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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY
First Vice-Rector
_____ / Trankovskaya L.V./
"9" июня 2025

DISCIPLINE WORK PROGRAM

Б1.О.12 Microbiology, virology - Oral microbiology

(name of discipline)

Specialty	**31.05.03 Dentistry for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing health care in patients with dental pathology)
Mode of study	Full-time
Period of mastering the BEP	**5 years** (nominal length of study)
Department	of Microbiology, Dermatovenereology and Cosmetology

Vladivostok, 2025

Program of the discipline **Б1.О.12 Microbiology, virology - Oral microbiology** is based on:
1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 984 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.03 Dentistry for international students (in English), profile 02 "Healthcare" (in the field of providing health care in patients with dental pathology), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia Report No. 8/24-25 dated March 31, 2025.

Work program for the discipline was developed by the writing team of the Department of Microbiology, Dermatovenereology and Cosmetology of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the head of the department Head of the Department of Microbiology and Virology, Doctor of Medical Sciences, Associate Professor Zaitseva E.A.

Developed by:

Head of the Department	Doctor of Medical Sciences, Associate Professor	Zaitseva E.A.
(position held)	(academic degree, academic title)	(full name)
Assistant Professor	Candidate of Medical Sciences, Associate Professor	Zabelina N.R.
(position held)	(academic degree, academic title)	(full name)
Assistant		Dunaeva M.N.
(position held)	(academic degree, academic title)	(full name)

1. GENERAL PROVISIONS

1.1. Purpose and Objectives of Mastering Б1.О.12 Microbiology, virology - Oral microbiology

The purpose of mastering the discipline is acquiring knowledge of principles and patterns of interaction between micro- and macroorganisms, as well as basic principles of microbiological, biomolecular, and immunologic diagnostic methods, main ways of treatment and preventive measures against infectious and opportunistic diseases.

Objectives of mastering the discipline:

1. Learning classification, morphology, and physiology of microbes, including viruses, their biological and pathogenic properties, impact on public health; aspects of symbiosis between the human body and microbes, the role of the resident microflora of the body in the development of opportunistic diseases; features of normal and pathologic oral microflora, as well as the role of the microorganisms in the mechanisms behind dental pathology;
2. Mastering the methods of microbiological, serological, and immunological diagnosis of infectious and opportunistic diseases; algorithm of microbiological diagnosis of select infectious diseases, and interpretation of the results;
3. Learning basic methods of sterilization, disinfection, and antiseptic treatment of instruments and equipment;
4. learning to choose tactics of antibacterial, antiviral, immunotropic therapy;
5. Facilitating self-educational activities in students: the ability to compare facts, draw conclusions, develop personal qualities, and strive to use modern scientific achievements.

2. DISCIPLINE AS PART OF THE BASIC EDUCATIONAL PROGRAM

Discipline **Б1.О.12 Microbiology, virology - Oral microbiology** is included in the mandatory part of the Unit 1 of the basic educational program for the specialty 31.05.03 Dentistry for international students (in English) and is part of the 2nd and 3rd semesters' curriculum.

3. PLANNED LEARNING OUTCOMES OF THE DISCIPLINE

3.1. Mastering the discipline **Б1.О.12 Microbiology, virology - Oral microbiology** is aimed at the development of students' competencies. The discipline facilitates the development of students' competencies corresponding to the types of professional activity.

Competency Code	**Competency Description**	**Competency Indicators**
General Professional Competencies		
Basis of fundamental and natural science knowledge	GPC-9. Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity	CI.GPC-9_1- assesses the morphofunctional state of organs CI.GPC-9_2- distinguishes between pathological and physiological processes, identifies etiology of changes CI.GPC-9_3- provides diagnostic assessment of the identified changes

3.2. Types of professional activity corresponding to competencies developed over the course of mastering **Б1.О.12 Microbiology, virology - Oral microbiology**:

Types of professional activity objectives

1. *Medical*

Kinds of professional activity objectives

1. *Examination of the patient in order to make a diagnosis*
2. *Prescribing pharmacological and non-pharmacological treatment and monitoring its*

efficiency and safety

3.3. Planned learning outcomes of mastering the discipline are represented by knowledge, skills, abilities and/or experience, characterize the stages of developing competencies and ensure achievement of the planned outcomes of mastering the basic educational program. Learning outcomes of a discipline are correlated with competency indicators.

