremor in the pathology of the lung.
8. Percussion light: species of percussion, percussion sequence. Changing the sound when perkutornogo lung pathology.
9. Auscultation of lungs. Vesicular breath, his symptoms, the mechanism of forming mirovaniya, the change in normal and pathological conditions. Rigid breath.
10. Bronchial breath: the conditions of formation and clinical significance.
11. Wet bubbling rale: mechanism of formation, classification, clinical importance.
12. Dry bubbling rale: mechanism of formation, classification, clinical importance of.
13. Crepitation and friction noise pleura: a mechanism of formation, differentiated socio-diagnostic features, clinical significance.
14. Compression syndrome infiltrative pulmonary tissue: mechanism of formation of tion, the clinical symptoms.
15. Syndrome accumulation of fluid in pleural cavity: causes of clinical symptoms.
16. Pneumothorax syndrome: classification of pneumothorax, with clinical-signs.
17. Syndrome of bronchial obstruction: the causes of the clinic.
18. Cavities in the lung syndrome: causes, clinical features.
19. Atelectasis syndrome: classification, clinical features.
20. Respiratory distress syndrome: mechanism of formation, classification, clinical and spirography signs.

21. Syndrome of increased pulmonary ethereality tissue: mechanism of the formation, classification, major clinical symptoms of lung emphysema.
22. The main clinical signs of focal pneumonia.
23. The main clinical symptoms of pneumonia croup.
24. The main clinical symptoms of dry and exudate plevritis.
25. The main clinical symptoms of acute and chronic bronchitis.
26. The main clinical symptoms of lung abscess and bronchoektasis disease.
27. The main clinical symptoms of bronchial asthma. Asthmatic status.
28. Laboratory study of sputum and clinical evaluation of the results.
29. Pleural puncture: technique torakotsenteza, assessing pleural contents zhimogo.
30. Spirography: basic indicators, the analysis spirography.
31. Questions of patients with diseases of the cardiovascular system: mechanism of formation of the major complaints of their characteristics.
32. Examination of patients with diseases of the cardiovascular system: mechanism of formation and characterization of cyanosis, cardiac edema.
33. Palpation of the area of the heart: apex of heart, the properties and their clinical evaluation.
34. Investigation of pulse: its properties and their significance in clinical practice.
35. Percussion heart: the concept of the boundaries of heart and vascular bundle, the reasons for changing the borders of the relative and absolute cardiac dullness.
36. Auscultation of heart: the rules and points of auscultation, listening to the sequence of the heart.
37. Heart tones: mechanism of formation, differential-diagnostic signs, causes changes in the heart tones.
38. Heart noises: classification, mechanism of their occurrence, the rules auscultation, clinical evaluation. A differential diagnostic signs of organic and functional heart of noise.
39. The method of electrocardiography: the right to make an electrocardiogram, the analysis of electrocardiograms.
40. The notion of functional methods for study of cardiovascular system and their possible application: measurement of arterial and vein pressure phonocardiography, echocardiography, veloergometry, X-ray hearts.
41. Syndrome of hypertension: classification, definition of the degree of hypertension. The concept of symptomatic arterial hypertension.

42. The main clinical symptoms of hypertensive disease, stage and risk of GB.
43. The concept of atherosclerosis, coronary heart disease. Classification of angina pectoris, major clinical symptoms, diagnostic methods.
44. Coronary insufficiency syndrome: major clinical symptoms of acute myocardial infarction, during acute myocardial infarction.
45. Electrocardiographic diagnosis of acute myocardial infarction: the ECG-signs of damage to the myocardium, the dynamics of an electrocardiogram from the pain-governmental myocardial infarction, the identification of the localization of myocardial infarction.
46. Laboratory diagnosis of acute myocardial infarction.
47. Atypical forms of myocardial infarction - clinical symptoms.
48. Complications of acute myocardial infarction - the main clinical features.
49. Syndrome of mitral valve insufficiency: a violation of hemodynamic, the main clinical symptoms, ECG changes.
50. Syndrome of the left atrioventricular aperture stenosis: a violation of hemodynamic, the main clinical symptoms, ECG changes.
51. Aortic valve insufficiency syndrome: a violation of hemodynamic, the main clinical symptoms, ECG changes.
52. Syndrome of the mouth of aortic stenosis: hemodynamic violations, major wedge Actual symptoms, ECG changes.
53. Tricuspid valve insufficiency syndrome: a violation of hemodynamic, the main clinical symptoms, ECG changes.
54. Violations of the rhythm of the heart: clinical and ECG signs of sinus-rhythm irregularities, paroxysmal tachycardia, extrasystoles, arrhythmia.
55. Conduction: clinical and ECG signs of block, atrioventricular block and its powers, ventricular block.
56. Circulatory insufficiency syndrome: pathogenic mechanisms, classification, stage of chronic heart failure.
57. Syndrome of acute heart failure: causes, clinical symptoms of cardiac asthma, pulmonary edema.
58. Syndrome of chronic heart failure: the main clinical symptoms of chronic left-and right heart failure.
59. Syndrome of acute circulatory failure: classification, mechanism of formation, clinical signs of fainting, collapse. The notion of hro technical vascular insufficiency.

60. The main complaint of patients with diseases of the stomach and intestines, mechanism of their formation. Examination of patients with gastrointestinal diseases.
61. The main clinical syndromes in patients with gastrointestinal diseases: gastric and intestinal dyspepsia, violations of secretory function of the stomach.
62. Acute gastritis: classification, major clinical symptoms.
63. Chronic gastritis: classification, causes, diagnostic methods, the main clinical symptoms.
64. Gastric ulcer: causes, diagnostic methods, the main clinical symptoms.
65. Peptic ulcer disease 12-rings intestine: the causes, methods of diagnostic, the main clinical symptoms.
66. Semyology complications of peptic ulcer disease: gastrointestinal haemorrhage, perforation, penetration, stenosis janitor, malignancy.
67. Modern methods of investigating the gastrointestinal tract: a study gastric juice and pH meter, a clinical analysis of the results.
68. The concept of the diagnostic possibilities of FGDS, biopsies, X-ray stomach.
69. Questions of patients with diseases of the liver and bile ducts, mechanism of forming the main complaints, the importance of history.
70. Examination of patients with diseases of the liver and bile ducts.
71. Syndrome of jaundice: differential-diagnostic signs of parenchymal, mechanical and hemolytic jaundice.
72. Portal hypertension syndrome: mechanism, clinical manifestations. Gepaticolienal syndrome and syndrome of hypersplenism.
73. The main biochemical syndromes in diseases of liver: cytolysis,olestasis, mesenchymal inflammation gepatodepressiya - Criteria diagnostician settings.
74. Syndrome of liver cell failure: mechanisms of formation, clinical signs, semyology hepatic coma.
75. Chronic hepatitis: classification, clinical and laboratory signs with.
76. Cirrhosis of the liver: clinical and laboratory features, complications.
77. Modern methods of diagnosing diseases of the liver and bile ducts: duodenal sensing technique, a clinical analysis of the results of the study duodenal contents. The concept of ultrasound, biopsy of the liver.
78. Semyology not calculary chronic cholecystitis, diskinezy sphincter Oddi, their differential-diagnostic signs.
79. Chronic pancreatitis: clinical signs, laboratory and instrument-mental methods of diagnosis (koprological, biochemical, ultrasound).

80. Questions and examination of patients with diseases of the kidneys and urinary tract, especially the collection of history, symptoms violations.
81. Diagnostic value of the total urine analysis, urine, quantitative research methods, their interpretation (Nechiporenko, Addis Kakovskogo).
82. Methods of research functions of the kidneys and their clinical evaluation (sample Zimnitskogo, Reberga). Biochemical studies of blood in patients with diseases of the kidneys.
83. Isolated urinary syndrome: clinical characteristics, origin and characteristics of individual symptoms (gematuria, proteinuria, leukocytes series).
84. Syndrome of renal hypertension: a mechanism of formation, the main clinical features.
85. Nephrotic syndrome: clinical and laboratory building, with signs.
86. Syndrome of chronic renal failure: mechanism, clinical and laboratory signs, stage, semyology uremic coma.
87. Glomerulonephritis: classification, characteristics of the main clinical forms.
88. Chronic pyelonephritis: causes, clinical and laboratory recognition settings.
89. The main complaints and the examination of patients with diseases of the endocrine system. Modern methods of laboratory and instrumental diagnostics.
90. The main clinical syndromes in patients with diseases of the endocrine system: hyperthyroidism, hypothyroidism, acromegaly, obesity.
91. Diabetes mellitus: classification, the main clinical symptoms and syndromes, laboratory diagnosis of diabetes.
92. Acute complications of diabetes: diabetic symptoms (ketoacidosis) and hypoglycemic coma.
93. Questions and examination of patients with diseases of the blood, modern laboratory and instrumental diagnostics.
94. Diagnostic value of total blood.
95. The main clinical syndromes in patients with diseases of CGB-vision: mieloplastic, bloody.
96. Anemic syndrome: clinical and laboratory signs symptom logiya-B12 and chronic iron-deficiency anemia.
97. Questions and examination of patients with diseases of the joints, the major clinical syndromes companies: inflammatory lesions, degenerative-dystrophic.
98. Critical condition in the clinic of internal diseases: anaphylactic shock and sudden death. Diagnosis and first aid, principles reanimation.

8. Library and information materials of the course

8.1. Compulsory literature

1.Ivashkin V.T. Internal diseases propedeutics [Электронный ресурс]/ V. T. Ivashkin , A. V. Okhlobystin. -Москва: ГЭОТАР-Медиа, 2020. -176 р.- URL: <https://www.studentlibrary.ru/ru/book/ISBN9785970455555.html>

2.Oslopov V. N. General Care of a Patient [Электронный ресурс] : tutorial/ V. N. Oslopov, O. V. Bogoyavlenskaya. -Москва: ГЭОТАР-Медиа, 2021. -208 с.- URL: <https://www.studentlibrary.ru/book/ISBN9785970460429.html>

3.Методика объективного обследования больного в терапевтической практике [Электронный ресурс] : учебное пособие / И.А. Хлопина, А.Н. Плакуев, Н.С. Суханова. - 2-е изд., испр. и доп. - Архангельск : СГМУ, 2021 – 126 стр. - Режим доступа: http://oa.lib.nsmu.ru/view_docs.php?id_doc=731

4. Хлопина И.А. и др. Заболевания внутренних органов: основные симптомы и синдромы, методы диагностики [Электронный ресурс] : учебное пособие / И.А. Хлопина, А.Н. Плакуев А, Н.С. Суханова. - Архангельск : СГМУ, 2021 – 187 стр. - Режим доступа: http://oa.lib.nsmu.ru/view_docs.php?id_doc=730

8.2. Supplementary literature

1. Milkamanovich VK Methodological examination, symptoms and symptoms-complexes in the clinic of internal diseases .- Mn.: ООО «Polifakt-Alpha», 1994.

2. Diseases of the respiratory system: Manual. In 4 volumes, ed. NR Palee Islands .- M.: Meditsina, 1990.

3. Manual of Gastroenterology: in 3 volumes / Under the general editorship FI Komarova and AL Grebeneva .- M.: Meditsina, 1995.

4. Clinical Endocrinology: A Guide, ed. NT Starkova .- M.: Meditsina, 1991 .- 512 pp.

5. Murashko VV, AV Strutynsky Electrocardiography: Training. manual, 2 nd ed .- M.: Meditsina, 1991 .- S. 206-246.

6. Minkin RB Diseases of the cardiovascular system .- St.Petersburg: Publishing House "Acacia", 1994 .- 273 pp.

7. Nephrology: Guidelines for doctors. In 2 volumes, ed. IE Tareeva .- M.: Meditsina, 1995.

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	Medscape	http://www.medscape.com/	Medical foreign portal
2	Thieme Connect	https://www.thieme-connect.com/products/ejournals/journal/10.1055/s-00034793	A medical resource that allows healthcare professionals and students to conduct

			research, providing them with online access to electronic journals, electronic books, electronic learning tools and reference works in Thieme (registration is required).
3	EBSCO	https://www.ebscohost.com/ebooks/medical	EBSCO collects e-books and audiobooks in various fields of human activity, including medicine.
4	Channel Doctor's Channel	http://www.thedoctorschannel.com/	Medical training videos on the channel Doctor's Channel

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	edu.nsmu.ru	e-course

8.5. The list of the software and information & reference systems

Kaspersky endpoint Security. License number 26FE-191125-134819-1-8403.

MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. License number 46850049, indefinitely

Radmin Viewer 3. Radmin Server 3. License number 11001793

Traffic inspector. License number №1051-08 or 10.04.2008, indefinitely.

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
---	------------------------	----------------------------	--

	Classroom for conducting lecture-type classes No. 2408	163000, Arkhangelsk, ave. Troitskiy, 51 administrative educational building, 1st floor	a) list of main equipment: A set of educational furniture (tables, chairs, a screen, a blackboard) a teacher's workplace, workplaces for students with 300 seats. b) sets of demonstration equipment projector, monoblock, screen, speakers c) a list of educational and visual aids: diagrams, tables
2	Classroom for seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	163001, Arkhangelsk, ave. Troitsky, 180 No. 106 academic building, 1st floor	a) list of main equipment: A set of educational furniture (tables, chairs, a screen, a blackboard) a teacher's workplace, workplaces for students with 29 seats. b) sets of demonstration equipment Projector, laptop, virtual anatomical (transformable) table, digital belly palpation dummy Z982 c) list of educational and visual aids: Visual aids, handouts for practical classes on all subjects of the discipline.
3	Classroom for seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification Agreement No. 606 dated 26.07.2017 on the organization of practical training of students between the FSUE in SSMU (Arkhangelsk) The Ministry of Health of Russia and the State Medical Institution of the Arkhangelsk region "Arkhangelsk City Clinical Hospital No. 7". The term of the Contract is 5 years. Equipment according to Appendix No. 3 to the Contract.	163062, Arkhangelsk region, Arkhangelsk, Yaroslavskaya str., 42 No. 38, 5th floor of the main building	a) list of main equipment: A set of educational furniture (tables, chairs, screen, blackboard), a teacher's workplace, workplaces for students with 14 seats. b) sets of demonstration equipment laptop, projector c) a list of educational and visual aids: Visual aids, handouts for practical classes on all subjects of the discipline, tables and reference materials, a couch

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Life Safety**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2 / 4**

Form of the interim assessment **Test**

Department **of Mobilization Training of Public Health and Disaster Medicine**

Discipline workload **72** (academic hours) / **2** (credits)

Approved at the department meeting

Minutes No. 12

June 11th 2021

Head of the department



Yu.E. Barachevsky

Author and compiler:

Kubasov Roman Viktorovich, professor assistance of Mobilization Training of Public Health and Disaster Medicine Dpt., PhD, professor assistance

Arkhangelsk, 2021

1. Position of the Life Safety discipline (module) within the structure of the educational program

The Life Safety (LS) discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The LS discipline is related to the disciplines of the Basic part of the curriculum.

The LS discipline is related to prior subjects of the curriculum: law, chemistry, biology, anatomy, normal physiology

The LS discipline is related to subsequent subjects of the curriculum: disaster medicine, pathophysiology, biochemistry, pharmacology, hygiene, public health and healthcare, epidemiology, clinical pharmacology, psychiatry, medical psychology, forensic medicine, therapy, infectious diseases, traumatology, fundamentals of clinical and laboratory diagnostics.

The LS discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the discipline

The aim of mastering the LS discipline is to develop a graduate's general culture of life safety. It must also achieve a comprehensive understanding, ability and readiness to take action to predict, evaluate and organize medical support measures in response to the consequences of emergency situations (emergencies) in peacetime and wartime.

Objectives of the LS discipline:

1. development of knowledge about the problems, threats and risks associated with human life in daily conditions and emergencies with using various technologies, mainly digital.
2. development of skills to ensure the safety of staff of organizations in the supply of first, as well as emergency, primary health care, specialized, palliative types of medical care to victims of emergencies, with applying modern methods of information and telecommunications network for devices, equipment, detectors, sensors, process control systems, as well as the integration of software and hardware data among themselves without human intervention.
3. formation of skills to competently and reasonably develop and reasonably make and give management decisions from the point of view of safety, as well as in emergency situations.
4. formation of practical skills in providing first aid to victims in emergencies, participation in rescue and other measures in the event of emergencies

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
Universal competencies (UC)-№8/ Is able to create and maintain safe living conditions in everyday life and in professional activities for the protection of the natural environment, ensuring the sustainable development of society, including in the event of a threat and occurrence of emergencies and military conflicts	IA-8.1. Identifies dangerous and harmful factors within the framework of the activities carried out IA -8.2. Provides safe living conditions IA-8.3. Demonstrates the skills of using individual and collective protective equipment and first aid equipment IA-8.4. Provides first aid
General professional competencies (GPC) -№6/ He is able to organize patient care, provide primary health care, ensure the organization of work and professional decision-making in urgent conditions at the prehospital stage, in emergency situations, epidemics and in centers of mass destruction	IA-4. He has an algorithm for providing first aid in emergency situations, epidemics and in centers of mass destruction. IA-5 He is able to organize the work of medical personnel in emergency situations, in emergency situations, epidemics and in centers of mass destruction
Professional competencies *(PC)- №1/ Ability and readiness to conduct sanitary and hygienic education of the population, training of patients and medical workers in order to prevent the occurrence (or) spread of diseases, their early diagnosis, identification of the causes and conditions of their occurrence and development	IA-4. Has the skills to carry out sanitary and anti-epidemic measures in the event of infection outbreak. IA-5 Is able to determine medical indications for the introduction of restrictive measures (quarantine) and indications for referral to a specialist doctor

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

5. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 2 credits.