4. SCOPE AND CONTENT OF THE DISCIPLINE

4.1. Scope of the Discipline and Types of Academic Work

Type of Academic Work		**Total Hours**	**Semesters**	
			2	**3**
			hours	**hours**
1		2	3	4
Classroom hours (total), including:		**96**	**72**	**24**
Lectures (L)		28	20	8
Practical classes (C)		68	52	16
Electronic educational resource (EER): including online asynchronous lectures		28	20	8
Independent work of the student (IW), including:		**57**	**36**	**21**
Electronic educational resource (EER)				
Preparing for classes (CP)		28	20	8
Preparing for continuous assessment (CAP)		23	16	7
Preparation for interim assessment (IAP)		6		6
Interim assessment		27		27
Type of interim assessment	pass/fail test (T)			
	exam (E)	E		E
TOTAL: TOTAL credit value	hrs.	**180**	**108**	**72**
	credits	**5**	**3**	**2**

4.2. Contents of the Discipline

4.2.1. Topics of Discipline Lectures and Academic Hours per Semester

No.	**Lecture Topic**	**Hours**
1	2	3
	Semester No. 2	
1.	Main historical stages of development of microbiology. Principles of classification, morphology, and structure of microorganisms	2
2.	Characteristics of eukaryotic microorganisms of the oral cavity (fungi, protozoa). Physiology of microorganisms: microbial nutrition, breathing	2
3.	Morphology and physiology of viruses. Bacteriophage. Prions	2
4.	Ecological microbiology. Physiological human microflora. Microbial ecology of the oral cavity. Morphology of the main biotopes of the oral cavity	2
5.	Forms of relationships between microbes and other biological objects. Antimicrobial agents. Classification, mechanisms of action. Antimicrobial resistance	2
6.	Infection and infection process. Pathogenicity and microbial persistence. Genetics	2

	of bacteria. Biofilms	
7.	Fundamentals of environmental sanitary microbiology. Sanitary-indicatory microorganisms. Hospital-acquired infections. Aseptics, antiseptics	2
8.	Microflora in patients with caries (tooth decay)	2
9.	Microflora in patients with periodontitis, gingivitis	2
10.	Microflora in patients with odontogenic infection	2
	Hours per semester total	**20**
	Semester No. 3	
1.	Bacterial infections of oral mucosa (stomatitis, gonorrhea, diphtheria, listeriosis, scarlet fever). Part 1	2
2.	Bacterial infections of oral mucosa (syphilis, borreliosis, leptospirosis, mycobacteriosis). Part 2	2
3.	Fungal infections of oral mucosa	2
4.	Viral infections of oral mucosa	2
	Hours per semester total	**8**

4.2.2. Topics of Discipline Practical Classes and Academic Hours per Semester

No.	Practical Class Topic	Hours
1	2	3
	Semester No. 2	
1	Principles of classification. Morphology, tinctorial properties and structure of bacteria. Microscopy method	4
2	Physiological human microflora Morphology and structure of oral microflora: spirochetes, fungi, protozoa. Continuous assessment	4
3	Physiology of microorganisms: breathing, microbial nutrition, reproduction. Microbiological method. Decontamination principles. Sterilization. Disinfection	4
4	Morphology and physiology of viruses. Viruses of the bacteria: bacteriophages. Prions and prion proteins	4
5	Characteristics of obligatory anaerobic microorganisms of the oral cavity, their role in pathology	4
6	Characteristics of facultative anaerobic and aerobic microorganisms of the oral cavity	4
7	Characteristics of eukaryotic microorganisms of the oral cavity (fungi, protozoa) Physiological human microflora	4
8	Ecological microbiology. Microbial ecology of the oral cavity. Main biotopes of the oral cavity Biofilms (dental plaque, dental calculus, quorum sensing mechanisms)	4
9	Antibiotics: characteristics, classification, mechanisms of action. Antimicrobial resistance: L-form bacteria, persister cells	4
10	Infection and infection process. Pathogenicity and microbial persistence. Genetics of bacteria. Microbiological methods used in dentistry	4
11	Resident oral microflora Fundamentals of environmental sanitary microbiology. Sanitary-indicatory microorganisms. Hospital-acquired infections. ESKAPE pathogens	4
12	Microflora in patients with dental pathology. Caries (tooth decay). Role of microorganisms in formation of dental plaque, caries. Periodontopathogenic microflora (gingivitis, periodontitis). Odontogenic infection. Role of oral mircoflora in systemic disease	4
13	Microbial infections of oral mucosa. Bacterial infections and their manifestations in oral cavity (scarlet fever, stomatitis, gonorrhea, diphtheria, listeriosis)	4