Type of the academic work	Total hours	Term
---------------------------	-------------	------

		4
Students' contact work with the teacher (total)	36	36
Including:		
Lectures (L)	12	12
Seminars (Sem.)		
Practical classes (PC)	24	24
Clinical practicals (CP)		
Laboratory-based practicals (LBP)		
Simulation-based practicals (SBP)		
Preparation for the examination (PE)		
Preparation for the credit (PC)		
Exam consultations (EC)		
Coursework (CW)		
Unsupervised work (UW) (total)	36	36
Examination control (EC)		
Total discipline workload	72/2	72

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
	Life safety as an educational discipline and a scientific and practical area.	<p>The concept of human activity and its habitat. The human environment, its evolution and risk factors. Components of the "human-habitat" system: household, industrial, urban, natural environment.</p> <p>The modern information society and the information space in which information and the level of its application and accessibility radically affect the economic and socio-cultural living conditions of citizens, including in healthcare.</p> <p>The concept of human life safety (LS): definition, goals, objectives, levels, types and principles of LS.</p> <p>Approaches, methods, methods and means of ensuring human security; regulatory and legal regulation of the LS. The importance of security in the development of State, the scientific foundations of the LS, problems and prospects of development.</p> <p>Life safety in the field of healthcare.</p> <p>Information space, as a set of resources designed to ensure human security. Subjects of the information sphere involved in security, their interactions in information systems.</p> <p>Assessment of the impact of human environmental factors (man-made, natural, biological, social, environmental) on his health, on the number of dead, injured and sick in various types of emergencies, on the growth of occupational morbidity, including among medical personnel, on demographic problems, on material and social damage, etc. The role of information infrastructure used to assess the degree of environmental factors on a person.</p> <p>Safety of household and services: water, food, medicines, household appliances and household chemicals. Information security of citizens.</p> <p>The culture of the LS, the mechanisms of its inculcation, the role of the human factor (knowledge, skills, moral and psychological training of the population) in reducing the risks of danger. The role of the information space in the formation of a safety culture, obtaining, preserving, producing and distributing reliable information on security issues.</p>
	National safety, its external and internal threats.	<p>National safety, its essence and legal regulation. The system of national interests and priorities. External and internal threats to national security, including in the field of healthcare, education and science.</p> <p>The main directions of development and application of information and communication technologies to ensure its national safety.</p>
	Emergencies and their medical and social assessment.	<p>The concept of emergency situations (emergencies), their sources, damaging factors, the structure of socio-economic and health consequences (types of lesions, injuries, diseases). Emergency classifications and their characteristics.</p> <p>Sources and types of predicted emergencies. State information and telecommunication systems and infrastructures that provide forecasting, monitoring and timely notification of the threat of occurrence or the fact of an emergency. The role of the information</p>

		infrastructure used to organize the interaction of objects with each other in extreme and emergency situations.
	Principles, methods and means of protecting the population from the damaging factors of emergencies, their medical assessment.	<p>The concept of protection of the population in emergencies of peacetime and wartime, its normative legal regulation. Goals, objectives, principles, methods and means of individual and collective protection of the civilian population and personnel of law enforcement agencies in emergencies of peacetime and wartime. National information system, information infrastructure, software and hardware and communication networks designed for mass protection of the population in emergency situations.</p> <p>Evacuation of the population in an emergency, as one of the main ways of protection.</p> <p>Medical evaluation of protective equipment. Medical means of protection, their characteristics. Protective equipment used to protect the child population.</p> <p>Methods and means (including modern technical means and the software and service attached to it) for the indication of hazardous substances in the environment and on medical items.</p> <p>Special treatment as an element of prevention and mitigation of toxic lesions: types, essence and organization of the procedure.</p> <p>Information, telecommunication systems and infrastructures designed for mass protection of the population in emergency situations.</p> <p>Organization of preparation of the population for the implementation of measures to protect it from emergencies of peacetime and wartime. A state information system designed to prepare the population for actions in possible emergencies.</p>
	National Emergency Prevention and Response System.	<p>The National Emergency Prevention and Response System, its role, goals, objectives, structure, forces and means, organization of work, levels and modes of operation.</p> <p>The civil defense system, its tasks, structure, and main areas of activity.</p>
	Rules and techniques of first aid to victims in an emergency.	<p>The concept of first aid to victims in an emergency, its legal basis, scope and organization of provision. Techniques and methods of first aid and practicing them on dummies.</p> <p>Information technologies aimed at teaching the population the rules and techniques of first aid to victims in an emergency.</p>
	Providing safety of functioning of medical and sanitary organizations.	<p>Types of threats to the health and life of personnel of medical and sanitary organizations, their characteristics. Issues and problems of safe provision of medical care to patients.</p> <p>Organization of labor protection of personnel of medical and sanitary organizations.</p> <p>Safety requirements when working in structural divisions of medical and sanitary organizations in daily activities, in case of a threat and the fact of an emergency in them and beyond. Medical-protective and sanitary-antiepidemic modes of operation of organizations.</p> <p>Organization of fire, energy, technological, radiation, chemical, biological, psychological and other safety of medical organizations. Measures to increase the sustainability of the functioning of medical and sanitary organizations and the protection of their personnel. Problems of their sustainability and solutions.</p> <p>The information system for monitoring working conditions in a medical organization is the collection, analysis and storage of information from technical devices, sensors, process control systems, as well as the integration of software and hardware data among themselves used to ensure the safety of functioning.</p>

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
7.	Life safety as an educational discipline and a scientific and practical area.	2		4				6	12
8.	National safety, its external and internal threats.			2				2	4
9.	Emergencies and their	2		4				6	12

	medical and social assessment.								
10.	Principles, methods and means of protecting the population from the damaging factors of emergencies, their medical assessment.	2		4				6	12
11.	National Emergency Prevention and Response System.	2		2				4	8
12.	Rules and techniques of first aid to victims in an emergency.	2		4				6	12
13.	Providing safety of functioning of medical and sanitary organizations.	2		4				6	12
Total hours		12		24				36	72

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
7.	Life safety as an educational discipline and a scientific and practical area.	<ul style="list-style-type: none"> - preparation for the discussion on the topics "The essence of life safety and the organization of its provision", "The role of the modern information space to ensure human security", "The main directions of ensuring the safety of citizens". - search and review of scientific publications and electronic sources of information on the topic "Security issues in the process of work in the organization, including medical" and preparation of a report. - study of materials on the topic presented in the Internet information system 	<ul style="list-style-type: none"> - holding a discussion on the designated topic - review of the abstract - solving tasks presented in the Moodle
8.	National safety, its external and internal threats.	<ul style="list-style-type: none"> - search and review of scientific publications and electronic sources of information on the topic "National Safety Strategy" and preparation of a report. - study of materials on the topic presented in the Internet information system 	<ul style="list-style-type: none"> - review of the abstract - solving tasks presented in the Moodle
9.	Emergencies and their medical and social assessment.	<ul style="list-style-type: none"> - study of educational material, search and review of scientific publications and electronic sources of information (the website of the Ministry of Emergency Situations, its regional departments and subordinate organizations) on the topic "Sources, types and structure of predicted emergencies in the territory where the future professional activity of the student is planned" and preparation of a report. - study of the materials presented in the Moodle 	<ul style="list-style-type: none"> - oral interview; - review of the abstract - solving tasks presented in the Moodle
10.	Principles, methods and means of protecting the population from the damaging factors of emergencies, their medical assessment.	<ul style="list-style-type: none"> - study of educational material, search and review of scientific publications and electronic sources of information (the website of the Ministry of Emergency Situations, its regional departments and subordinate organizations) and preparation of a report. - study of the materials presented in the Moodle 	<ul style="list-style-type: none"> - oral interview; - development of practical skills in the order of use of personal protective equipment. - solving tasks presented in the Moodle
11.	National Emergency Prevention and Response System.	<ul style="list-style-type: none"> - study of educational material, search and review of scientific publications and electronic sources of information (the website of the Ministry of 	<ul style="list-style-type: none"> - oral interview; - review of the abstract - solving tasks

		Emergency Situations, its regional departments and subordinate organizations) and preparation of a report. - study of the materials presented in the Moodle	presented in the Moodle
12.	Rules and techniques of first aid to victims in an emergency.	- study of educational material on the rules of first aid to victims. - viewing video information on the Internet on the rules of first aid to victims in an emergency - study of the materials presented in the Moodle	- oral interview; - review of the abstract - solving tasks presented in the Moodle
13.	Providing safety of functioning of medical and sanitary organizations.	- search and review of scientific publications and electronic sources of information on the topics: "Ensuring safety in medical organizations; measures to ensure them and ways to solve them", "The role of the head of a medical organization in ensuring its safety", "Information security control system in a medical organization" and preparation of an abstract with a report. - study of the materials presented in the Moodle	- oral interview; - review of the abstract - solving tasks presented in the Moodle

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the "Evaluation tools for the current control of the course's (module's) academic performance, interim assessment of students" part of the syllabus of the course (module).

7.2. Forms of the interim assessment (pass/fail test,)

Stages of the interim assessment

Stages of examination (pass/fail test)

1. Stage - testing with using of the Moodle platform;
2. Stage - oral interview if unsatisfactory score occur during the first stage

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the "Evaluation tools for the current control of the course's (module's) academic performance, interim assessment of students" part of the syllabus of the course (module).

8. Library and information materials of the course

8.1. Compulsory literature

1. Безопасность жизнедеятельности: учеб, пособие / И. М. Чиж, С. Н. Русанов, Н. В. Третьяков [и др.]; под ред. И. М. Чижа – Ростов н/Д : Феникс, 2015. – 301 с.

8.2. Supplementary literature

1. Сергеев В.С. Безопасность жизнедеятельности [Электронный ресурс]: учебник/ В.С. Сергеев. – Москва: Издательство ВЛАДОС, 2018. – 480 с. – Режим доступа: <http://www.studentlibrary.ru/book/ISBN9785906992888.html>
2. Колесниченко П.Л. Безопасность жизнедеятельности [Электронный ресурс]: учебник/ П.Л. Колесниченко. – Москва: ГЭОТАР-Медиа, 2017. – 544 с. – Режим доступа: <http://www.studentlibrary.ru/book/ISBN9785970440414.html>
3. Колесниченко П.Л. Медицина катастроф [Электронный ресурс]: учебник/ П.Л. Колесниченко [и др.]. – Москва: ГЭОТАР-Медиа, 2017. – 448 с. – Режим доступа: <http://www.studentlibrary.ru/book/ISBN9785970440001.html>

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
7.	Student's electronic library "Student's	http://www.studentlibrary.ru/	access by contract through registration on all computers of NSMU (under the IP address of

	Consultant": Medicine, Humanities and Social Sciences, Natural sciences.		the university)
8.	Scientific Electronic Library Web of Science	https://login.webofknowledge.com/	open access journals, personal registration is required to access the full texts. Journals by subscription of the university - access is carried out on university computers (1st, 2nd building of NSMU, WI-FI access, personal registration is required)
9.	Scientific Electronic Library Scopus	https://www.scopus.com/	open access journals, personal registration is required to access the full texts. Journals by subscription of the university - access is carried out on university computers (1st, 2nd building of NSMU, WI-FI access, personal registration is required)
10.	Electronic catalog and full-text electronic library of NSMU	http://lib.nsmu.ru/lib/	access to the full-text electronic library by password issued in the electronic information room (room 2317)
11.	PubMedCentral (PMC) - full-text archive of biomedical journals of the US National Library of Medicine	http://www.pubmedcentral.nih.gov	open access
12.	ClinicalKey	https://www.clinicalkey.com/	access to the full-text electronic library by password issued in the electronic information room (room 2317)

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	E-course in EL Moodle "Life safety" for 2nd year students.	Life safety, emergency medicine 2 course Life safety https://edu.nsmu.ru/course/view.php?id=583 Roman Kubasov	mixed EL training+

8.5. The list of the software and information & reference systems

MS Windows 10; MS Office 365; AdobeReader, AdobeReader, SPSS, ABBYYLingvo, ISpring, Zoom

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	2406, 2409, 2428,2429	Arkhangelsk, Troitskiy ave., 51.	multimedia projectors with laptop or PC

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Basics of research in medicine**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **2 / 3**

Form of the interim assessment **Pass/fail test**

Department **of Public health, health care and social work**

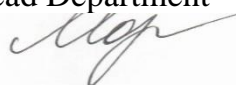
Discipline workload **72** (academic hours) / **2** (credits)

Approved at the department meeting

Minutes No. 8

"03" June 2021

Head Department



E.A. Mordovsky

Author and compiler:

V.A. Postoev, Cand. of Science, PhD

Associate Professor at the Department of Public Health, Health Care and Social Work

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects

The discipline is related to prior subjects of the curriculum: no.

The discipline is related to subsequent subjects of the curriculum: project management in healthcare, public health, health care, health economics

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: research.

2. Goal and tasks of the mastering of the discipline

The goal of the discipline is to prepare students for the implementation of professional activities in the field of scientific research.

Discipline objectives:

- to gain of knowledge about the historical foundations and content of the modern scientific method.
- to develop the skills in planning, organizing, and performing medical scientific research of various types
- to develop the skills in medical and statistical data analysis and presentation of the results of medical research

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
UC-3. Able to organize and manage the work of a team, developing a team strategy to achieve a set goal	ID-3.1. Develops a teamwork strategy to achieve a set goal ID-3.2. Forms a team and leads its work in order to achieve the set goal ID-3.3. Defines the management style for effective team work ID-3.4. Arguments and defends his opinion, bears personal responsibility for the result
UC-6 To be able to determine and implement the priorities of his own activity and ways to improve it based on self-esteem and lifelong education	ID-6.1. Evaluates its resources and their limits (personal, situational, temporary), uses them optimally for the successful fulfillment of professional tasks ID-6.2. Plans and controls independent activities in solving professional problems ID-6.3. Builds an educational trajectory of professional development
PC-7. Ability and readiness to collect and analyze scientific and scientific-production information to solve professional problems, to participate in scientific research, to introduce new methods and techniques aimed at protecting public health	ID-7.1. Is able to search for medical information based on evidence-based medicine, interpret the data of scientific publications, critically evaluate modern methods of diagnosis, prevention and treatment of diseases from the standpoint of evidence-based medicine ID-7.3. Applies methods of scientific and practical research (research)
PC-8. Ability and willingness to conduct scientific discussions, publicly present the results of research, experiments, observations, measurements at scientific and practical events	ID-8.1. Knows how to prepare a presentation for the public presentation of medical information, the results of scientific research ID-8.2. Possesses the skills of public presentation of medical information based on evidence-based medicine at scientific and practical events

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 2 credits.

Type of the academic work	Total hours	Term
		3
Students' contact work with the teacher (total)	36	36
Including:		
Lectures (L)	12	12
Seminars (Sem.)		
Practical classes (PC)	24	24
Clinical practicals (CP)		
Laboratory-based practicals (LBP)		
Simulation-based practicals (SBP)		
Preparation for the examination (PE)		
Preparation for the credit (PC)		
Exam consultations (EC)		
Coursework (CW)		
Unsupervised work (UW) (total)	36	36
Examination control (EC)		
Total discipline workload	72/2	72

5. Course content:

5.1. Contents of the sections of the course

No	Name of the course section	Content of the section
1.	Methodological foundations of scientific knowledge	Topic 1. Methodological foundations of scientific knowledge. Organization and planning of the research study
2.	Basics of research planning and implementation	Topic 2. Fundamentals of Epidemiology Topic 3. Experimental study designs: randomized control trial, quazi-randomized control trial Topic 4. Non-experimental designs of studies: "case-control" study, cohort study, cross-sectional study, ecological study
3.	Fundamentals of Statistics	Topic 5. Basic statistics. Types of statistical values Topic 6. Basics of the scientific writing and presentation Topic 7. Introduction to the evidence-based medicine

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1.	Methodological foundations of scientific knowledge	4	4	-	-	-	10	18	Methodological foundations of scientific knowledge
2.	Basics of research planning and implementation	4	8	-	-	-	16	28	Fundamentals of Epidemiology
3.	Fundamentals of Statistics	4	12	-	-	-	10	26	Fundamentals of Statistics

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
	Methodological foundations of scientific knowledge	Essays	Assessment of abstracts

	Basics of research planning and implementation	Tests and tasks in the MOODLE educational system	Assessment the tests and tasks in the MOODLE
	Fundamentals of Statistics	Tests and tasks in the MOODLE educational system	Assessment the tests and tasks in the MOODLE

7. Forms of control

7.1. Current forms of control

- verbal (answers for the teacher's questions)
- written (tests, statistical tasks, essay).

A theme list of essays, test collections and statistical tasks are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test): written assignment

Questions for the pass are listed at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

1. Health research methodology. A Guide for Training in Research Methods. WHO. Regional Office for the Western Pacific, Manila, 2001
2. Gordis L. Epidemiology. 5th Edition / Gordis L. – Elsevier. Saunders – Philadelphia, 2014 - 416 p. Режим доступа www.clinicalkey.com

8.2. Supplementary literature

1. Fink A. Evidence-based public health practice / Fink A. – SAGE - London, Los Angeles, - 30 p.
2. Szklo M. Epidemiology: beyond the basics / M. Szklo, F. J. Nieto. – 3rd ed. – Burlington, Mass. : Jones & Bartlett Learning, 2012. – 515 p.
3. Public Health Research Methods / Guest G., Namey E.E. - SAGE Publications, Inc, 2015. – 832 p.

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

Resource name	Url	Resource annotation
Electronic library systems (electronic libraries)		
Electronic library of SSMU	http://lib.nsmu.ru/lib/	educational, educational-methodical and scientific literature
EBS "Student's Consultant": Medicine. Healthcare. Humanities and social sciences. Natural Sciences	http://www.studentlibrary.ru/ http://www.studmedlib.ru/ http://www.medcollegelib.ru/	sets of educational and scientific literature on medicine, health care, natural, humanitarian and social sciences
EMB "Doctor's Consultant"	http://www.rosmedlib.ru	practical guides, reference books, monographs, recommendations and other publications
MedOneEducation -Электронная библиотека медицинских учебниковиздательства «Thieme»	http://medone-education.thieme.com/	online books in English
Professional databases		
Database of scientific journals. Scientific electronic library Medline	https://pubmed.ncbi.nlm.nih.gov/	PubMed comprises more than 33 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full text content from PubMed Central and publisher web sites.

WHO publications. Database "GlobalIndexMedicus". World health organization	https://www.who.int/ru	information materials, reports from WHO, etc.
Баз данных «Web of Science» (WOS)	https://www.webofscience.com	biomedical literature, life science journals, and online books
База данных «Scopus»	https://www.scopus.com/	biomedical literature, life science journals, and online books
Электронные ресурсы издательства Wiley	https://onlinelibrary.wiley.com/	biomedical literature, life science journals, and online books
Information reference systems		
reference system Federal Electronic Medical Library (FEMB)	http://femb.ru/	State Pharmacopoeia of the Russian Federation, clinical guidelines (treatment protocols), scientific and educational literature, dissertations and abstracts
Other resources		
Russian scientific fund	https://rnf.rf	The purpose of the RSF is to provide financial and organizational support for fundamental research and exploratory research, training of scientific personnel, and the development of research teams holding leading positions in a particular field of science.

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	https://edu.nsmu.ru/course/view.php?id=269	+EC

8.5. The list of the software and information & reference systems

In the implementation of the educational process, students and faculty use the following software: **operating system** - MSWindowsVistaStarter, MSWindowsProf 7 Upgr; **office suite** - MSOffice 2007; other **software** - 7-zip, AdobeReader, KasperskyEndpointSecurity

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Aud. No. 2453 <i>Office of Public Health and Health Care, Organization of Professional Activities</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	30 seats Multimedia projector - 1, computer - 1 pc.
2	Aud. No. 2441 <i>Cabinet of Economics and Management in Health Care, Economics and Management of Laboratory Services</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	24 seats Multimedia projector - 1.
3	Aud. No. 2451 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	42 seats Multimedia projector - 1, computer - 1 pc.

4	Aud. No. 2442 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	30 seats Multimedia projector - 1.
5	Audit No. 2440 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	11 seats. computer - 11 pcs., connected to the Internet, multimedia projector - 1
6	Aud. No. 2445 <i>Classroom for seminar-type classes, group and individual consultations, monitoring and intermediate certification</i>	Auditorium of the Department of Public Health, Health Care and Social Work: 163000, Arkhangelsk, prosp. Troitsky, 51 4th floor of the administrative building	28 seats, TV - 1

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE COURSE (MODULE)

Discipline **Elective subjects of physical culture and sport. General physical preparation**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **1,2,3 / 1,2,3,4,5,6**

Form of the interim assessment **Pass/fail test**

Department **of Physical Culture and Medical Rehabilitation**

Course workload **328** (hours)

Approved at the department meeting

Minutes No. 10

June 7th 2021

Head of the department



N.I. Ishekova

Author and compiler:

M.N. Repitskaya

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine». The discipline is related to the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects and optional subjects.

The discipline is related to prior subjects of the curriculum: physical culture and sports.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive.

2. Goal and tasks of the mastering of the discipline

The goal of the physical culture course at a higher education institution is to develop the physical culture of students, as well as their capability to purposefully and on a reasonable methodological basis use various physical culture means, methods, and organizational forms allowing them to develop the personal health saving life activities required for the professional and personal formation.

In order to achieve this goal, the following *tasks* should be fulfilled during the course:

Mastering the system of practical skills that ensure the preservation and strengthening of health, mental well-being, development and improvement of psychophysical abilities, qualities and personality traits.

Ensuring general and professional physical fitness, which determines the psychophysical readiness of a student for a future profession.

To develop students' readiness to apply the sport and health improvement techniques to achieve a high level of physical health and maintain it during the study at a higher education institution and the further professional career.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
--	--

Universal competencies (UC)-№ УК-7 Student is able to maintain the proper level of physical fitness to ensure full social and professional activity.	ИД -7.1. Student applies the principles of physical education to increase the adaptive reserves of the body and strengthen health ИД -7.2. Student chooses health-saving technologies to maintain a healthy lifestyle, taking into account the physiological characteristics of the body ИД -7.3. Student justifies competent planning of your working and free time for the optimal combination of physical and mental stress ИД -7.4. Student maintains an optimal level of physical fitness to ensure full social and professional activity
---	---

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 328 hours

Type of the academic work	Total hours	Term					
		1	2	3	4	5	6
Students' contact work with the teacher (total)	192	12	12	42	42	42	42
Including:							
Lectures (L)	24			6	6	6	6
Seminars (Sem.)	168	12	12	36	36	36	36
Practical classes (PC)							
Clinical practicals (CP)							
Laboratory-based practicals (LBP)							
Simulation-based practicals (SBP)							
Preparation for the examination (PE)							
Preparation for the credit (PC)							
Exam consultations (EC)							
Coursework (CW)							
Unsupervised work (UW) (total)	136	18	18	12	38	12	38
Examination control (EC)							
Total discipline workload	328	30	30	54	80	54	80

5. Contents of the course:

5.1. Contents of the sections of the course

No.	Name of the course section	Contents of the section
-----	----------------------------	-------------------------

1	2	3
1	Healthy life style of a person	1. Physical education 2. Track and field. Basketball 3. Sports and healthy lifestyle 4. Modern types of fitness 5. Health Concept. Human Body Build. 6. Assessment of Physical Development and Functional Status of Human Body. Assessment of Physical Development. 7. Health Loss Risk Factors. 8. Profession-specific physical training (pspt) of specialists. 9. Hypodynamia. Physical Activity for Disease Prevention. 10. Energy Metabolism during Physical Exercises. Dynamics of Physiological State during Physical Activities. 11. Influence of Physical Activity on Various Body Systems. Role of Physical Exercises. 12. Sports Injuries. Sports Injury Prevention.
2	General physical fitness without equipment.	Introductory session. Safety. A set of simple exercises. A set of exercises to increase flexibility, agility, speed and strength. Testing of movement qualities and abilities, evaluation of physical development.
3	General physical training with weights.	Introductory session. Safety. Exercises with dumbbells. A set of exercises to increase flexibility, agility, speed and strength. Exercises with ball.
4	Stretching	Introductory session. Safety. Basic stretching exercises. Static stretching exercises.
5	Testing Section	Test of residual physical culture knowledge. Testing of movement qualities and abilities, Evaluation of physical development.

		Functional status evaluation. Filling-in of a student's athletic health passport (medical and athletic records). Point-rating system based end-of-term test on physical culture.
--	--	--

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SB P	UW	Total hours
1	Healthy life style of a person	24						30	54
2	General physical fitness without equipment.			58				32	90
3	General physical training with weights.			78				32	110
4	Stretching			24				25	49
5	Testing Section			8				17	25

List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	Healthy life style	Working with physical education notebook	Results interpretation
2	General physical training with weights	Self-study	Show of a set of exercises
3	Stretching	Self-study	Show of a set of exercises

7. Forms of control

7.1. Current forms of control

- Practical: testing of physical qualities and abilities
- In writing: check of workbooks, tests, library-research papers, and notes

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination, term paper)

Stages of the interim assessment

3. Stage – evaluation of physical training level using the point-rating system

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) ‘Set of the evaluation tools for the current control and interim assessment of students’.

8. Library and information materials of the course

8.1. Compulsory literature

1. Evseev, Yu. I. Physical culture [Electronic resource]: [for students and teachers of higher education. and Wednesday study. institutions] / Yu. I. Evseev. - 9th ed. - Rostov-on-Don: Phoenix, 2014 .-- 444 p. - Access mode: <http://www.studmedlib.ru/>
2. Workbook on physical culture [Electronic resource]: hands. to theor. classes / comp. S. L. Sovershaeva [and others]. - Arkhangelsk: Publishing house of the Northern State Medical University, 2016. - 60 p. - Access mode: <http://lib.nsmu.ru/lib/>

8.2. Supplementary literature

1. Zakharova, L. V. Physical culture [Electronic resource]: textbook / L. V. Zakharova, N. V. Lyulina, M. D. Kudryavtsev. - Krasnoyarsk: Siberian Federal University, 2017 .-- 612 p. - URL: <http://www.studentlibrary.ru/book/ISBN9785763836400.html>

8.3. List of the Internet resources required for mastering of the course (module)*

1. <https://www.sportedu.org.ua/index.php/PES-> Physical education of students

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	General Medicine Elective course in physical culture and sports https://edu.nsmu.ru/course/view.php?id=1203	

8.5. The list of the software and information & reference systems

Операционная система
MS Windows Vista Starter

MS Windows Prof 7 Upgr
Офисный пакет
 MS Office 2007
Другое ПО
 7-zip
 AdobeReader
 Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

No.	The name of the school's office	Location of the study room	List of the main equipment of the study room
1	Classroom for lecture-type lessons No. 2403 of Marine Medicine, administrative building, 4th floor	163000, Arkhangelsk, NSMU Troitsky av. 51	a) list of main equipment: A set of educational furniture (tables, chairs, screen, blackboard) teacher's workplace, workplaces for students for 300 places. b) sets of demonstration equipment speakers, monoblock, projector, screen c) a list of teaching aids: schemas, tables d) software used: Kaspersky endpoint Security. License number 26FE-191125-134819-1-8403. MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. License number 46850049, unlimited Radmin Viewer 3. Radmin Server 3. Document number 11001793 Traffic inspector. License agreement No. 1051-08 dated 04/10/2008, unlimited
2	Aerobics hall No. 1024, main educational building, 0 floor, area 63.5 sq.m.	163000, Arkhangelsk, NSMU Troitsky av. 51	Vinyl dumbbells, gymnastic mats, gymnastic balls, gymnastic steel hoops, gymnastic weighted hoops, gymnastic sticks, jump ropes, benches, wall bars, step board

3	Room for storage and preventive maintenance of educational equipment No. 1030, main educational building, 0 floor	163000, Arkhangelsk, NSMU Troitsky av. 51	Ski boots, ski bindings, skis, ski poles, Nordic walking poles
4	Wrestling hall № 1029, main educational building, 0 floor, area 123.1 sq.m.	163000, Arkhangelsk, NSMU Troitsky av. 51	Swedish wall, jump ropes, gymnastic mats
5	Gym № 1017, main educational building, 0 floor, area 140 sq.m.	163000, Arkhangelsk, NSMU Troitsky av. 51	Exercise machines, dumbbells, weights, mats, benches, jump ropes, weights

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE COURSE (MODULE)

Discipline **Elective subjects of physical culture and sport. Sport games**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **1,2,3 / 1,2,3,4,5,6**

Form of the interim assessment **Pass/fail test**

Department **of Physical Culture and Medical Rehabilitation**

Discipline workload **328** (academic hours)

Approved at the department meeting

Minutes No. 10

June 7th 2021

Head of the department



N.I. Ishekova

Author and compiler:

M.N. Repitskaya

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects and optional subjects.

The discipline is related to prior subjects of the curriculum: physical culture and sports.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive.

2. Goal and tasks of the mastering of the discipline

The goal of the physical culture course at a higher education institution is to develop the physical culture of students, as well as their capability to purposefully and on a reasonable methodological basis use various physical culture means, methods, and organizational forms allowing them to develop the personal health saving life activities required for the professional and personal formation.

In order to achieve this goal, the following *tasks* should be fulfilled during the course:

1. Mastering the system of practical skills that ensure the preservation and strengthening of health, mental well-being, development and improvement of psychophysical abilities, qualities and personality traits.
2. Ensuring general and professional physical fitness, which determines the psychophysical readiness of a student for a future profession.
3. To develop students' readiness to apply the sport and health improvement techniques to achieve a high level of physical health and maintain it during the study at a higher education institution and the further professional career.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
Universal competencies (UC)-№ UK-7 Student is able to maintain the proper level of physical fitness to ensure full social and professional activity.	ИД -7.1. Student applies the principles of physical education to increase the adaptive reserves of the body and strengthen health ИД -7.2. Student chooses health-saving technologies to maintain a healthy lifestyle, taking into account the physiological characteristics of the body ИД -7.3. Student justifies competent planning of your working and free time for the optimal combination of physical and mental stress ИД -7.4. Student maintains an optimal level of physical fitness to ensure full social and professional activity

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 328 hours

Type of the academic work	Total hours	Term					
		1	2	3	4	5	6
Students' contact work with the teacher (total)	192	12	12	42	42	42	42

Including:							
Lectures (L)	24			6	6	6	6
Seminars (Sem.)	168	12	12	36	36	36	36
Practical classes (PC)							
Clinical practicals (CP)							
Laboratory-based practicals (LBP)							
Simulation-based practicals (SBP)							
Preparation for the examination (PE)							
Preparation for the credit (PC)							
Exam consultations (EC)							
Coursework (CW)							
Unsupervised work (UW) (total)	136	18	18	12	38	12	38
Examination control (EC)							
Total discipline workload	328	30	30	54	80	54	80

5. Contents of the course:

5.1. Contents of the sections of the course

No.	Name of the course section	Contents of the section
1	2	3
1	Basketball	Rules, technique and tactics of the game.
2	Volleyball	Rules, technique and tactics of the game.
3	Badminton	Rules, technique and tactics of the game.
4	Floorball	Rules, technique and tactics of the game.
5	Sport-related games	Kinds of sport-related games. Relays with additional objects.
6	Testing Section	Test of residual physical culture knowledge. Testing of movement qualities and abilities, Evaluation of physical development. Functional status evaluation. Filling-in of a student's athletic health passport (medical and athletic records). Point-rating system based end-of-term test on physical culture.
7	Healthy life style of a person	1. Physical education 2. Track and field. Basketball 3. Sports and healthy lifestyle 4. Modern types of fitness 5. Health Concept. Human Body Build. 6. Assessment of Physical Development and Functional Status of Human Body. Assessment of Physical Development. 7. Health Loss Risk Factors. 8. Profession-specific physical training (pspt) of specialists. 9. Hypodynamia. Physical Activity for Disease Prevention.

		10. Energy Metabolism during Physical Exercises. Dynamics of Physiological State during Physical Activities. 11. Influence of Physical Activity on Various Body Systems. Role of Physical Exercises. 12. Sports Injuries. Sports Injury Prevention.
--	--	---

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	Basketball			54				28	82
2	Volleyball			56				40	96
3	Badminton			18				20	38
4	Floorball			24					24
5	Sport-related games			16				12	28
6	Testing Section							26	26
7	Healthy life style of a person	24						10	34

5. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	Sport-related games	Prepare sport-related game	Conducting a sport-related game in the group of students
2	Basketball	Learning of game rules	Participation and judgment in competitions
3	Volleyball	Learning of game rules	Participation and judgment in competitions

7. Forms of control

7.1. Current forms of control

- Practical: testing of physical qualities and abilities
- In writing: check of workbooks, tests, library-research papers, and notes

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass)

Stages of the interim assessment

3. Stage – evaluation of physical training level using the point-rating system

Questions for a pass are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

8.2. Supplementary literature

1. **Workbook on physical** culture [Электронный ресурс] : методический материал / S. L. Sovershaeva [и др.]. - Архангельск : Изд-во Северного государственного медицинского университета, 2016. - 36 р. - Режим доступа: http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullweb&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I&S21STR=elb/W83-286633

8.3. List of the Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	International university sports federation	https://www.fisu.net/	ISU offers opportunity and inspiration to students around the world to play sport. The health, wellbeing, and experiences that students gain from sport help them become exemplary leading members of society. Hence, FISU's motto of Excellence in Mind and Body.
2	Volleyball advisors	http://www.volleyballadvisors.com	Includes volleyball game and practice tips - volleyball drills, skills, tactics, conditioning exercises and rules among others.
3	Basketball rules	https://www.fiba.basketball/	FIBA, the International Basketball Federation, is the world governing body for basketball. Founded by eight nations in 1932, we now bring together 212 National Basketball Federations from all over the world. A non-profit making organization, our mission is to develop and promote the game of basketball, uniting the wider basketball community, which counts more than 450 million players and fans.

4	World Health Organization	https://www.who.int/	Dedicated to the well-being of all people and guided by science, the World Health Organization leads
---	---------------------------	---	--

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	General Medicine Elective course in physical culture and sports https://edu.nsmu.ru/course/view.php?id=1203	

8.5. The list of the software and information & reference systems

Операционная система

MS Windows Vista Starter

MS Windows Prof 7 Upgr

Офисный пакет

MS Office 2007

Другое ПО

7-zip

AdobeReader

Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

No.	The name of the school's office	Location of the study room	List of the main equipment of the study room
1	Учебная аудитория для проведения занятий лекционного типа No 2403 Морской медицины, административный учебный корпус, 4 этаж	NSMU Troitsky av. 51	а) перечень основного оборудования: Комплект учебной мебели (столы, стулья, экран, доска) рабочее место преподавателя, рабочие места для обучающихся на 300 мест. б) наборы демонстрационного оборудования колонки, моноблок, проектор, экран в) перечень учебно-наглядных пособий: схемы, таблицы г) используемое программное обеспечение: Kaspersky endpoint Security. Номер лицензии 26FE-191125-134819-1-8403. г.

			<p>MS Office 2007. MS Win Starter 7. MS Windows Prof 7 Upgr. MS Windows Server CAL 2008 Device CAL. Номер лицензии 46850049, бессрочно</p> <p>Radmin Viewer 3. Radmin Server 3. Номер документа 11001793</p> <p>Traffic inspector. Лицензионное соглашение No1051-08 от 10.04.2008,</p>
2	<p>Спортивный зал No 1421, главный учебный корпус, 4 этаж</p>	<p>NSMU Troitsky av. 51</p>	<p>площадь 466,8 кв.м</p> <p>Оборудование:</p> <p>Вышка металлическая, доска 1-элементная, кольца баскетбольные, маты гимнастические, скамейки гимнастические, стенка шведская, стойки волейбольные, табло спортивное, тренажёры силовые, турники к шведской стенке, щиты баскетбольные</p>

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner

A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline Biochemistry

Field of training **31.05.01 General Medicine**

Year (s) of study 2/ term (s) 3, 4

Form of the interim assessment examination

Department Clinical biochemistry, microbiology, laboratory diagnostics

Discipline workload **252** (academic hours) / **7** (credits)

Approved at the department meeting

Minutes No. 10

June 8th 2021

Head of the department

_____ Bazhukova T.A.

Author and compiler:

Andrei Aleksandrovich Popov, cand.biol.sci., Dozent, dozent

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum

The discipline is related to prior subjects of the curriculum: general and bioorganic chemistry

The discipline is related to subsequent subjects of the curriculum: Pharmacology, microbiology, immunology, pathophysiology, hygiene, internal diseases, surgery diseases, infectious diseases, dermatology, psychiatry and narcology, pediatry.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the discipline

The purpose of mastering the discipline is to prepare students for the implementation of professional activities in the field of healthcare. Formation of students' knowledge of the discipline for the ability to use the acquired knowledge in the subsequent study of fundamental and clinical disciplines, as well as in future professional activities.

Tasks:

1. formation of knowledge on the main theoretical issues in biochemistry, including knowledge about main classes of biomolecules, metabolism and its regulation and basic principles of using of this knowledge for diagnostic purposes.
2. Formation of basic skills in using metabolic maps, knowledge about reference intervals of biochemical parameters of blood plasma and urine in the work with clinical study tasks.
3. Training in using scientific papers and professional Internet sources for preparation of reports about actual questions in the fields of biochemistry and molecular medicine.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
УК-1 Способен осуществлять критический анализ проблемных ситуаций на основе системного подхода, вырабатывать стратегию действий	ИД-1. 1Осуществляет критический анализ информации на основе системного подхода ИД-1.2. Идентифицирует проблемные ситуации на основе критического анализа ИД-1.3. Разрабатывает стратегию действий для решения проблемных ситуаций на основе системного и междисциплинарного подходов
ОПК-10. Способен решать стандартные задачи профессиональной деятельности с использованием информационных, библиографических ресурсов, медико-биологической терминологии, информационно-коммуникационных технологий с учетом основных требований информационной безопасности	ИД-10.1. Умеет применять современные информационно-коммуникационные технологии для решения задач профессиональной деятельности; осуществлять эффективный поиск информации, необходимой для решения задач профессиональной деятельности с использованием справочных систем и профессиональных баз данных; пользоваться современной медико-биологической терминологией; осваивать и применять современные информационно-

	<p>коммуникационные технологии в профессиональной деятельности с учетом основных требований информационной безопасности</p> <p>ИД-10.2. Умеет использовать современные информационные и библиографические ресурсы, применять специальное программное обеспечение и автоматизированные информационные системы для решения стандартных задач профессиональной деятельности с учетом основных требований информационной безопасности.</p>
--	--

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is __7__ credits.