	Continuous assessment	
	Hours per semester total	**52**
	Semester No. 3	
1	Bacterial infections and their manifestations in oral cavity (tuberculosis, leprosy, syphilis, borreliosis, leptospirosis, pyoderma) Fungal infections of oral mucosa (candidiasis, systemic fungal infections: aspergillosis, cryptococcosis, etc)	4
2	Viral infections of oral mucosa (herpes virus infections, herpes zoster, cytomegalovirus infection, infectious mononucleosis) Microbiology of enterovirus infections	4
3	Measles (rubeola), Human papillomavirus infection Parenteral viral hepatitis	4
4	HIV infection in the oral cavity. Aftosa (foot-and-mouth disease)	4
	Hours per semester total	**16**

4.2.3. Independent Work of the Student

No.	Name of the Discipline Section	Type of IW	Total Hours
1	3	4	5
	Semester No. 2		
1	General microbiology, oral microbiology	Preparing for practical classes, preparing for tests	
2	Special (specialty) microbiology	Preparing for tests, preparing reports, preparing practical assignment	
	Hours per semester total		
	Semester No 3		
1	Special (specialty) microbiology	Preparing for practical classes, preparing for tests, preparing for interim assessment	
	Hours per semester total		

5. REQUIREMENTS FOR IMPLEMENTATION OF DISCIPLINE

5.1. Discipline Requirements for Educational Materials and Provided Information

Essential reading

No.	Name/Title, Resource Type	Author(s)/Editor	Publisher Imprint, Web Address	Number of Copies (accesses) in the Library and Information Center
1	**2**	**3**	**4**	**5**
1	Микробиология, вирусология, иммунология полости рта : учебник [Электронный ресурс]	под ред. В. Н. Царева	М. : ГЭОТАР-Медиа, 2021. - 720 с. URL: http://studentlibrary.ru	Unlimited access
2	Medical Microbiology, Virology, Immunology = Медицинская микробиология, вирусология, иммунология : textbook in 2 vol.	ed. V. V. Zverev, M. N. Boichenko.1	M. : GEOTAR-Media, 2020.	1
3	Medical Microbiology, Virology, Immunology : textbook. Vol. 1	ed. by V. V Zverev, M. N. Boichenko.	М. : ГЭОТАР-Медиа, 2020. - 384 с. - ЭБС «Консультант студента»	Unlimited access
4	Medical Microbiology, Virology, Immunology : textbook : Vol. 2.	ed. by V. V. Zverev, M. N. Boichenko.	М. : ГЭОТАР-Медиа, 2020. 392 с. - ЭБС «Консультант студента»	Unlimited access
5	Microbiology, virology, immunology : textbook	E. A. Mikhailova, L. M. Aznabayeva,	М. : ГЭОТАР-Медиа, 2024. - 560 с. - ЭБС	Unlimited access

		I. E. Lyashenko [et al.].	«Консультант студента»	

Supplementary reading

No.	Name/Title, Resource Type	Author(s)/Editor	Publisher Imprint, Web Address	Number of Copies (accesses) in the Library and Information Center
1	2	3	4	5
1	Микробиология, вирусология : учеб. пособие [Электронный ресурс]	под ред. Зверева В.В., Бойченко М.Н.	М. : ГЭОТАР-Медиа, 2019. - 368 с. URL: http://www.studentlibrary.ru	Unlimited access
2	Микробиология, вирусология: руководство к практическим занятиям: учеб. Пособие [Электронный ресурс]	Зверев В.В. [и др.]; под ред. В.В. Зверева, М.Н. Бойченко	М. : ГЭОТАР-Медиа, 2017. URL: http://www.studentlibrary.ru	Unlimited access
3	Микробиология: возбудители бактериальных воздушно-капельных инфекций : учеб. пособие для вузов [Электронный ресурс]	под общ. ред. Л. И. Кафарской	М. : Издательство Юрайт, 2024. - 115 с. - URL: https://www.urait.ru	Unlimited access
4	Микробиология: возбудители бактериальных воздушно-капельных инфекций : учеб. пособие для вузов [Электронный ресурс]	под общ. ред. Л. И. Кафарской	М. : Издательство Юрайт, 2021. - 115 с. - URL: https://www.urait.ru	Unlimited access