Type of the academic work	Total hours	Term
Students' contact work with the teacher (total)		
Including:		
Lectures (L)	36	3,4
Seminars (Sem.)	6	3,4
Practical classes (PC)	42	3,4
Clinical practicals (CP)		
Laboratory-based practicals (LBP)	24	3,4
Simulation-based practicals (SBP)		
Preparation for the examination (PE)	36	4
Preparation for the credit (PC)		
Exam consultations (EC)		
Coursework (CW)		
Unsupervised work (UW) (total)	108	3,4
Examination control (EC)		
Total discipline workload	252	3,4

5. Course content:

5.1. Contents of the sections of the course

No.	Name of the course section	Contents of the section
1	2	3
	General biochemistry	<p>Topic 1. Structure and properties of the proteins.</p> <p>Proteins: definition of class. Biological functions of proteins. Classification of proteins.</p> <p>Aminoacid composition of proteins.</p> <p>Physico-chemical and chemical</p>

		<p>properties of aminoacids. Polypeptide theory of protein structure.</p> <p>Conformation and configuration of polypeptide chain. Levels of structural organisation of proteins: primary, secondary, tertiary and quaternary structure. Native conformation and functional sites of protein molecules. Supramolecular protein complexes.</p> <p>Physico-chemical properties of proteins. Chemical properties of proteins (colour reactions, hydrolysis, phosphorylation, glycosylation, gamma-carboxylation, methylation), biological significance. Protein-ligand interaction as a basis for biological functions of proteins.</p> <p>Topic 2. Vitamins and their biological role. Enzymes.</p> <p>Vitamins: definition and classification. Fat-soluble vitamins, functions. Water-soluble vitamins, functions.</p> <p>Antivitamins, mechanism of action.</p> <p>Vitamin disbalance: hypovitaminosis, avitaminosis and hypervitaminosis.</p> <p>Enzymes: definition and biological role. Common features and difference of enzymes and non-biological catalysts. Chemical nature of enzymes. Simple and complex enzymes. Cofactors: classification and role in the catalysis. Functional sites of enzymes (active, regulatory, contact platforms).</p> <p>Main properties of enzymes: high catalytical activity, specificity of action, dependence of their activity on enzyme and substrate concentration, temperature, pH. Mechanism of enzyme action (steps of catalysis, thermodynamic parameters, substrate modification in the active site, etc.).</p> <p>Regulation of enzymatic activity: purpose. Fast and slow mechanisms.</p> <p>Main variants of fast regulatory mechanisms: allosteric modulation, covalent modification, protein-protein interaction, activation of proenzymes, competitive inhibition. Medical enzymology: enzyme pathology, enzyme diagnostics, enzyme therapy.</p>
--	--	--

		<p>Topic 3. Energy exchange. Biological oxidation.</p> <p>Laws of thermodynamics. Exergonic and endergonic reactions. Macroergic compounds.</p> <p>Catabolism of nutrients. Biological oxidation: types of oxidative reactions, enzymes, functions. Krebs cycle: general description, reactions, regulation, biological role, energy balance. Electron transporting chain: structural organisation, description of its work. Redox potential difference as driving force for electron transfer. Energy balance for oxidation of NADH or FADH₂.</p> <p>Oxidative phosphorylation as mechanism of ATP production. ETC inhibitors. Uncoupling mechanism. Hypoenergetical states. Their origin. Microsomal oxidation. Mono- and dioxygenase reactions. Cytochrome P450. Functions of microsomal oxidation. Reactive oxygen species (ROS). Mechanism of synthesis, their action in normal and pathological conditions, inactivation (enzymatic and non- enzymatic ways).</p>
	<p>Exchange of main classes of organic molecules.</p> <p>Regulation of metabolism</p>	<p>Topic 4. Carbohydrates: structure, functions, metabolism.</p> <p>Carbohydrates: definition, classification, functions. Digestion of food carbohydrates: enzymes, products. Absorbtion of monosaccharids in the intestinal wall. Pool of glucose in the body. Glycogen metabolism (synthesis and breakdown) in the liver, its regulation by hormones. Dichotomic oxidation of glucose in aerobic and anaerobic conditions, energy balance, biological significance of these processes. Oxidation of galactose and fructose. Conversion of glucose to derivatives of glucuronic acid.</p> <p>Pentosephosphate pathway of glucose oxidation: reactions of oxidative step, biological significance of the process. Gluconeogenesis: reactions, function, regulation. Hormons with hypo- or hyperglycemic effect (insulin, glucagon, adrenalin, cortisol, STH, thyroxin). Mechanisms of their</p>

	<p>influence on glucose concentration in blood. Primary (lactase deficiency, galactosemia, fructose intolerance and essential fructosuria, glycogen exchange diseases) and secondary (diabetes mellitus) diseases caused by (or resulted from) abnormal metabolism of carbohydrates. Methods of carbohydrates exchange investigation.</p> <p>Topic 5. Structure, functions and exchange of lipids.</p> <p>Lipids: definition, classification, structure, functions. Daily requirements for lipids. Lipids as essential food components. Digestion of lipids, role of bile acids. Micellar mechanism of absorption of products of lipids digestion. Resynthesis of lipids in the intestinal wall. Lipogenesis. Lypolysis. Transport of fatty acids in blood. Beta-oxidation of fatty acids, energy balance of this process. Ketogenesis, biological role of ketone bodies. Oxidative breakdown of ketone bodies in tissues. Ketonemia and ketonuria. Synthesis of fatty acids. Cholesterol exchange. Hormonal regulation of lipids exchange. Lipoproteins: definition, classification, chemical composition, functions. Main and minor apoproteins, their functions. Metabolism of lipoproteins of different classes. Disorders of lipids metabolism: hyperchylomicronemia, familial hypercholesterolemia, lysosomal storage diseases (Nieman-Pick and Tay-Sachs), dislipoproteinemias and atherogenicity coefficient. Deficiency of lipotropic factors and fat liver.</p> <p>Topic 6. Exchange of aminoacids and simple proteins. Exchange of nucleotides and nucleic acids. Physiological significance of food proteins, their nutritional quality. Daily requirements for proteins. Digestion in the stomach and small intestine: enzymes, activation of zymogens, specificity of proteolytic enzymes. Absorbtion of free aminoacids. Aminoacid pool: ways of its replenishment and use. Protein</p>
--	--

	<p>putrefaction in the intestine: definition, toxic products, detoxification mechanisms. Transamination: definition, enzymes, cofactor, biological significance. Deamination: definition, types. Ammonia, ways of its formation, toxicity, detoxication. Urea synthesis in the liver.</p> <p>Hyperammoniemia. Decarboxilation of aminoacids: enzymes, cofactor.</p> <p>Biogenic amines, their biological functions, mechanisms of inactivation.</p> <p>Metabolism of Ser and Gly, Cys and Met, Phe and Tyr, Trp: reactions of synthesis (if non-essential), catabolism, physiological significance of metabolites. Proteins and aminoacids exchange disorders due to vitamin-deficiency states. Protein-deficiency nutritional states. Diseases of aminoacids exchange: phenylketonuria, alkaptonuria, histidinemia, Hartnup disease, Fanconi's syndrom.</p> <p>Nucleotides: definition, classification, nomenclature, functions. Synthesis de novo of purine and pyrimidine nucleotides, regulation mechanisms. Synthesis of deoxynucleotides. Nucleotides salvage biosynthesis. Catabolism of nucleotides. Diseases caused by abnormal nucleotides metabolism. Nucleic acids: definition, structure, functions. Synthesis of DNA, RNA and proteins.</p> <p>Topic 7. Interrelationship between metabolic pathways. Humoral regulation of metabolism.</p> <p>Metabolic interrelations.</p> <p>Carbohydrates-aminoacids interrelations. Carbohydrates-lipids interrelations. Aminoacids-lipids interrelations. Central metabolic pathways, their biological role. Organ-to-organ interrelations (Cori cycle, glucose-alanine cycle). Metabolism in starvation and diabetes state. Hormons and hormon-like compounds.</p> <p>Classification of hormons (according chemical nature, place of synthesis, biological effects). Receptors: chemical nature, structure, role in hormonal activity. Main properties of hormons</p>
--	--

		<p>and receptors. General scheme of hormonal regulation (hypothalamus-hypophysis-peripheral endocrine glands). Hormonal targets: cells, tissues and organs. Mechanisms of action of hormones: membrane-cytosolic and cytosolic-nuclear. General description of particular hormones— insulin, glucagon, STH, cortisol, thyroxin, epinephrin (adrenalin): place of synthesis, chemical nature, structure, synthesis, transport in blood, mechanism of action, biological effects. Examples of endocrine disorders.</p>
	Biochemistry of particular tissues and organs.	<p>Topic 8. Blood biochemistry Functions of blood. Chemical composition of blood. Plasma and serum. Metabolism in erythrocytes. Biosynthesis of hemoglobin, its regulation. Hemoglobin structure and functions. Different types of Hb: HbA1, HbA2, HbF. Characterization of oxyHb, carbHb, carboxyHb, metHb. Cooperative effect of oxygen binding with Hb. Influence of CO₂, pH, 2,3-bisphosphoglycerate on Hb affinity for O₂. Normal concentration of Hb in blood. Catabolism of Hb in reticulo-endothelial cells, transport of bilirubin to liver, glucuronidation in hepatocytes, excretion with bile. Intestinal phase of bilirubin metabolism. Concentration of bilirubin (total, direct, indirect) in blood. Jaundice, its reasons, laboratory signs. Chemical composition of plasma. Classification and functions of plasma proteins. Blood clotting. Plasma enzymes, classification according their origin. Use of determination of enzymatic activity for diagnostic purposes. Low molecular weight plasma compounds: inorganic and organic (not containing nitrogen and NPN). Hyperazotemia, its types.</p> <p>Topic 9. Kidney and urine biochemistry Functions of kidney. Mechanism of urine formation. Normal and abnormal components of urine, their origin</p> <p>Topic 10. Liver biochemistry Biological functions of liver (with examples). Detoxication in hepatocytes.</p> <p>Topic 11. Biochemistry of connective</p>

		tissue Intercellular matrix chemical composition. Proteoglycans of matrix: their structure and functions. Fibrous proteins of connective tissue. Collagen: its structure, synthesis and catabolism. Elastin and fibronectin: structure, functions.
--	--	---

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	General biochemistry	12	3	15		9		36	75
2	Exchange of main classes of organic molecules. Regulation of metabolism	20	3	21		12		52	108
3	Biochemistry of particular tissues and organs.	4		6		3		20	33

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	General biochemistry	Filling in of tables and schemes. Preparation of short reviews on given topics. Solving of practical tasks.	Checking of written tasks
2	Exchange of main classes of organic molecules. Regulation of metabolism	Filling in of tables and schemes. Preparation of short reviews on given topics. Solving of practical tasks.	Checking of written tasks
3	Biochemistry of particular tissues and organs.	Filling in of tables and schemes. Preparation of short reviews on given topics. Solving of practical tasks.	Checking of written tasks

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report on specified topic using PowerPoint presentation)
- written (tests, checking of lecture notes, solving of practical tasks)

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination, term paper)

Stages of the interim assessment

1. Stage - written test _____
(name of the stage)
2. Stage - oral conversation on examination ticket question _____
(name of the stage)
3. Stage – situational task _____
(name of the stage)

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) ‘Set of the evaluation tools for the current control and interim assessment of students’.

8. Library and information materials of the course

8.1. Compulsory literature

1. **Биологическая химия с упражнениями и задачами** [Электронный ресурс] : учеб. для высш. проф. образования / под ред. С. Е. Северина. - 3-е изд., испр. и доп. - Москва : ГЭОТАР-Медиа, 2014. - 624 с. : ил. - Режим доступа: <http://www.studentlibrary.ru/book/ISBN9785970430279.html>. -
2. **Биохимия** [Электронный ресурс] : учеб. для студентов мед. вузов / [Л. В. Авдеева [и др.] ; под ред. Е.С. Северина. - 5-е изд. - Москва : ГЭОТАР-Медиа, 2016. - 768 с : ил. - Режим доступа: <http://www.studentlibrary.ru/book/ISBN9785970437629.html>. -

8.2. Supplementary literature

1. Harper`s illustrated Biochemistry-29 th ed. -New York: Mc Graw Hill :Medical, 2012. - 818 p.
2. Satyanarayana U. Biochemistry (with Clinical & Case Studies) / U. Satyanarayana. - 4 th ed. - 2013. - 799 p.

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	EBS "Student's Consultant" HPE, SPO.	http://www.studentlibrary.ru/ http://www.studmedlib.ru/ http://www.medcollegelib.ru/	Sets: Medicine. Healthcare. Humanities and social sciences. Natural Sciences Access is activated through registration on any computer of the university.
2	Scientific electronic library eLIBRARY.RU	http://www.elibrary.ru	Open resource

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	2 course English medium Biochemistry General biochemistry The authors are professors of the department	web-based training

		https://edu.nsmu.ru/course/view.php?id=482	
--	--	---	--

8.5. The list of the software and information & reference systems

Operating system - MS Windows Vista Starter, MS Windows Prof 7 Upgr; office suite - MS Office 2007; other software - 7-zip, AdobeReader, Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Laboratory room	Troitskii prospect, 51 Room 1515	14 seats centrifuge, photoelectrocolorimeter, thermostat
2	Laboratory room	Troitskii prospect, 51 Room 1517	14 seats centrifuge, photoelectrocolorimeter, thermostat
3	Laboratory room	Troitskii prospect, 51 Room 1519	14 seats centrifuge, photoelectrocolorimeter, thermostat
4	Laboratory room	Troitskii prospect, 51 Room 1521	14 seats centrifuge, photoelectrocolorimeter, thermostat

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner

A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline IMMUNOLOGY

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) 2-3/4-5

Form of the interim assessment (examination)

Department of clinical biochemistry, microbiology, laboratory diagnostics

Discipline workload 108 (academic hours)/3 (credits)

Approved at the department meeting

No 10.

June 8th 2021

Head of the department

Professor _____ T.A. Bazhukova

Author and compiler:

Davidovich N.V. Cand. Med. sciences, associate professor,
training Associate Professor

Bazhukova T.A., professor, Head of the Department

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The discipline is related to the disciplines of the Basic part of the curriculum

The discipline is related to prior subjects of the curriculum: history of medicine; psychology and pedagogy; Latin language; physics; medical informatics; biological chemistry; biology; human anatomy, histology, embryology, cytology; normal physiology.

The discipline is related to subsequent subjects of the curriculum: infectious diseases, phthisiology, skin and venereal diseases, obstetrics and gynecology, faculty and hospital therapy, surgery, traumatology and orthopedics, ophthalmology.

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research

2. Goal and tasks of the mastering of the discipline

The purpose of mastering the discipline is to prepare students for the implementation of professional activities in the field of healthcare.

Main goal of training is the formation of the competencies of a specialist (general practitioner) in the field of diagnosis of immunological diseases and pathological conditions in adults and adolescents based on laboratory immunological research methods in accordance with the requirements of the Federal State Educational Standard.

In recent years significant progress will make in immunology, achievements of theoretical immunology find the increasing application in clinical practice, the new medical discipline – clinical immunology was formed. The gained knowledge constantly is replenished, it leaves a special mark on teaching the new directions of modern immunology.

Tasks

- assimilation of a certain amount of information about the structure and functions of the immune system, the main types of immunity, the mechanisms of the immune response in normal and pathological conditions;
- development and development of students' skills in using immunological methods of laboratory diagnostics;
- the formation of skills for independent analysis and interpretation of immunological studies in the diagnosis of the disease;
- study of the structure and functional organization of the organs of the immune system; morphological and functional features of cells involved in the immune response; interactions of immunocompetent cells in the immune response; innate immunity factors aimed at eliminating foreign substances - antigens (complement, serum proteins, phagocytosis); mechanisms of anti-infection and anti-tumor immunity; methods of genetics and molecular biology in creating genetically engineered modern immunobiological preparations for diagnosis, immunoprophylaxis and immunotherapy.

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Коды формируемых компетенций/формулировки компетенций	Индикатор достижения компетенции
ОПК -№2. Способен проводить и осуществлять контроль эффективности мероприятий по профилактике, формированию здорового образа жизни и санитарно-гигиеническому просвещению населения	ИД-1. Умеет назначать профилактические мероприятия пациентам с учетом факторов риска для предупреждения и раннего выявления заболеваний, в том числе социально значимых заболеваний ИД-3. Организует и проводит иммунопрофилактику инфекционных заболеваний у взрослого населения в соответствии

	с действующими порядками оказания медицинской помощи, клиническими рекомендациями (протоколами лечения) по вопросам оказания медицинской помощи с учетом стандартов медицинской помощи
ПК№2. Способность и готовность к проведению обследования пациента с целью установления диагноза	ИД-1. Умеет осуществлять сбор жалоб, анамнеза жизни и заболевания пациента и анализировать полученную информацию, проводить полное физикальное обследование пациента (осмотр, пальпацию, перкуссию, аускультацию) и интерпретировать его результаты ИД-2. Владеет навыками по определению у пациента основных патологических состояний, симптомов, синдромов заболеваний, нозологических форм в соответствии с действующей международной статистической классификацией болезней и проблем, связанных со здоровьем

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 7credits.

Type of the academic work	Total hours	Term 4-5
Students' contact work with the teacher (total)		
Including:		
Lectures (L)	24	12/12
Seminars (Sem.)	16	8/8
Practical classes (PC)	28	14/14
Clinical practicals (CP)		
Laboratory-based practicals (LBP)	4	2/2
Simulation-based practicals (SBP)		
Preparation for the examination (PE)		
Preparation for the credit (PC)		
Exam consultations (EC)		
Coursework (CW)		
Unsupervised work (UW) (total)	36	18/18
Examination control (EC)		
Total discipline workload	108	54/54

5.Coursecontent:

5.1.Contentsofthesectionsofthecourse

No	Nameofthecoursesection	Contentofthesection
1	General Immunology	The central and peripheral organs of the immune system. Basic elements of the cellular immune system.

		<p>The role of adhesion molecules, chemokines, and other mediators.</p> <p>Stem cells.</p> <p>T-lymphocytes. Characteristic markers, receptors, a role.</p> <p>B-lymphocytes. Identification, characterization, markers, receptors.</p> <p>Natural killer cells (NK-cells). Characteristic markers, receptors.</p> <p>Monocyte-macrophage cells. Characteristic markers, receptors. Role in the immune processes.</p> <p>Mediator cells in the immune response: neutrophils, eosinophils, basophils, mast cells.</p> <p>Mechanisms of the immune response.</p> <p>Cellular interactions in the immune response.</p> <p>The relationship between the components of the nervous, endocrine and immune systems.</p> <p>Age immunology. The formation of the immune system in embryogenesis.</p> <p>Aging of the immune system.</p> <p>Anti-infectious immunity. Antigens of viruses, bacteria, fungi, protozoa.</p> <p>Cellular and humoral immune response.</p>
2	Clinical Immunology	<p>Genetic laws of transplantation. Transplantation immunity. Graft rejection. Graft versus host disease.</p> <p>Immunology of cancer. Tumor antigens. The immune protection. Principles immunotherapy. Immunodeficiency diseases. Definition. Classification. Mechanisms of development. Diagnostics.</p> <p>Autoimmune disorders. Characteristics. Classification. Clinical manifestations. Diagnostics.</p> <p>Lymphoproliferative disorders (immune dyscrasias): leukemia, lymphoma, multiple myeloma. The mechanism of injury. Immunodiagnostics. Allergies. Classification of allergens. Allergic reactions of Jell-Coombs. Allergic disease.</p> <p>Reaginic mechanism. Bronchial asthma. Atopic dermatitis. Pollinosis. Food allergy. Hives and angioedema. Anaphylactic shock. Clinical forms, principles of diagnosis and treatment.</p>

		<p>The cytotoxic mechanism. Drug allergies. The clinical picture. Diagnostics. Prevention.</p> <p>Immune complex mechanism. Local anaphylaxis (Arthus phenomenon). Diagnostics.</p> <p>T cell allergy. Disease. Diagnostics.</p> <p>Immunomodulation: immunostimulation, immunosuppression. Types of action of glucocorticoids on the immune system. Cyclosporine A. Assessment immunotropic immunosuppressive action. Immunotherapy. Immunization. Types of vaccines. Vaccination.</p>
--	--	---

5.2. Sections and types of studies

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	General Immunology	12	8	14		4		18	
2	Clinical Immunology	12	8	14				18	
	Total hours	24	16	28		4		36	108

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	1 «Immunology» 2,3 course English medium (Moodle course)	Lectures video clip filling in tables science articles	table check final test
2	2 Workbooks «General Immunology», «Clinical Immunology»	filling in tables filling gaps	table check final test

7. Forms of control

7.1. Current forms of control

- oral (an interview, a report, presentations of projects)
- written (checking of tests, review papers, essays, abstracts, lecture notes, solving of practical tasks).

A theme list of abstracts, reports, essays, review papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Evaluation tools'.

7.2. Forms of the interim assessment (pass/fail test, examination)

Stages of the interim assessment

Stages of examination (pass/fail test)

1. Stage - testing

(name of the stage)

2. Stage - examination (interview under the ticket)

(name of the stage)

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

8. Library and information materials of the course

8.1. Compulsory literature

1. Khaitov R.M. Immunology [Electron source] : textbook/ R. M. Khaitov - 3-rded. - Moscow : Geotar-M, 2018. - 496 с. : ил. - URL: <http://www.studentlibrary.ru/book/ISBN9785970446553.html>
2. Abbas, Abul K. Cellular and Molecular Immunology [Text] / A. K. Abbas, A. H. Lichtman, S. Pillai. - 8th ed., international ed. - Canada : ELSEVIER saunders, 2015. - 535 p. : ил. - Index: p. 517-535. - ISBN 978-0-323-22275-4. - ISBN 978-0-323-31614-9
3. Khaitov R.M. Immunology: Proc. for medical students. universities with a CD / RM Khaitov. - M.: GEOTAR Media 2008.
4. Color Atlas of Immunology. Burmester G, Pezzutto A, ed. 1st Edition. Stuttgart: Thieme; 2003. doi:10.1055/b-005-148845 https://medone-education.thieme.com/ebooks/2148764#/ebook_2148764_SL81982709

9.2. Supplementary literature

1. Zaslavskaya M. I. Applied microbiology and immunology/ M. I. Zaslavskaya; Nizhny Novgorod State Medical Academy, Of the federal agency of public health and social development. - N. Novgorod: Publishing House of Nizhny Novgorod State Medical Academy, 2007. - 91 p.
2. Medical Microbiology. [Электронный ресурс] / F. Kayser [и др.]. - 1sted. - [Б. м.] : Thieme, 2004. - URL: https://medone-education.thieme.com/ebooks/2151684?fromSearch=true#/ebook_2151684_SL82039511

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

№	Resources	URL address	Resource Annotation
1	EBS "Student's Consultant" HPE, SPO.	http://www.studentlibrary.ru/ http://www.studmedlib.ru/ http://www.medcollege.ru/	Sets: Medicine. Healthcare. Humanities and social sciences. Natural Sciences Access is activated through registration on any computer of the university.
2	Scientific electronic library eLIBRARY.RU	http://www.elibrary.ru	Open resource

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	Moodle	https://edu.nsmu.ru/courses/view.php?id=1114	web-based training

8.5. The list of the software and information & reference systems

Operating system - MS Windows Vista Starter, MS Windows Prof 7 Upgr; office suite - MS Office 2007; other software - 7-zip, AdobeReader, Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
1	Training room for laboratory and practical classes	№2629	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
2	Training room for laboratory and practical classes	№ 2611	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
3	Training room for laboratory and practical classes	№ 2627	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
4	Training room for laboratory and practical classes	№ 2612	Number of seats -16 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants, Notebook Samsung p28, Multimedia projector
5	Training room for laboratory and practical classes	№ 2613	Number of seats -14 microscopes, micropreparations, biological products, laboratory glassware, spirit-lamps, bacteriological loops, tools, nutrient mediums, reactants/

MINISTRY OF HEALTHCARE OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
"NORTHERN STATE MEDICAL UNIVERSITY"
of the Ministry of Healthcare of the Russian Federation

APPROVED

Dean of the International Faculty
of General Practitioner



A.K. Sherstennikova

June 16th 2021

SYLLABUS OF THE DISCIPLINE

Discipline **Russian language**

Field of training **31.05.01 General Medicine**

Year (s) of study / term (s) **1, 2, 3, 4 years (terms 1, 2, 3, 4, 5, 6, 7, 8)**

Form of the interim assessment **graded test (5th term), exam (8th term)**

Department **of foreign languages and Russian language as foreign**

Discipline workload **720** (academic hours) / **20** (credits)

Approved at the department meeting

Minutes No. 10

June 15th 2021

Head of the department



O.I. Vorobyova

Author and compiler:

Vorobyova Olga Ivanovna, Doctor of Philological Sciences, Professor of the Department
of foreign languages and Russian language as foreign

Zakharova Natalya Nikolaevna, Candidate of Philological Sciences, Associate Professor
of the Department of foreign languages and Russian language as foreign

Alekseeva Oksana Vitalievna, Candidate of Philological Sciences, Associate Professor of
the Department of foreign languages and Russian language as foreign

Maslova Olga Nikolaevna, senior lecturer of the Department of foreign languages and
Russian language as foreign

Arkhangelsk, 2021

1. Position of the discipline (module) within the structure of the educational program

The discipline is developed following the requirements of Federal State Education Standard (FSSES) for higher education in the field of 31.05.01 «General medicine».

The tasks of the mastering of the course:

1) READING TRAINING:

- development and improvement of reading skills (texts up to 1000 words, reading speed - 50-60 words per minute when studying reading; 70–80 words per minute when reading with a general coverage of the content).
- the formation of skills and abilities in reading texts of educational and professional and socio-political spheres.

2) WRITING TRAINING:

- teach written monologue on the proposed topic (socio-cultural, educational and professional topics);
- teach written monologue on the basis of read or heard text.

3) SPEAKING TRAINING:

in monologue speech

- teach yourself how to create coherent, logical statements in accordance with the proposed topic, including the educational and professional sphere;
- teach to build a monologue utterance based on the text you have read or heard.

in dialogic speech

- To teach to understand the content of the interlocutor's statements in a certain situation, to adequately respond to them, to start and conduct a dialogue.

4) LISTENING TRAINING:

- to teach to understand the main content of the monologue /dialogue with sufficient completeness (socio-cultural and educational professional areas of communication).

The discipline is related to the disciplines of the Basic part of the curriculum (or to the disciplines of the curriculum part formed by the participants of educational relations, including elective subjects and optional subjects)

The discipline is related to prior subjects of the curriculum:

The discipline is related to subsequent subjects of the curriculum:

The discipline is realized in the structure of the following types of professional activity tasks defined by the curriculum: preventive/diagnostic/organizational and administrative /research. This discipline is implemented in the first and second semesters of the first year of study and is a logical continuation of the course "Foreign language" (Russian language). The students develop the necessary language skills in reading, listening, speaking and writing at the elementary level (A1) and lay the foundations for mastering Russian as a foreign language at the basic level (A2).

Knowledge of Russian as a foreign language at an elementary level will satisfy the basic communicative needs of foreign students in the field of everyday communication and in the socio-cultural sphere, and will also contribute to their early adaptation in the Russian language environment.

2. Goal and tasks of the mastering of the discipline

The goal of mastering the discipline is the mastery by students of all types of speech activity (speaking, listening, reading, writing) in a volume corresponding to the threshold level of Russian language proficiency (B1 Threshold Level) in accordance with the requirements of the Federal State Educational Standard with the use of knowledge, skills and abilities in the field information technologies to improve speech skills, as well as increase the opportunities for independent mastery of the language of everyday communication and the language of the specialty.

Discipline objectives:

1. Formation of knowledge

- about the Russian language as the language of interethnic communication and the state language of the Russian Federation, about the stylistic differentiation of the modern Russian literary language and communicative tactics in everyday and professional communication;
- about the orthoepic norms of the modern Russian literary language, the peculiarities of the intonational design of the text;
- about the grammatical structure of the Russian language (paradigmatic and syntagmatic connections of words of different parts of speech; basic word-formation models of the Russian language, syntactic models of simple and complex sentences);
- about thematic groups (vocabulary of everyday communication in everyday, educational, socio-cultural situations; vocabulary of everyday and professional communication (in the amount of 2300 units);
- about the peculiarities of Russian general cultural and professional speech etiquette and basic communication tactics and strategies
- about the features of professional communication with different groups of patients;
- about the possibilities and ways of using electronic resources in the study of foreign languages (educational portals, websites, mobile applications, electronic translators and dictionaries).

2. Formation of skills (mastering different types of speech activity in a foreign language, as well as information resources in the field of learning foreign languages):

- read and understand texts of different types of speech (description, narration, reasoning), understand and extract basic and additional information from a small text on everyday and highly professional topics that use common words and constructions (reading);
- build written statements: a simple, coherent text on familiar topics or topics of interest to the participants in the communication, draw up separate parts of medical documentation (letter).
- to understand by ear the statements of the interlocutor, the content of dialogues and monologues in situations of daily and professional communication, as well as information programs related to personal or professional interests, subject to the observance of the literary norm and a low speed of speech delivery (listening);
- participate in dialogical everyday and professional communication, be able to answer / ask questions, in particular, about impressions, plans, recommendations, health status, symptoms, treatment methods, etc., using simple phrases; briefly state and argue your views (speaking);
- use different communication techniques, taking into account the situation and status of the communication participants: friendly, official, professional communication, including with patients with disabilities (communication);
- use electronic educational resources (sites, applications, electronic libraries) for the formation of speech skills, a solid mastery of the lexical and grammatical structure of the language; electronic translators and dictionaries for understanding / producing speech;
- understand in Russian the inscriptions and markings on equipment for people with disabilities.
- use electronic translators and dictionaries, electronic educational resources, linguistic simulators for the formation and consolidation of speech skills and the development of lexical and grammatical material.

3. Skills formation

- fluent reading and understanding of simple texts on familiar topics (monologues and dialogues);
- listening and understanding speech in the target language with an average speed of pronunciation;
- the use of the studied linguistic units in the classroom and in the conditions of real communication (everyday, socio-cultural, professional spheres of communication) for the production of oral and written statements;
- the use of educational portals, sites, video channels for the study of foreign languages for the formation of your own language learning strategy.
- effective use of information technologies for unsupervised work and homework when learning foreign languages (educational portals, websites, mobile applications, electronic translators and dictionaries, linguistic simulators, etc.)

3. List of the planned learning outcomes of the discipline (module) in connection to the planned outcomes of the mastering of the educational program

Codes of the formed competences	Indicator of the competence achievement
Universal competencies (UC)-№4 - capable to use modern communication technologies, including in a foreign (s) language (s), for academic and professional interaction	UC-4.1. Expresses his thoughts in Russian and foreign languages in business communication UC-4.2. Complies with the norms of Russian and foreign languages when speaking in public UC-4.3. Compiles texts in Russian and foreign languages related to professional activities UC-4.4. Uses modern information and communication tools and technologies UC-4.5. Drafts, translates, edits various academic and professional texts
Universal competencies (UC)-№5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	ID-5.1. Respects ethical standards and human rights ID-5.2. Analyzes and takes into account ethnocultural, national and confessional peculiarities in professional activity ID-5.3. Forms a tolerant environment for interaction when performing professional tasks ID-5.4. Overcomes barriers in the process of intercultural interaction
Universal competencies (UC)-№9 Able to use basic defectological knowledge in social and professional spheres	UC-9.1. Applies effective communication and creates a tolerant environment when interacting with people with disabilities and people with disabilities in social and professional activities UC-9.2. Provides medical, social and organizational support to people with disabilities when they receive medical care

*The list of professional competencies is based on the requirements of the professional standard "General medicine (district physician)", approved by the order of the Ministry of Labor and Social Protection of the Russian Federation of March 21, 2017 No. 293n

4. Volume of the discipline (module) and types of the academic classes:

Total workload of the course is 20 credits.

Type of the academic work								
Students'contact work with the teacher (total)	Total hours	Terms	Total hours	Terms	Total hours	Terms	Total hours	Terms
Including:								
Practical classes (PC)	108	1, 2	72	3,4	90	5, 6	72	7
Unsupervised work (UW) (total)	108	1, 2	72	3,4	90	5, 6	108	7
Total discipline workload	720							

5. Course content:

5.1. Contents of the sections of the course

1st year

No	Name of the course section	Content of the section
	Repetition (basic information about the language obtained in the course "Foreign language")	<p>Repetition of basic information about the language, basic reading rules. Grammar. Noun: gender, number, singular case forms (nominative and prepositional). Thematic group "Names of persons by sex, age, profession, etc.", "Kinship terms". Russian proper names.</p> <p>Pronouns. Personal pronouns. Meaning, case forms and use. Possessive and demonstrative pronouns. Meaning, forms of genus and use.</p> <p>Concordance with a noun ..</p> <p>Adjective. Full adjectives: agreement in gender and number with the noun in the nominative case. Brief adjectives .. Thematic groups "Color", "Size", etc., evaluative adjectives.</p> <p>The verb as the center of the sentence. infinitive. Species-tense forms of the verb. Verb conjugations. Imperative.</p> <p>Numeral. Cardinal and ordinal numbers in the nominative case.</p> <p>Adverbs of place, time, measure and degree. predicative adverbs, interrogative adverbs ..)</p> <p>Prepositions, conjunctions, particles.</p> <p>Simple sentences: two-part and one-part. Order of words in a sentence.</p> <p>The concept of a subject and a predicate. Compound sentences.</p> <p>Interrogative sentences.</p> <p>Basic textbooks and information and communication resources (LMS Moodle, video conferencing ZOOM, communication channel - WhatsApp). Resources for independent work (applications and sites for learning Russian for foreign citizens).</p> <p>Linguistic simulators for the formation of auditory-pronunciation skills.</p> <p>Online electronic keyboard with Russian fonts. Text scoring software (ICE Book Reader Professional) Electronic translators (PROMT machine translation system, Yandex translator, Google Translate)</p> <p>Electronic explanatory dictionaries (ABBY Lingvo live) Educational YouTube channels for learning Russian as a foreign language: RikiStudy, RussianLessons.Net; Learn Russian with RussianPod101.com</p>
	Main course: (lexical minimum, grammar topics)	<p>Vocabulary</p> <p>Words, phrases, lexical phrases and constructions that provide</p> <ul style="list-style-type: none">- generation and understanding of texts within the framework of the studied topics;- request and transfer of information of a domestic nature, as well as within the framework of the studied topics;- correct start and end of the conversation;- expression of their attitude to what is happening: assessment of a person, object, fact, event;- expressions of the characteristics of a person, object, fact, event;- expressions of greeting, acquaintance, farewell;- expressions of gratitude, response to gratitude, apology, response to

	<p>apology;</p> <p>- expressions of a request, proposal, invitation, consent / disagreement, refusal.</p> <p>The vocabulary is limited (780 units) *, but it is sufficient to meet the basic communication needs in specific everyday situations (everyday and socio-cultural spheres of communication).</p> <p>The lexical minimum includes linguistic terms, medical vocabulary and vocabulary of social, everyday and socio-cultural spheres of communication.</p> <p>Grammar: cases of nouns.</p> <p>Prepositional case of nouns.</p> <p>Meanings:</p> <ul style="list-style-type: none"> - в, на – place (Отец работает в банке.); - в, на – location (Книги на столе.) - о – object of speech, thought (Я читал о Москве.); - на – means of transportation (Мы ездим в университет на автобусе.); - на - object of influence (Студент работает на компьютере.); - в – time of action connected by words месяц, год, неделя (Я приехал в сентябре.) <p>Functions:</p> <ul style="list-style-type: none"> - object (Виктор рассказал о семье.); - circumstance of place (Я живу в Москве.); - circumstance of time (Я приехал в сентябре.). <p>Accusative case of nouns</p> <p>Meanings:</p> <p>а) without preposition:</p> <ul style="list-style-type: none"> - a person who has a direct object of action (Я знаю декана. Он читает журнал.); - designation of a person with the verb звать (Мою подругу зовут Ира.); - time of action : <ul style="list-style-type: none"> а) duration (Я изучаю русский язык месяц); б) repeatability (Он ходит на стадион каждую неделю.) ; - designation of the price after the verb стоить: (Книга стоит одну тысячу рублей.); <p>б) with prepositions:</p> <ul style="list-style-type: none"> в, на – direction (Набил идёт в магазин. Я еду в университет на автобусе.); в – time – day of the week, hour (Лекция в среду в 10 часов.) через – intersection (через мост, через улицу); через – time period (Студенты приедут через неделю). <p>Functions:</p> <ul style="list-style-type: none"> - logical subject (Моего брата зовут Иван.); - direct object with transitive verbs (Мой друг любит музыку.); - circumstance of place (Студенты идут в общежитие.); - circumstance of time (Мы не учимся в воскресенье. Я живу в России месяц.). <p>Accusative inanimate nouns. Transitive verbs читать, учить, слушать, смотреть, хотеть, делать, писать и др., which are used with accusative nouns without a preposition.</p>
--	--

		<p>Accusative animate nouns. Transitive verbs встретить ,видеть, пригласить, ждать и др., which are used with accusative nouns without a preposition.: встретить преподавателя, видеть друга, ждать врача, пригласить гостя Formation and use of adjectives, possessive pronouns and ordinal numbers in the accusative case.</p> <p>Genitive case of nouns.</p> <p>Meanings:</p> <p>a) without preposition:</p> <ul style="list-style-type: none"> - the person who owns something (Эта книга моего друга.); - social family relations (Анна – секретарь декана. Борис – брат Виктора.); - the absence of a person, an object (У меня нет брата. В городе нет театра.); - definition of the subject (Улица Гагарина); - amount, measure <p>a) in combination with cardinal numbers 2-4, 5-20, in a strictly limited set (два брата, пять студентов, 2 часа, 5 рублей);</p> <p>б) with words сколько, много, мало, несколько (Сколько студентов в группе?);</p> <ul style="list-style-type: none"> - exact date of the event, action (Он родился 10-го мая 1999- го года.); - name of the month in the date (Сегодня первое сентября.). <p>б) with prepositions:</p> <p>у – a person who owns something (У Виктора есть машина.);</p> <p>у – location associated with the person (Я был у врача.);</p> <p>около, (не)далеко/близко от – location (Мы живём недалеко от университета.);</p> <p>из, с, от - starting point of movement: place, face (Он приехал из Индии. Он пришёл со стадиона. Я пришёл от врача.);</p> <p>до – final destination of the movement (Как доехать до центра?);</p> <p>до, во время, после – time of action (Во время войны он работал врачом в госпитале.);</p> <p>от - object to move away from (Он отошёл от окна.);</p> <p>без – absence of anything (чай без сахара).</p> <p>Functions:</p> <ul style="list-style-type: none"> - logical subject (У Рахула есть сестра.); - object when negated (У меня нет словаря.); - object (Я был на открытии выставки.); - definition of the subject (день спорта, кабинет декана); - circumstance of place (Он приехал из Англии.). - circumstance of time (Она пришла после обеда.); <p>Formation and use of adjectives, possessive pronouns and ordinal numbers in the genitive case.</p> <p>Dative case of nouns.</p> <p>Meanings:</p> <p>a) without preposition:</p> <ul style="list-style-type: none"> - person who is in need of something (Мне надо позвонить.); - addressee of the action (Я написал письмо маме); - person experiencing a certain physical or emotional state (Мне
--	--	--

	<p>нравиться играть в футбол. Детям холодно.).</p> <p>- age of the person, the object (Сестре 20 лет. Городу 1000 лет.);</p> <p>б) with preposition:</p> <p>к – person as a target of movement (в ограниченном наборе) (Я иду к врачу.);</p> <p>к - person, object as the target of the approach (Мы подъехали к общежитию. Студент подошёл к преподавателю.);</p> <p>по – place of movement (Друзья гуляли по городу.);</p> <p>по – means of communication (Я говорю по телефону.)</p> <p>;по – sign of the subject in relation to the field of knowledge (Студенты слушали лекции по анатомии.);</p> <p>Function:</p> <p>- indirect object (Сампада позвонила подруге.);</p> <p>- logical subject (Мне нравится анатомия.);</p> <p>- circumstance of :</p> <p style="padding-left: 40px;">а) place (Я иду к врачу.);</p> <p>б) mode of action (Я получил письмо по факсу.);</p> <p>- definition (У студентов был экзамен по биохимии.).</p> <p>Dative case in impersonal constructions (дат. п. + нужно / можно / нельзя / трудно / легко. Dative case with verbs of movement</p> <p>Formation and use of adjectives, possessive pronouns and ordinal numbers in the case.</p> <p>Instrumental case of nouns.</p> <p>Meanings:</p> <p>а) with preposition:</p> <p>- characteristic, sign of a person, an object with the verbs быть , стать, работать (Я буду врачом. Отец работает инженером.);</p> <p>- object of interest, activities (Студенты занимаются спортом. Я интересуюсь анатомией).</p> <p>б) with prepositions:</p> <p>с – togetherness (Набил был в магазине с другом .);</p> <p>с – characteristic of the object (Я пью чай с молоком.);</p> <p>рядом с - location (Мой друг живёт рядом с аптекой.);</p> <p>перед – time (Консультация будет перед экзаменом.).</p> <p>Functions:</p> <p>- predicate (Он был врачом.);</p> <p>- object (Отец гулял с сыном.);</p> <p>- definition (Я люблю чай с сахаром.);</p> <p>- circumstance of:</p> <p style="padding-left: 40px;">а) place (Сестра живёт рядом с магазином.);</p> <p style="padding-left: 40px;">б) time (Перед экзаменом я много занимался.)</p> <p>Formation and use of adjectives, possessive pronouns and ordinal numbers in the instrumental case.</p> <p>Grammar: Verbs</p> <p>Conjugation of verbs. Perfect and imperfect verbs. Formation of perfective verbs using prefixes and suffixes: читать – прочитать, писать – написать, опаздывать – опоздать. Verbs that form perfect and imperfect form from different roots: говорить – сказать, брать – взять.</p>
--	--