Online resources

1. Electronic library system "Student Consultant" http://studmedlib.ru/
2. Electronic library system "University Library Online"http://www.biblioclub.ru/
3. Electronic library system "Urait" https://urait.ru/
4. Electronic library system "BookUp" https://www.books-up.ru/
5. Resources owned by the Library and Information Center of FSBEI HE PSMU of the Ministry of Health of Russia https://tgmu.ru/university/bibliotechno-informacionnyj-centr/resursy-bic/sobstvennye/

Online resources and respective user guides are available on the Library and Information Center website Library and Information Center — PSMU (tgmu.ru)



5.2. Discipline Requirements for Facilities and Resources

Information on the facility and resource availability and requirements of the discipline is available on the Facility and resource availability and requirements. FSBEI HE PSMU of the Ministry of Health of Russia (tgmu.ru)" page of the official website of the university.



5.3. List of Information Technologies, Information and Reference Systems, Licensed and Free Software (Including Domestically-developed Software):

1. PolycomTelepresence M100 Desktop Conferencing Application (Videoconference system)
2. SunRav Software tTester
3. 7-PDF Split & Merge
4. ABBYYFineReader
5. Kaspersky Endpoint Security
6. INDIGO online testing system
7. Microsoft Windows 7
8. Microsoft Office Pro Plus 2013
9. 1C:University
10. GARANT system
11. MOODLE (Modular Object-Oriented Dynamic Learning Environment)

6. ASPECTS OF THE IMPLEMENTATION OF THE DISCIPLINE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

6.1. Availability of Accessible Environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant; buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

6.2. Ensuring Compliance with General Requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

6.3. Availability of the Internal Policies and Procedures of FSBEI HE PSMU of the Ministry of Health of Russia to Students with Disabilities in a Format Accessible to Them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a format accessible to them.

6.4. Increase in the Time Limit of Interim Assessment for Students with Disabilities and Special Needs in Relation to the Established duration

Format of the interim assessment of academic performance within the scope of the discipline conducted for students with disabilities and special needs is selected taking into account individual characteristics of the students (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours.

7. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.03 Dentistry for international students (in English) specialty; list of the aforementioned personnel is available on the website of the educational organization.

8. TUTORIAL WORK

Type of tutorial work	Forms and approaches to tutorial work	Assessment criteria
Assistance in personal growth	Overt Б1.О.12 Microbiology, virology - Oral microbiology Talks and problem-centric debates aimed at promotion of healthy lifestyle. Participation in interdepartmental conferences aimed at formation of healthy lifestyle and development of skills necessary to preserve and improve health.	Portfolio
	Covert – creating atmosphere and infrastructure. Б1.О.12 Microbiology, virology - Oral microbiology Developing a culture of healthy lifestyle, the ability to preserve and improve health. Creating atmosphere of kindness and respect with a high level of communication during implementation of the discipline.	
Civic position and values	Overt Б1.О.12 Microbiology, virology - Oral microbiology Conducting events that facilitate development of civil culture (roundtable discussions, discussions/debates, and talks). Short discussions on current significant events in case the latter occur.	Portfolio
	Covert Б1.О.12 Microbiology, virology - Oral microbiology Focusing on civic values-oriented position and legal awareness. Cultivating mindful social position during professional activity.	
Social values	Overt Б1.О.12 Microbiology, virology - Oral microbiology Highlighting aspects of organization of healthy lifestyle based on health-preserving technologies. Highlighting ecology-related questions, environmental issues as a factor affecting population health and select population risks. Arranging events aimed at developing ethical norms and norms of conduct in sports community.	Portfolio
	Covert Б1.О.12 Microbiology, virology - Oral microbiology Identification in social structure during period of education and in professional activity.	