	<p>Verbs: идти-ходить, ехать-ездить.</p> <p>Verbs of movement. Verbs that show different kinds of movement: идти-ходить, ехать-ездить, бежать-бегать, плыть-плавать, лететь-летать, нести-носить, везти-возить, вести-водить.</p> <p>Meanings of verbs of movement with prefixes</p> <ul style="list-style-type: none"> - по- - beginning of the movement (пойти, поехать); - при- - achievement of the ultimate goal of the movement (прийти, приехать); - у- - moving away from certain places (уйти, уехать); - в(о)-, в- - move inside (войти, въехать); - вы- - move outside (выйти, выехать); - под- - approaching a certain object (подойти, подъехать); - от- - moving a certain distance (отойти, отъехать); - пере- - moving from one place to another (перейти, переехать); - до- - reaching the final goal of the movement (доехать, дойти). <p>Forms of the perfect and imperfect form of the verbs of movement with the prefixes: приходиться-прийти, приезжать-приехать и т.д. The use of imperfect and perfect verbs of movement.</p> <p>Verbs of unidirectional and multidirectional movementидти (пойти) – ходить, ехать (поехать) – ездить в in the present, past future tense and imperative mood.</p> <p>Verbs of movement combined with nouns.Prepositions В and НА with nouns in the accusative case when indicating the direction (в театр, вы гости, на вокзал, на день рождения и др.)</p> <p>and in the prepositional case when indicating the type of transport (на [в] машине, на [в] автобусе, на [в] такси и др.)</p> <p>verbs in combination with animate nouns in the dative case with the preposition К indicating the direction (идти к врачу, к другу) и предлогом ОТ + родительный падеж с противоположным значением (идти от врача, от друга)</p> <p>Grammar - Syntax</p> <p>Simple and complex sentences. Simple and complex-composed sentences on an extended set of lexical-grammatical material. Complex sentences (explanatory, attributive, temporary, conditional, target).</p> <p>Basic textbooks and information and communication resources (LMS Moodle, video conferences ZOOM, communication channel - WhatsApp). Resources for independent work (applications and sites for learning Russian for foreign citizens).Electronic translators (PROMT machine translation system, Yandex translator, Google Translate)</p> <p>Electronic explanatory dictionaries (ABBY Lingvo live) Educational YouTube channels for learning Russian as a foreign language: RikiStudy, RussianLessons.Net; Learn Russian with RussianPod101.com</p>
Speech topics (dialogues, texts on everyday, educational, professional topics)	<p>Speech practice:</p> <p>Conversational topics: "My working day", "My day off", "Birthday", "Russian language lesson", "My future profession"</p> <p>"About myself", "My family", "My friend" ("My girlfriend") - expansion of the topic.</p> <p>Dialogues: "Where do you live?", "Free time: what are you doing in the evening / on Sunday?" , "In the store: I go to the store for groceries / I buy</p>

		<p>a gift", "In the city / on the bus", "In the cafeteria", "In the library", "Calling a taxi", "At the airport / check-in"</p> <p>Working with texts (topics) corresponding to the profile of training: "Jeswin is sick", "Polyclinic of NSMU", "Jeswin goes to the pharmacy", "Disease of a friend", "Healthy lifestyle".</p> <p>Dialogues: "At the reception", "At the doctor's appointment", "At the pharmacy", "Calling an ambulance."</p> <p>Speaking:</p> <p>Monologue speech: A story on a given topic.</p> <p>Dialogue speech: influence, negotiate, maintain dialogue in situations related to the topics studied.</p> <p>Listening:</p> <p>Understand information by ear (topic, main idea); understand the main content of the dialogue; listen to a monologue and dialogical speech with the selection and subsequent discussion of the main ideas. Specially compiled or adapted texts are used, built on the basis of the lexical and grammatical material of this level.</p> <p>Reading:</p> <p>Types of reading: reading with general content coverage, learning reading, browsing and searching reading.</p> <p>The prevailing topic is relevant for the social and social and cultural spheres of communication. The texts are used corresponding to the profile of training (texts of professional topics).</p> <p>Letter:</p> <p>Based on the text read</p> <ul style="list-style-type: none"> - create a written monologue of a reproductive nature in accordance with the communicative task; - using questions, create a written statement of a productive nature on the proposed topic in accordance with the communicative attitude. <p>Text type: narration or message. Specially compiled texts are used based on the studied lexical and grammatical material. The volume of the presented text: up to 100 words. There are no unfamiliar words in the text. The volume of the created text: no more than 5 sentences.</p> <p>Basic textbooks and information and communication resources (LMS Moodle, video conferencing ZOOM, communication channel - WhatsApp). Resources for independent work (applications and sites for learning Russian for foreign citizens).</p> <p>Electronic translators (PROMT machine translation system, Yandex translator, Google Translate)</p> <p>Electronic explanatory dictionaries (ABBY Lingvo live) Educational YouTube channels for learning Russian as a foreign language: RikiStudy, RussianLessons.Net; Learn Russian with RussianPod101.com.</p>
--	--	--

2nd year

№	Name of the discipline section	Contents of section
1	2	3
1	Repeat the material	Input control

	<p>learnt in the first year</p> <p>Basics of professional communication</p>	<p>Revision of grammar material of the 1st course: prepositional-singular system of nouns, adjectives and pronouns (demonstrative and possessive)</p> <p>Plural Nominative case of nouns, adjectives, demonstratives, and possessive pronouns</p> <p>Verbs of movement (идти – ходить, ехать – ездить)</p> <p>Time constructs (когда? Как долго? Как часто?)</p> <p>The text " M. V. Lomonosov, the great Russian scientist "(see text in the App)</p> <p>Vocabulary: название практики, больница, стационар, приемное отделение, терапевтическое отделение, помещения в отделении, мебель, сантехническое оборудование, медицинский персонал, одежда и обувь медперсонала, медицинские предметы, белье постельное и нательное, объективные показатели физического состояния пациента (рост, вес, пульс, давление, температура)</p> <p>Conversational topic "Preparing for practice in the hospital"</p> <p>Control under section 1</p>
2	<p>Genitive plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns.</p> <p>Basics of professional</p>	<p>Nouns, adjectives, and demonstrative and possessive pronouns in the genitive plural</p> <p>Use of the pronoun "себя"</p> <p>Numerals + nouns (Genitive plural)</p> <p>Text "Doctor Elena" (textbook by Yu. G. Ovsienko)</p> <p>Words for body parts and internal organs Constructions «Я болею», «У меня болит что?», «У меня болит где?», «Боль где?», «Боль какая?», «Как ты себя чувствуешь?»</p> <p>Conversational topic "At a doctor's appointment"</p> <p>Control under section 2</p>

	Basics of professional communication	<p>The "чтобы + infinitive" construction</p> <p>The text of " V. A. Kudryavtsev "(see text in the App)</p> <p>Vocabulary on the topic "Stomach aches" (живот, желудок, кишечник, слизистая оболочка, питание, нарушение стула, тошнота, рвота, плохой аппетит)</p> <p>The text "Gastritis" (see text in the App)</p> <p>Conversational topic of the "Healthy Lifestyle" block: "Proper nutrition"</p> <p>Control under section 7</p>
8	<p>Degrees of comparison of adjectives and adverbs</p> <p>Basics of professional communication</p>	<p>Comparative degree of adjectives and adverbs (больше/меньше, лучше / хуже, дальше / ближе, дороже / дешевле, старше / младше, теплее / холоднее, труднее / легче, громче / тише, реже / чаще)</p> <p>Superlative degree of adjectives (самый+ adjective)</p> <p>Text "Medical care in Russia" (see text in the App)</p> <p>Vocabulary on the topic " Allergy "(аллергия аллерген, зуд, покраснение, слезы, наследственность, иммунитет, экология, образ жизни)</p> <p>Forms of the imperative mood (ешьте, не пейте, etc.)</p> <p>The text "Allergy" (see text in the App)</p> <p>Conversational topic of the "Healthy Lifestyle" block: "Compliance with sanitary and hygienic standards"</p> <p>Control under section 8 9</p>
9	<p>Generalization of the studied material</p> <p>Final control</p>	<p>Groups of professional vocabulary words: body parts, internal organs, symptoms, diseases, doctors, drug groups</p> <p>Lexico-grammar test</p>

3rd year

№ п/п	Name of the discipline section	Contents of section
1.	Repetition of the material studied in the first year. The profession of a doctor. Patient's medical record	Entrance control - Lexico-grammatical test (Moodle). Repetition of grammatical material of the 2nd course: - Fundamentals of professional communication (medical vocabulary); - Genitive plural of nouns, adjectives, possessive and demonstrative pronouns. - Accusative plural of nouns, adjectives, possessive and demonstrative pronouns. - Prepositional plural of nouns, adjectives, possessive and demonstrative pronouns - Dative plural of nouns, adjectives, possessive and demonstrative pronouns - Instrumental plural of nouns, adjectives, possessive and demonstrative pronouns - Verbs of movement - Comparison of adjectives and adverbs Control work on section No. 1.
2.	First practice at a medical university Grammar: Verbs. Specific pairs of verbs. Verbs with a particle –ся. Movement verbs. Basics of professional communication	Specific pairs of verbs of different groups. Verbs with a particle –ся. Reflexive verbs. Passive verbs. Movement verbs with different prefixes. Specific pairs of verbs of movement. Label constructions "Appeal", "Ways to attract attention" Medical terms Professional text "First practice at a medical university" (part 1) Control work on section No. 2.
3.	Verb forms. The verbal participle. Participle. Basics of professional communication	Word formation of verb forms (participles and participles). Participle sentence = sentence with the word "который". Exam topic "Practice in the hospital". Control work for section No. 3
4.	Musculoskeletal system. Bones and Muscles. Grammar: Active, passive constructs. Basics of professional communication	Short forms of participles. Examples of the use of short participles and verbs in passive constructions. Label constructions "Gratitude", "Apology" Medical terms Professional text "Musculoskeletal system. Bones and Muscles" Control work on section No. 4.

5.	<p>Musculoskeletal system. The structure of the human skeleton Grammar: Expressing tense in simple and complex sentences</p> <p>Basics of professional communication</p>	<p>Expression of tense by a noun in the accusative case without a preposition and with a preposition (на, за, через). Expression of time by a noun in the genitive case with a preposition (до, после, во время). Expression of time by nouns in the instrumental case with the preposition "перед". Expression of tense with nouns in the dative case with the preposition "по" (по вторникам) Time constructions «за... до ...», «через ... после...». The adverb of time. Expression of time in a complex sentence. The use of conjunctions «до того как, после того как, перед тем как, как только и т.д..</p> <p>Medical terms Professional text "Musculoskeletal system. The structure of the human skeleton "</p>
6.	<p>Musculoskeletal system. Human skeleton. Posture. Grammar: Expressing cause and effect in a simple and complex sentence.</p> <p>Basics of professional communication</p>	<p>Expression of cause in a simple sentence (из-за, от + сущ. в Р.п.; благодаря, по + сущ. в Д.п.). Expression of reason in a simple sentence (предлоги: из-за того что, благодаря тому что, потому что, так как) Expression of effect.</p> <p>Medical terms. Professional texts «Musculoskeletal system. Human skeleton. Posture.</p>
7.	Control slice of knowledge for the 5th semester	Doctor-patient dialogue, final test
8.	<p>Musculoskeletal system. Diseases and injuries. Grammar: Expressing purpose and condition in a simple and complex sentence.</p> <p>Basics of professional communication</p>	<p>Expressing purpose in a simple sentence (предлог + сущ. в Р.п, Т.п, В.п.) Expression of purpose in a complex sentence. Constructions «чтобы + прош. вр.», «чтобы + инф.» Expressing condition in a simple sentence (при + сущ. в П.п., в случае , при наличии , при отсутствии + сущ. в Р.п.) Expressing condition in a complex sentence Types of conditional relationships: real, potential and surreal conditions.</p> <p>Medical terms Professional text «Musculoskeletal system. Diseases and injuries»</p>

9.	Doctors of Russia. Grammar: Expressing concession in a simple and complex sentence. Basics of professional communication	Expressing concession in a simple sentence (несмотря на + сущ. в В.п) Expressing concession in a complex sentence (союзы: несмотря на то что, хотя) Etiquette constructions "Regret, sympathy" Medical terms Professional texts "Doctors of Russia"
10.	Dative impersonal constructions Basics of professional communication	Dative case of nous, pronouns, adjectives Можно, надо, нужно, нельзя + инф. Word «нельзя» in different meanings Д.п. + трудно, легко + инф. Д.п. + безличн.. глаголы (осталось, казалось и т.д.) + инф. Medical terms Exam topic "Doctors of Russia"
11.	Repetition of the material learned. Exam topics "Doctors of India", "Healthy lifestyle", "Physical inactivity" Basics of professional communication	Prepositional-case system The kind of the verb. Impersonal forms of the verb. Simple and complex sentence. Expression of different meanings in a simple and complex sentence. Formation of verbal nouns. Control on the topic "Medical vocabulary"
12.	Module control	Summing up the course. Acceptance of debts on examination topics. Final control work (lexical and grammatical tasks, drawing up questions to the proposed text)

4th year

No.	Name of the course section	Contents of the section
	SECTION 1.1. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	<p>COMMUNICATION PRACTICE:</p> <p>1. Conversation topic ""Diseases of the XX and XXI centuries." "Smallpox". "Spanish influenza". "AIDS: the XXI century plague".</p> <p>Lexicaltools:</p> <p>Чума, испанский грипп, оспа, синдром приобретённого иммунного дефицита человека,</p> <p>умереть от / страдать от (чего? Р.п.)</p> <p>болеть / заболеть (чем? Т.п.), заразиться (чем? Т.п.)</p> <p>является чем; исследуется кем;</p> <p>определяется чем; характеризуется чем;</p> <p>предупредить = предотвратить (что? В.п.)</p>

		<p>2. Fundamental systems of human organs. Human skin, its structure and functions. General surveying of the skin. Working with video materials "Human skin".</p> <p>Lexicaltools:</p> <p>Кожный покров, наружный покров тела, кожа, потоотделение, мочеви́на</p> <p>наружный слой / эпидермис, средний слой / дерма, внутренний слой / подкожная жировая клетчатка /гиподерма</p> <p>защитная функция, терморегуляторная функция, выделительная функция</p> <p>вредное воздействие,</p> <p>предохранять от (чего?), защищать от (чего?), защищать от ультрафиолетовых лучей</p> <p>GRAMMAR:</p> <p>Word-building structure of noun and adjective. Prepositional-case system of nouns, adjectives, pronouns in the singular and plural.</p> <p>(The grammar is repeated, its studying is more profound and it's based on the texts of medical topics in this section. Thus, a functional-communicative approach in teaching grammar is implemented.)</p> <p>READING: Professionally oriented texts "What is plague?"</p>
	<p>SECTION 1.2.</p> <p>Conversation topic "Diseases of the XX and XXI centuries."</p> <p>Fundamental systems of human organs.</p> <p>Human skin.</p>	<p>COMMUNICATION PRACTICE:</p> <p>Conversation topic "Diseases of the XX and XXI centuries.""Cardiovascular diseases". "Diabetes". Osteochondrosis. "Oncological diseases". "Obesity", "Depression".</p> <p>Lexicaltools:</p> <p>причины, факторы, патология,</p> <p>характерный, двигательный, правильный / неправильный, вредный / полезный, опасный;</p> <p>сердечно-сосудистые заболевания, малоподвижный образ жизни, инфаркт, инсульт, ишемическая болезнь сердца, сахарный диабет, переедание, сладкая пища;</p> <p>остеохондроз, заболевания позвоночника, межпозвоночные диски, связки, костная ткань, мышечная ткань;</p> <p>опухоль, онкологический, аллергический, доброкачественный, злокачественный;</p> <p>онкологические заболевания; переедание, повышенное давление;</p> <p>сниженнонастроение, концентрациявнимания</p>

		<p>2. Fundamental systems of human organs. Skin diseases. Working with video materials “Healthy means wealthy! Summer epidemic: scabies ”(05/25/2018, 26-34 min).</p> <p>Lexical tools:</p> <p>цвет кожи, окраска кожи, патологическая окраска кожи, гиперемия, покраснения на коже, влажность кожи, сухость кожи, чистые покровы;</p> <p>бледная, синюшная (цианоз кожи), розовая, бронзовая, красная, землистая, желтушная / иктерическая кожа;</p> <p>пятна, папулы, волдыри, пузыри, пузырьки, чешуйки, ссадины, трещины, корки, язвы.</p> <p>GRAMMAR: Word-building structure of noun and adjective. Prepositional-case system of nouns, adjectives, pronouns in the singular and plural.</p> <p>(The grammar is repeated, its studying is more profound and it’s based on the texts of medical topics in this section. Thus, a functional-communicative approach in teaching grammar is implemented.)</p> <p>READING: Professionally oriented texts: 'What should everyone know about diabetes? ', "What should we know about cardiovascular diseases?"</p>
	<p>SECTION 1.3. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.</p>	<p>COMMUNICATION PRACTICE:</p> <p>1. Conversation topic "Diseases of the XX and XXI centuries." Revising the topic.</p> <p>Lexical tools: revising the vocabulary given on the previous classes.</p> <p>2. Fundamental systems of human organs. Skin diseases. Dialog “At the dermatologist’s attendance”.</p> <p>Lexical tools:</p> <p>симптомы заболеваний кожи: зуд, высыпания, чувство жжения, чувство покалывания, шелушение кожного покрова, бессонница;</p> <p>местное лечение, аэрозоли, мази, пасты, масла, компрессы, пластыри, лечебные мыла.</p> <p>GRAMMAR: Derivational structure of the verb. The imperative mood of verbs. Verbs in an imperative.</p> <p>(The grammar is repeated, its studying is more profound and it’s based on the texts of medical topics in this section. Thus, a functional-communicative approach in teaching grammar is implemented.)</p>

		<p>READING: Professionally oriented texts:What should you know about oncology?" / "What is the danger of pediculosis?"</p> <p>Control according to section 1. Lexico-grammatical test / Control work.</p>
	<p>2.1. Conversation topic "Fundamental principles of medical ethics".</p> <p>Fundamental systems of human organs.</p> <p>Excretory system.</p>	<p>COMMUNICATION PRACTICE:</p> <p>1.Conversation topic "Fundamental principles of medical ethics"."The profession of a doctor."</p> <p>"Professional behavior of a doctor"</p> <p>Lexical tools:</p> <p>Медицинская этика, правила и нормы поведения медицинского персонала, сформулировать принципы медицинской этики;</p> <p>Человеколюбие, сострадание, милосердие, доброта, отзывчивость, внимательное отношение к больному;</p> <p>речь доктора, чувство такта, поднять больному настроение, хранить врачебную тайну, совершенствоваться в своей профессии, читать научную литературу, участвовать в форумах врачей, обмениваться опытом;</p> <p>опрятный вид, чистый халат, чистая шапочка, аккуратная сменная обувь, чистые руки, коротко остриженные ногти.</p> <p>2.Fundamental systems of human organs. Excretory system. Working with video materials: Healthy means wealthy! What you need to know about the kidneys? (05/30/2017)</p> <p>Lexical tools:</p> <p>Выделительная система, продукты метаболизма, углекислый газ, азотсодержащие вещества, аммиак, мочевина, креатинин, мочевая кислота;</p> <p>Органы выделения, почки, лёгкие, желудочно-кишечный тракт, потовые железы, слюнные и желудочные железы, поджелудочная железа, кишечные железы</p> <p>GRAMMAR: Derivational structure of the verb. Imperfective and perfective verbs.</p> <p>(The grammar is repeated, its studying is more profound and it's based on the texts of medical topics in this section. Thus, a functional-communicative approach in teaching grammar is implemented.)</p> <p>READING: Professionally oriented texts: "Medical ethics: every doctor should know about it"</p>
	<p>2.2. Conversation topic "Fundamental principles of medical</p>	<p>COMMUNICATION PRACTICE:</p> <p>1.Conversation topic "Fundamental principles of medical ethics".</p>

	<p>ethics". Fundamental systems of human organs. Excretory system.</p>	<p>"The Hippocratic Oath". "Contemporary Issues of Medical Ethics"</p> <p>Lexicaltools: даватьклятвуГиппократ, древняяпрофессиональнаяклятваврача, взаимоотношения, деятельность, межличностный, обязанность, ответственность; физические и нравственные страдания, привести к физическим и нравственным страданиям пациентов; пересадка органов, донор, реципиент, эвтаназия.</p> <p>2. Diseases of the excretory system. Working with video materials: Healthy means wealthy! Urolithiasis disease. 02.10.2018 / Healthy means wealthy! Urinary infections. Necessary to treat! 01.10.2018</p> <p>Lexicaltools: пиелонефрит, мочекаменная болезнь почек, опухоли, уретрит, цистит воспалительный процесс, возбудитель, очаг воспаления, стафилококк, стрептококк, энтерококк, болезненное мочеиспускание общийанализмочи</p> <p>GRAMMAR: Derivational structure of the verb. Imperfective and perfective verbs. (The grammar is repeated, its studying is more profound and it's based on the texts of medical topics in this section. Thus, a functional-communicative approach in teaching grammar is implemented.)</p> <p>READING: Professionally oriented texts: "The underlying causes of kidney disease" / "Why do people need salt?"</p>
	<p>2.3. Conversation topic "Fundamental principles of medical ethics".</p> <p>Fundamental systems of human organs. Excretory system.</p>	<p>COMMUNICATION PRACTICE: 1.Conversation topic "Fundamental principles of medical ethics". Revising the topic.</p> <p>Lexicaltools: revising the vocabulary given on the previous classes.</p> <p>2.Fundamental systems of human organs. Excretory system. Diseases of the excretory system. Dialogue "At the Nephrologist's Attendance".</p> <p>Lexical tools: болит под рёбрами, болит под ложечкой, режет в боку, боль отдаёт иррадиирует вправо, кожный зуд,</p>

		<p>желтушность кожи, горечь во рту, субфебрильная температура, боль резкая, острая, колющая, режущая, приступообразная.</p> <p>GRAMMAR: Modal verbs. Constructions МОЖНО/ НУЖНО/ СЛЕДУЕТ/НЕОБХОДИМО + infinitive.</p> <p>(The grammar is repeated, its studying is more profound and it's based on the texts of medical topics in this section.)</p> <p>READING: Professionally oriented texts "What is useful and what is bad for the kidneys" / "Why do people have different skin colors?"</p> <p>Control according to section 2. Lexico-grammatical test / Control work.</p>
--	--	--

5.2. Sections and types of studies

1st year

No.	Name of the course section	L	S	P	CP	LBP	SBP	UW	Total hours
1	Repetition (basic information about the language obtained in the course "Foreign language")			10				10	20
2	Main course: (lexical minimum, grammar topics)			58				58	116
3	Speech topics (dialogues, texts on everyday, educational, professional topics)			40				40	80
				108				108	216

2nd year

№	Name of the discipline section	L	S	P	CP	LBP	S	UW	Total hours
1	Repeating the material learned in the first year Basics of professional communication			9				9	18
2	Genitive plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns.							9	18

	Basics of professional communication			9					
3	Accusative plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns. Basics of professional communication			9				9	18
4	Prepositional plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns Basics of professional communication			9				9	18
5	Dative case of plural nouns, adjectives, possessive and demonstrative pronouns Basics of professional communication			8				8	16
6	Instrumental case of plural nouns, adjectives, possessive and demonstrative pronouns Basics of professional communication			8				8	16
7	Verbs of movement Basics of professional communication			8				8	16
8	Degrees of comparison of adjectives and adverbs Basics of professional communication			8				8	16
9	Generalization of the studied material. Final control			4				4	8

3rd year

№ п/п	Name of the discipline section	L	S	P	CP	LBP	S	UW	Total hours
1)	Repetition of the material studied in the first year. The profession of a doctor. Patient's medical record			6				6	12
2.	First practice at a medical university Grammar: Verbs. Specific pairs of verbs. Verbs with a particle –ся. Movement verbs. Basics of professional communication			12				6	18

3.	Verb forms. The verbal participle. Participle. Basics of professional communication			6				6	12
4.	Musculoskeletal system. Bones and Muscles. Grammar: Active, passive constructs. Basics of professional communication			9				9	18
5.	Musculoskeletal system. The structure of the human skeleton Grammar: Expressing tense in simple and complex sentences Basics of professional communication			9				9	18
6.	Musculoskeletal system. Human skeleton. Posture. Grammar: Expressing cause and effect in a simple and complex sentence. Basics of professional communication			9				9	18
7.	Control slice of knowledge for the 5th semester			3				3	6
8.	Musculoskeletal system. Diseases and injuries. Grammar: Expressing purpose and condition in a simple and complex sentence. Basics of professional communication			9				9	18
9.	Doctors of Russia. Grammar: Expressing concession in a simple and complex sentence. Basics of professional communication			6				6	12
10.	Dative impersonal constructions Basics of professional communication			6				6	12

11.	Repetition of the material learned. Exam topics "Doctors of India", "Healthy lifestyle", "Physical inactivity"			12				15	27
	Basics of professional communication								
12.	Module control			3				6	9

4th year

№	Name of the course section	P	UW	Total hours
1	2	4	8	9
1	Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	36	54	90
2	Conversation topic "Fundamental principles of medical ethics". Fundamental systems of human organs. Excretory system.	36	54	90
	TOTAL (HOURS)	72	108	180

6. List of teaching materials for the course unsupervised work of students (including the use of e - learning opportunities, distance learning technologies (Moodle))

1st year

No.	Name of the course section	Types of the unsupervised work	Forms of control
1	Repetition (basic information about the language obtained in the course "Foreign language")	<p>Repetition and consolidation of systemic phonetic and spelling skills using:</p> <ul style="list-style-type: none"> - exercises for the formation of auditory-pronunciation skills (listening and reading), including using IT: - site for students of NSMU https://russianlaunch.blogspot.com/p/phonetics.html - Talk2Russia mobile application (Phonetics section); - trainers of Russian pronunciation: http://learnrussian.rt.com/phonetics/ https://easypronunciation.com/ru/practice-russian-pronunciation-online http://www.russianforeveryone.com/Rufe/Lessons/Course1/Introduction/IntrUnit1/IntrUnit1.htm (IR training) <p>Reading text with preliminary preparation using text-to-speech software (ICE Book Reader Professional)</p>	<p>Testing the reading technique.</p> <p>Vocabulary dictation.</p> <p>Checking written assignments in workbooks, oral questioning in the lesson.</p> <p>Control</p>

		<p>2. Repetition and consolidation of the lexical and grammatical minimum using IT (interactive game tasks, exercises, simulators):</p> <ul style="list-style-type: none"> - grammar https://learningapps.org/5714683 https://wordwall.net/play/7554/255/347 https://wordwall.net/play/9302/126/426 https://wordwall.net/play/9303/553/992 https://wordwall.net/play/9390/873/554 https://quizlet.com/561076265/match?i=3ba7pu&x=1Kqt https://wordwall.net/play/9575/043/720 - vocabulary https://wordwall.net/play/7339/901/959 https://wordwall.net/play/8219/686/966 https://quizlet.com/ru/553744506/%D0%9A%D0%B0%D0%BA%D0%BE%D0%B9-%D1%86%D0%B2%D0%B5%D1%82- flash-cards /? x = 1jqt https://edu.nsmu.ru/mod/quiz/attempt.php?attempt=1064859&cmid=72942 	<p>exercises in the lesson. Checking tasks in LMS Moodle. Testing.</p>
2	Main course: (lexical minimum, grammar topics)	<p>Mastering vocabulary and grammar: Doing homework (writing exercises, reading texts on the studied lexical and grammatical material). Textbooks and tutorials:</p> <ol style="list-style-type: none"> 1. Овсиенко Ю.Г. Русский язык для начинающих (для говорящих на английском языке) [Текст] : [учебник]/ Ю. Г. Овсиенко Кн. 1: Русский язык, 2019. - 472 с.: ил. 2. Алексеева О.В. Рабочая тетрадь по русскому языку как иностранному (предложно-падежная система). Учебно-методическое пособие. - Архангельск, 2018. 152 с. 3. Маслова, О.Н. Русская грамматика [Электронный ресурс] : методич. рек. по русскому языку для иностр. обучающихся I–II курсов (базовый уровень) / О. Н. Маслова, О. В.Алексеева. - Архангельск: Изд-во Северного государственного медицинского университета, 2019 - 80 с. 4. Орлова Л.В. Рабочая тетрадь. Основы медицинской лексики (элементарный уровень)/ Л.В.Орлова – Архангельск: Изд-во Северного государственного медицинского университета, 2019. - 85 с. <p>Working with information and communication resources: Interactive game tasks</p> <ol style="list-style-type: none"> 1. Cases of nouns https://wordwall.net/play/9819/124/166 2. Verbs of motion http://www.rus-on-line.ru/Exercises/Grammar/28-grammar.html 	<p>Testing the reading technique. Vocabulary dictation. Checking written assignments in workbooks, oral questioning in the lesson. Control exercises in the lesson. Checking tasks in LMS Moodle. Testing.</p>

		<p>Perfective-Imperfective Java Exercises is a network linguistic trainer for verb types, for motion verbs. Website: http://www.alphadictionary.com/rusgrammar/java.html</p> <p>Syntax https://wordwall.net/play/9575/043/720</p> <p>https://wordwall.net/play/9575/043/720</p> <p>https://quizlet.com/561076265/match?i=3ba7pu&x=1Kqt</p> <p>Video lessons</p> <p>https://youtu.be/Pf6MSjnFTO4 -propositional</p> <p>https://youtu.be/qdknk8kJT3Q - genitive</p> <p>https://youtu.be/CKzDsa-vCgI - instrumental case</p> <p>https://youtu.be/EVIY-3frpAw - instrumental</p> <p>https://youtu.be/xPCSeC_jeQI - accusative case</p> <p>https://youtu.be/3u3t3C0bd4U - nominative</p> <p>https://youtu.be/d1_cYOz4QuI - dative case</p> <p>Control works and tests</p> <p>https://edu.nsmu.ru/mod/quiz/attempt.php?attempt=1064859&cmid=72942</p>	
3	Speech topics (dialogues, texts on everyday, educational, professional topics)	<p>Mastering vocabulary and grammar:</p> <p>Doing homework (writing exercises, reading texts on the studied lexical and grammatical material).</p> <p>Textbooks and tutorials:</p> <ol style="list-style-type: none"> 1.Овсиенко Ю.Г. Русский язык для начинающих (для говорящих на английском языке) [Текст]: [учебник]/ Ю. Г. Овсиенко Кн. 1: Русский язык, 2016. - 472 с.: ил. 2. Алексеева О.В. Рабочая тетрадь по русскому языку как иностранному (предложно-падежная система). Учебно-методическое пособие. - Архангельск, 2018. 152 с. 3. Орлова Л.В. Рабочая тетрадь. Основы медицинской лексики (элементарный уровень)/ Л.В.Орлова – Архангельск: Изд-во Северного государственного медицинского университета, 2016. - 85 с. <p>Doing homework: working with speech topics (dialogues, texts for everyday, educational, professional).</p> <p>Textbooks and tutorials:</p> <ol style="list-style-type: none"> 1. Ovsienko Yu.G. Russian for beginners (for those who speak English) [Text]: [textbook] / Yu. G. Ovsienko Kn. 1: Russian language, 2016. -- 472 p. : ill. 2. Alekseeva O.V. Workbook on Russian as a foreign language (prepositional-case system). Study guide. - Arkhangelsk, 2018.152 p. 3. Orlova L.V. Workbook. Fundamentals of medical vocabulary (elementary level) / L.V. Orlova - Arkhangelsk: Publishing house of the Northern State Medical University, 2016. - 85 p. <p>Working with information and communication resources:</p> <p>http://lrwi.ru/?p=1 - "Network text library". Network linguistic trainer (formation of reading skills)</p>	<p>Role-playing games with various types of communication tasks.</p> <p>Conversation in the lesson.</p> <p>Individual survey.</p> <p>Online conference with native speakers (conversation on the topics studied: getting into real communication).</p>

	<p>http://www.lrwi.ru/?p=1&t=29 - site of RCT enthusiasts (materials on topics) and other training videos (at the teacher's choice) on the channels RikiStudy, RussianLessons.Net (https://www.youtube.com/channel/UCq1b1x1nZbV-rmZDb3XOB2g), (themes my day, my family, etc.)</p> <p>Learn Russian with RussianPod101.com https://www.youtube.com/channel/UCUg_JDaHFAPEiFGDMddoIzA). THEMES</p> <p>LMS Moodle: https://edu.nsmu.ru/mod/quiz/attempt.php?attempt=1064859&cmid=72942</p>	
--	--	--

2nd year

1. Маслова, О.Н. Русская грамматика [Электронный ресурс]: методич. рек. по русскому языку для иностр. обучающихся I–II курсов (базовый уровень) / О. Н. Маслова, О. В. Алексеева. - Архангельск : Изд-во Северного государственного медицинского университета, 2019 - 80 с. - http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/M%2031-788369
2. Маслова О.Н., Алексеева О.В. Справочник медицинских терминов для обучающихся 2 курса международного факультета врача общей практики Северного медицинского государственного университета. – Архангельск, 2020
3. 2 course Russian Language Russian Language as foreign // <https://edu.nsmu.ru/course/view.php?id=1391>
4. Russian Language lessons (Learn Russian for Free) // <http://www.russianlessons.net>
5. Русский глагол: <http://www.webmetod.narod.ru/ddd/Veb1.htm>

№	Name of the discipline section	Types of independent work	Control forms
1	Repeat the material you learned in your first year. Basics of professional communication	Working with the Reference Book of medical terms (Maslova O. N., Alekseeva O. V. Reference book of medical terms)	Identification of the level of understanding of the material in practical lesson
2	Genitive plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns. Basics of professional communication	Make a table "Names of internal organs of a human" in Russian and English	Vocabulary dictation and oral response in practical lesson
3	Accusative plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns. Basics of professional communication	Learn vocabulary on the topic " Man and his body. Objective indicators of the patient's physical condition " (Maslova O. N., Alekseeva O. V.	Listening to a prepared monologue

		Handbook of medical terms)	
4	Prepositional plural of nouns, adjectives, possessive pronouns, and demonstrative pronouns	Prepare a presentation about one of the named NSMU classrooms (N. Amosov Auditorium, Lomonosov Auditorium, Bychikhin Auditorium, Kudryavtsev Auditorium)	Active participation in the practical lesson
5	Dative case of plural nouns, adjectives, possessive and demonstrative pronouns	Prepare a message on one of the topics "Why is smoking dangerous?", "What is the danger of alcohol consumption?", "What causes overeating?"	Active participation in the practical lesson
6	Instrumental case of plural nouns, adjectives, possessive and demonstrative pronouns	Prepare a message about your favorite place in Arkhangelsk. Presentation	Active participation in the practical lesson
7	Verbs of movement	Using verbs of movement, compose a text on the topic "A trip home during the summer holidays"	Listening to an audio response
8	Degrees of comparison of adjectives and adverbs	Preparation for the colloquial topic "Components of the concept of healthy lifestyle"	Active participation in the practical lesson
9	Generalization of the studied material	Preparation of lexical material based on specified models 1. Name of the disease -ит 2. Doctor's name-лог 3. Department name-ия 4. Name of medicines -ин	Verification of completed materials

3rd year

1) Маслова, О.Н., Полуэктова Т.Д. «Свидание с аутентичным текстом» / Учебно-методическое пособие

по русскому языку как иностранному для студентов 3-4 курсов (English medium) — Архангельск, 2020

2) Маслова О.Н., Алексеева О.В. Справочник медицинских терминов для обучающихся 2 курса международного факультета врача общей практики Северного медицинского государственного университета. – Архангельск, 2020

3) 3 course Russian Language Russian Language as foreign // <https://edu.nsmu.ru/course/view.php?id=1137¬ifyeditingon=1>

4) Russian Language lessons (Learn Russian for Free) // <http://www.russianlessons.net>

5) Русский глагол: <http://www.webmetod.narod.ru/ddd/Veb1.htm>

№ п/п	Наименование раздела дисциплины	Виды самостоятельной работы	Формы контроля
1.	Repetition of the material studied in the first year. The	Working with tables in the electronic course Moodle and a reference book of medical terms	Revealing the level of understanding of the

	profession of a doctor. Patient's medical record	(Маслова О.Н., Алексеева О.В. Справочник медицинских терминов)	material in a practical lesson
2.	First practice at a medical university Grammar: Verbs. Specific pairs of verbs. Verbs with a particle –ся. Movement verbs. Basics of professional communication	Describe your daily routine with verbs, paying special attention to the diagram of your path from the hostel to different buildings of the university	Oral answer in a practical lesson
3.	Verb forms. The verbal participle. Participle. Basics of professional communication	Memorize the exam topic "Practice in the hospital"	Listening to a prepared monologue
4.	Musculoskeletal system. Bones and Muscles. Grammar: Active, passive constructs. Basics of professional communication	Learn the medical terms on the topic	Vocabulary dictation and oral answer in a practical lesson
5.	Musculoskeletal system. The structure of the human skeleton Grammar: Expressing tense in simple and complex sentences Basics of professional communication	Learn the medical terms	Checking crosswords, classmates filling out each other's crosswords.
6.	Musculoskeletal system. Human skeleton. Posture. Grammar: Expressing cause and effect in a simple and complex sentence. Basics of professional communication	Using conjunctions that express cause and effect in the proposal, make a dialogue on the topic "Doctor-patient"	Activity of participation in the practical lesson
7.	Control slice of knowledge for the 5th semester	Prepare for the test on grammatical and lexical material of the 5th semester	Intermediate testing
8.	Musculoskeletal system. Diseases and injuries. Grammar: Expressing purpose and condition in a simple and complex sentence.	Preparation of lexical material according to the given models 1. Name of the disease / injury 2. Phrases of the patient 3. Phrases of the doctor 4. Name of drugs	Checking the issued materials

	Basics of professional communication		
9.	Doctors of Russia. Grammar: Expressing concession in a simple and complex sentence. Basics of professional communication	Draw up the table "Musculoskeletal system" in Russian and English	Vocabulary dictation and oral answer in a practical lesson
10.	Dative impersonal constructions Basics of professional communication	Memorize the examination topic "Doctors of Russia"	Listening to a prepared monologue
11.	Repetition of the material learned. Exam topics "Doctors of India", "Healthy lifestyle", "Physical inactivity" Basics of professional communication	Prepare a report on the topic "My idol. Great Indian doctor" Memorize the exam topics "Doctors of India", "Healthy lifestyle", "Physical inactivity"	Presentation to the class. Listening to prepared monologues
12.	Module control	Prepare for the final test for the 3rd year	Acceptance of debts on exam topics. Final control work (lexical and grammatical tasks, drawing up questions to the proposed text)

4th year

№	Name of the section	Types of unsupervised work	Forms of control
1	SECTION 1.1. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	Input control. Revising of the vocabulary and grammar for the third year of study.	Lexico-grammatical test in the Moodle system
2	SECTION 1.1. Conversation topic "Diseases of the XX and XXI centuries." Fundamental	Working with video materials "Healthy means wealthy! Summer epidemic: scabies" (05/25/2018, 26-34 min).	Checking the exercises in the Moodle system

	systems of human organs. Human skin.		
3	SECTION 1.3. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	Reading: professionally oriented texts "What is plague?" 1. Working with pre-text exercises. Working with vocabulary. 2. Reading and translating the text. 3. Working with post-text exercises.	Checking pre-text and post-text exercises in the Moodle system
4	SECTION 1.3. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	Drawing up the topic "Diseases of the XX and XXI centuries" and preparing for oral check-out test based on it.	Individual test on the topic "Diseases of the XX and XXI centuries".
5	SECTION 1.3. Conversation topic "Diseases of the XX and XXI centuries." Fundamental systems of human organs. Human skin.	Revising the section 1. Lexico-grammatical test.	Lexico-grammatical test in the Moodle system
6	SECTION 2.1. Conversation topic "Fundamental principles of medical ethics". Fundamental systems of human organs. Excretory system	Fundamental systems of human organs. Excretory system. Working with video materials: Healthy means wealthy! What you need to know about the kidneys? (05/30/2017)	Checking the exercises in the Moodle system
7	SECTION 2.2. Conversation topic "Fundamental principles of medical ethics". Fundamental	Reading: professionally oriented texts "What is useful and what is bad for the kidneys" / "Why do people have different skin colors?" 1. Working with pre-text exercises. Working with vocabulary.	Checking pre-text and post-text exercises in the Moodle system

	systems of human organs. Excretory system	2. Reading and translating the text. 3. Working with post-text exercises.	
8	SECTION 2.3. Conversation topic "Fundamental principles of medical ethics". Fundamental systems of human organs. Excretory system	Drawing up the topic "Fundamental principles of medical ethics" and preparing for oral check-out test based on it.	Individual test on the topic "Diseases of the XX and XXI centuries".
9	SECTION 2.3. Conversation topic "Fundamental principles of medical ethics". Fundamental systems of human organs. Excretory system	Revising the section 2. Lexico-grammatical test.	Lexico-grammatical test in the Moodle system

7. Forms of control

1st year

7.1. Current forms of control

- oral (express-survey in a practical lesson, checking knowledge of thematic vocabulary, telling the text according to the plan, reciting the text by heart, restoring the text using key words, making sentences according to given schemes, drawing up a dialogue).
- written (checking written homework assignments, tests, vocabulary dictations).

7.2. Forms of the interim assessment (pass/fail test, examination, term paper)

Stages of the interim assessment

Stages of examination (pass/fail test)

Stage 1 - a series of tests on the completion of lexical and grammatical topics (performance of oral and written assignments on the LMS Moodle).

Stage 2 - the final test (test) in vocabulary and grammar (on the LMS Moodle).

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

Questions for a pass/fail test and an examination, a theme list of test collections and situational problems are shown at the Appendix No 4 of the syllabus of the course (module) 'Set of the evaluation tools for the current control and interim assessment of students'.

2nd and 3rd year

7.1. Forms of current control

- oral (interview, speech, presentations)
- written (tests, test papers).

7.2. Forms of intermediate certification-none

4th year

7.1. Current forms of control

- oral (an express checking-out test in a practical lesson, checking the knowledge of thematic vocabulary, retelling the text according to the plan, reciting the text by heart, restoring the text using key words, making sentences using the schemes given, drawing up a dialogue, making an interview, report, presentation)
- written (test, training exercises, module test, word quiz, essay, lecture notes).

A theme list of abstracts, reports, essays, review and term papers, test collections and situational problems are shown at the Appendix No 4 of the syllabus 'Set of the evaluation tools'.

7.2. Interim assessment

Stage 1 - lexical and grammatical test.

Stage 2 - conversation topic.

Stage 3 - reading and translating the text. Discussing the text.

8. Library and information materials of the course

1st year

8.1. Compulsory literature

1. Дорога в Россию [Текст] : учеб. рус. яз. : (элементар. уровень)/ В. Е. Антонова [и др.] [Кн.] 1. - 10-е изд.: Златоуст: ЦМО МГУ, 2013. - 341, [1] с.: илл.
2. Овсиенко Ю.Г. Русский язык для начинающих (для говорящих на английском языке) [Текст] : [учебник]/ Ю. Г. Овсиенко Кн. 1: Русский язык, 2016. - 472 с.: ил.
3. Алексеева О.В. Рабочая тетрадь по русскому языку как иностранному (предложно-падежная система). Учебно-методическое пособие. - Архангельск, 2018. 152 с.
4. Маслова, О.Н. Русская грамматика [Электронный ресурс] : методич. рек. по русскому языку для иностр. обучающихся I–II курсов (базовый уровень) / О. Н. Маслова, О. В. Алексеева. - Архангельск: Изд-во Северного государственного медицинского университета, 2019 - 80 с. - http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/M%2031-788369
5. Орлова Л.В. Рабочая тетрадь. Основы медицинской лексики (элементарный уровень)/ Л.В.Орлова – Архангельск: Изд-во Северного государственного медицинского университета, 2019. - 85 с.

8.2. Supplementary literature

1. Русский язык как иностранный: элементарный уровень: учебное пособие / Р.Р. Сабитова и др. – Казань, 2018. – 168 с.
2. Русский язык как иностранный: элементарный уровень: учебное пособие / Н.Ф. Башарова и др. – Казань, 2017.
3. Методические рекомендации по русскому языку как иностранному для студентов I - II курсов [Текст] / О. Н. Маслова; Север. гос. мед. ун-т. Каф. рус. яз. как иностр. - Архангельск: [б. и.], 2014. - 37 с.
4. Миллер Л.В. Жили-были... 12 уроков русского языка. Базовый уровень [Текст]: учебник/ Л. В. Миллер, Л. В. Политова. -6-е изд.. -Санкт-Петербург: Златоуст, 2013. - 197 с.
5. Маслова О.Н. Методические рекомендации по русскому языку как иностранному (2-й сертификационный уровень. Профессиональный модуль) [Электронный ресурс]: методический материал / О. Н. Маслова. - Архангельск : Северный государственный медицинский университет, 2012 - 60 с. – URL: http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exe?LNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/M%2031-343370

2nd year

8.1. Compulsory literature

13. Овсиенко Ю.Г. Русский язык для начинающих. – М., 2016.
14. Маслова, О.Н. Русская грамматика [Электронный ресурс]: методич. рек. по русскому языку для иностр. обучающихся I–II курсов (базовый уровень) / О. Н. Маслова, О. В. Алексеева. - Архангельск: Изд-во Северного государственного медицинского университета, 2019. - 80 с.
15. Русский язык как иностранный: базовый уровень: учебное пособие. / Н.Ф. Башарова и др. – Казань, 2017.
16. Сиротина Т.Б., Русский язык как иностранный. Научный стиль речи: практикум для студентов-иностранцев подготовительных факультетов вузов / Т.Б. Сиротина - М. : ФЛИНТА, 2013. - 64 с. <https://www.studentlibrary.ru/cgi-bin/mb4x>

8.2. Supplementary literature

1. Маслова О.Н., Алексеева О.В. Справочник медицинских терминов для обучающихся 2 курса международного факультета врача общей практики Северного медицинского государственного университета. – Архангельск, 2020
2. Шустикова Т.В., Русский язык как иностранный. Русские глаголы. Формы и контекстное употребление / Шустикова Т.В. - М. : ФЛИНТА, 2017. - 394 с.

<https://www.studentlibrary.ru/book/ISBN9785893494341.html?SSr=2701343e3b1009cc31b05330.maslova16>

3rd year

8.1. Compulsory literature

- 1) Ю.Г. Овсиенко Русский язык: Учебник. Книга 2. Средний этап обучения. – 2-е изд. – М.: «Рус. яз.». Курсы, 2013. – 248 с.
- 2) Маслова О.Н., Верюжская А.Б. Практические учебные материалы по русскому языку как иностранному для студентов 3 курса (English Medium). – Архангельск, СГМУ, 2014.
- 3) Маслова, О.Н., Полуэктова Т.Д. «Свидание с аутентичным текстом» / Учебно-методическое пособие по русскому языку как иностранному для студентов 3-4 курсов (English medium) — Архангельск, 2020

4) Русский язык как иностранный: базовый уровень: учебное пособие. / Н.Ф. Башарова и др. – Казань, 2017.

5) Сиротина Т.Б., Русский язык как иностранный. Научный стиль речи: практикум для студентов-иностранцев подготовительных факультетов вузов / Т.Б. Сиротина - М. : ФЛИНТА, 2013. - 64 с. <https://www.studentlibrary.ru/cgi-bin/mb4x>

8.2. Supplementary literature

1) Маслова О.Н., Алексеева О.В. Справочник медицинских терминов для обучающихся 2 курса международного факультета врача общей практики Северного медицинского государственного университета. – Архангельск, 2020

2) Шустикова Т.В., Русский язык как иностранный. Русские глаголы. Формы и контекстное употребление / Шустикова Т.В. - М. : ФЛИНТА, 2017. - 394 с. <https://www.studentlibrary.ru/book/ISBN9785893494341.html?SSr=2701343e3b1009cc31b0533o.maslova16>

3) Антонова В.Е. Дорога в Россию: учебник русского языка (базовый уровень). – 6-е издание. – М.: ЦМО МГУ; С-Пб: Златоуст, 2012. – 256 с.

4) Антонова В. Е.. Дорога в Россию [Текст] : учеб. рус. яз. : (базовый уровень)/ В. Е. Антонова, М. М. Нахабина, А. А. Толстых [Кн.] 2. - 7-е изд.: Златоуст: ЦМО МГУ, 2013. - 256 с.: ил.3. .

4th year

8.1. Compulsory literature

1. Куриленко В.Б., Русский язык для будущих врачей. MedicalRussian (I сертификационный уровень владения РКИ в учебной и социально-профессиональной макросферах) / Куриленко В.Б. - М. : ФЛИНТА, 2017. - 133 с. (Русский язык как иностранный) - Текст : электронный // ЭБС "Консультант студента": [сайт]. URL :<https://www.studentlibrary.ru/book/ISBN9785976528161.html>

2. Русский язык как иностранный: лексика (продвинутый уровень) : учебно-методическое пособие / Л. К. Гатауллина, Р. Р. Сабитова; Минобрнауки России, Казан. нац. исслед. технол. ун-т. - Казань : Изд-во КНИТУ, 2018. - 96 с. - URL : <https://www.studentlibrary.ru/book/ISBN9785788223940.html>

8.2. Supplementary literature

1. Вишняков С.А., Русский язык как иностранный / С.А. Вишняков - М. : ФЛИНТА, 2016. - 240 с. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. – URL :<https://www.studentlibrary.ru/book/ISBN9785893496390.html>

2. Одинцова И.В., Русский язык как иностранный. Он и она / Одинцова И.В. - М. : ФЛИНТА, 2017. - 160 с. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. – URL :<https://www.studentlibrary.ru/book/ISBN9785893492705.html>

3. Антонова В. Е.. Дорога в Россию [Текст] : учеб. рус. яз. : (базовый уровень)/ В. Е. Антонова, М. М. Нахабина, А. А. Толстых[Кн.] 2. - 7-е изд.: Златоуст: ЦМО МГУ, 2013. - 256 с.: ил.3.

4. Антонова В. Е., Нахабина М. М., Толстых А. А. Дорога в Россию: учебник русского языка (первый уровень - I) : в 2 т. – Т.П. - 3-е изд. – СПб.: Златоуст, 2014.

5. Акишина М.А. Обучение синтаксису русского языка (Практическая часть) [Текст] : метод. рек. для иностр. студентов 2 курса EnglishMedium/ М.А. Акишина, А.Б. Верюжская; Сев. гос. мед. ун-т. Каф. рус. языка как иностр. - Архангельск : СГМУ, 2011. - 19, [1] с.
6. Верюжская А.Б. Способы выражения субъекта и предиката [Текст]/ А. Б. Верюжская. -Архангельск: Изд-во СГМУ, 2011. - 24 с., Б.ц
7. Маслова О.Н. Методические рекомендации по русскому языку как иностранному (2-й сертификационный уровень. Профессиональный модуль) [Электронный ресурс]: методический материал / О. Н. Маслова. - Архангельск : Северный государственный медицинский университет, 2012 - 60 с. –
URL:http://nb.nsmu.ru/cgi-bin/irbis64r_11/cgiirbis_64.exeLNG=&Z21ID=&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=3&S21FMT=fullwebr&C21COM=S&S21CNR=20&S21P01=0&S21P02=1&S21P03=I=&S21STR=elb/M%2031-343370

8.3. List of the information and telecommunications Internet resources required for mastering of the course (module)*

1st year

№	Resources	URL address	Resource Annotation
Resources for learning curriculum (language theory) and practice exercises			
1	Electronic library of NSMU	http://www.nsmu.ru/lib/	The resource contains electronic versions of textbooks on Russian as a foreign language from the main list of literature.
2	Time to speak Russian	https://www.irlc.msu.ru/irlc_projects/speak-russian/time_new/	The site contains a variety of materials (lessons, grammar reference book, tests, dictionaries, etc.). Convenient interface, good structure of the course.
3	Learn Russian step by step	https://learnrussianstepbystep.com	The site provides lessons on all grammatical topics necessary for an elementary level, speech models and vocabulary tests are given in a separate section.
4	Everyday Russian	https://everydayrussianlanguage.com	The site contains educational materials (lessons with explanations of grammar, tasks for mastering vocabulary and grammar).
5	Russian for everyone	http://www.russianforever.yone.com	The site contains educational materials, including an introductory phonetic course, as well as thematic lessons.
6	Quizlet	https://quizlet.com	A resource containing a variety of flashcards for learning

			educational material as well as games.
Resources for training exercises and monitoring			
	Learningapps	https://learningapps.org	A site containing exercise templates (for grading, multiple choice tests, etc.). Convenient for organizing students' independent work (memorizing language units). One of the ways to activate the mechanisms of memorizing new material with the help of motor and visual mechanisms.
	Wordwall	https://wordwall.net	A site containing templates for various tasks, including quizzes, word games, crosswords, which can be used both interactively and in print.
	Quizlet	https://quizlet.com	A resource containing a variety of flashcards for learning educational material as well as games.

2nd year

№	Resource name	URL address	Abstract of the resource
1	Russian for everybody (Русский язык для всех)	http://www.russianforeveryone.com/ m://www.russianforeveryone.com/	Prepositional -singular system, verb conjugation
2	Materials on Russian as a foreign language by Prof. T.Beyer (Middlebury College)	http://community.middlebury.edu/~beyer/mapryal/	Interactive materials on Russian as a foreign language. Prepositional-case system of the Russian language in the singular. Word formation. Syntax.
3	2 course Russian Language Russian Language as foreign	https://edu.nsmu.ru/course/view.php?id=1391	System of classes in the program of the module of the discipline "Russian language" 2nd year

3rd year

№	Resource name	URL address	Abstract of the resource
1	Russian for everybody (Русский язык для всех)	http://www.russianforeveryone.com/	Prepositional-case system in the singular, conjugation of verbs
2	Материалы по русскому языку как иностранному проф. Т.Байера (Middlebury College)	http://community.middlebury.edu/~beyer/mapryal/	Interactive materials on Russian as a foreign language. Prepositional-case system of the Russian language in the singular. Word formation. Syntax. Conjunctions.
3	3 course Russian Language Russian Language as foreign	https://edu.nsmu.ru/course/view.php?id=1137	The system of classes according to the program of the module of the discipline "Russian language" 3 course
4	Портал по русскому языку как иностранному "RussNet" (на английском языке).	http://www.russnet.org	Portal on Russian as a foreign language, making it easier to master the material of the lessons
5	Russian Studies Department, Bucknell University (на английском языке)	http://www.departments.bucknell.edu/russian	resources for learners of Russian language and culture of Russia
6	Медицинский портал medportal.ru.	http://medportal.ru/mednovosti/	
7	MedDaily – «МедДэйли»	http://www.meddaily.ru/	A site giving information about news in medicine.
8	Новости из России – дистанционный курс русского языка как иностранного для продвинутого уровня (Центр международного образования МГУ).	http://www.iec.ru	Distance course for students who show special success in learning Russian and who want to work with additional material
9	Russian Web Tutor	http://www.auburn.edu/~mitrege/RWT	Interactive materials on Russian as a foreign language

4th year

1. Study course of Russian as a foreign language (Pushkin institute)<http://ac.pushkininstitute.ru/index.php>
2. Webportal "Образование на русском" <https://pushkininstitute.ru/>
3. Webportal "Образование на русском" B1 level.
<https://pushkininstitute.ru/certified1>
4. Russian for free (website): texts, lexic, videos, dialogues etc.):
<http://www.russianforfree.com/>

5. Educational portal, which presents various types of online learning resources in Russian as a foreign language for beginner, intermediate and advanced levels.
<http://masterrussian.com/>
6. О.Э. Чубарова. Сетевая текстовая Центр международного образования МГУ имени М.В. Ломоносова. Все уровни ТРКИ.
https://www.irlc.msu.ru/irlc_projects/texts/
7. RussianWebTutor (Russian as a foreign language: interactive materials).
<http://www.auburn.edu/~mitrege/RWT>
8. Materials for studying Russian as a foreign language by T. Bayer (Middlebury College). <http://community.middlebury.edu/~bayer/mapryal/>
9. The official site of the TV program "Жить здорово".
<https://www.zdorovieinfo.ru/zhitzdorovo/home/>
10. The official site of the TV program "О самом главном".
<http://osglavnom.ru/novosti/o-samom-glavnom-vypusk-2581-ot-24-sentyabrya-2020.html>
11. A. L. Myasnikov's official website "Доктор Мясликов". <https://drmyasnikov.ru/>

8.4. Implementation of e-learning (EL), the use of distance learning technologies (DLT)

1st year

№	Platform of EL DLT	Name of the e-course, authors, URL address	E-course implementation model
1	MOODLE (with the use of video lessons in ZOOM with the use of electronic boards MIRO)	1 course Foreign language Russian Language as foreign (Ph.D., associate professor of NSMU O.V. Alekseeva) https://edu.nsmu.ru/course/view.php?id=1394	depending on the conditions of study: (1) blended learning + EC (2) blended learning + EC

2nd year

№	The EE and DLT platform	Name of the e-course, authors, URL	Implementation model of the electronic course
	Moodle Zoom	2 course Russian Language Russian language as foreign https://edu.nsmu.ru/course/view.php://edu.nsmu.ru/course/view.php?id=1391	<i>mixed training</i> +EC,

3rd year

№	The EE and DLT platform	Name of the e-course, authors, URL	Implementation model of the electronic course

1	Moodle	3 course Russian Language Russian language as foreign, Полуэктова Татьяна Дмитриевна, https://edu.nsmu.ru/course/ view.php?id=1137	<i>mixed training</i> +EC,
	Zoom		

8.5. The list of the software and information & reference systems

The following software is used in the educational process by students and professors:
operating system-MS Windows Vista Starter, MS Windows Prof 7 Upgr; **office suite**-MS Office 2007; other **software** - 7-zip, AdobeReader, Kaspersky Endpoint Security

9. Material and technical facilities necessary for the educational process*

№	Name of the study room	Location of the study room	List of the main equipment of the study room
	classrooms for seminar-type classes № 1513 1514 1515 1515 a 1516 1516 a 1521 1521 a	NSMU Troitsky Ave., 51, building 1, 5th floor	each auditorium has 15-20 seats, double tables, a board, stands. Bookcases and / or shelves: No. 1513, 1514, 1515a, 1516, 1516a, 1521 Special equipment: No. 1513 - TV, laptop No. 1516 - TV, laptop No. 1516a - screen, projector