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Информация о владельце:
ФИО: Стегний Кирилл Владимирович
Должность: И.о. ректора
Дата подписания: 02.07.2026 11:40:47
Уникальный программный ключ:
d59234ba928aea5c04c54eb9013e367220b6b2ae

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" мая 2025

DISCIPLINE WORK PROGRAM

Б1.В.05 Medical genetics

(name of discipline)

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	Full-time
Period of mastering the BEP	**6 years** (nominal length of study)
Institute	of Simulation and Training Technology

Vladivostok, 2025

Program of the discipline **Б1.В.05 Medical genetics** is based on:
1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), 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 Institute of Simulation and Training Technology of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the Director of the Institute, Gnezdilov V.V.

Developed by:

Director of the Institute		Gnezdilov V.V.
(position held)	(academic degree, academic title)	(full name)
Professor	Doctor of Medical Sciences, Associate professor	Solyanik E.V.
(position held)	(academic degree, academic title)	(full name)
Assistant professor	Candidate of Medical Sciences	Maystrovskaya Yu.V.
(position held)	(academic degree, academic title)	(full name)

1. GENERAL PROVISIONS

1.1. Purpose and Objectives of Mastering Б1.В.05 Medical genetics

The purpose of mastering the discipline is to acquire basic knowledge about genetic, polygenetic, and systemic diseases; significance of specific clinical and genealogical, as well as clinical and morphological examination methods within the scope of examination of patients with diseases of the internal organs aimed at timely diagnosis of genetic pathology and justifying the necessity of genetic counseling in specialized facilities.

Objectives of mastering the discipline:

1. Acquire basic knowledge about genetic, polygenetic, and systemic diseases; symptoms and syndromes characteristic of genetic and genetically determined pathology identified during patient examination, their diagnostic significance in patients with the most common diseases of the internal organs;
2. Develop skills of applying specific clinical and genealogical, as well as clinical and morphological examination methods within the scope of general examination of patients with diseases of the internal organs; additional examination methods and their diagnostic significance in justifying the referral to a genetic counseling in specialized facilities.

2. DISCIPLINE AS PART OF THE BASIC EDUCATIONAL PROGRAM

Discipline **Б1.В.05 Medical genetics** is included in the Part developed by the parties of educational process of the basic educational program for the specialty 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), and is part of the 5th and 6th semester's curriculum.

3. PLANNED LEARNING OUTCOMES OF THE DISCIPLINE

3.1. Mastering the discipline **Б1.В.05 Medical genetics** is aimed at the development of students' competencies. The discipline facilitates the development of students' competencies corresponding to the types of professional activity.

Name of competency category (group) / labor function	**Code and Name of competency of the graduate**	**Competency Indicators**
Professional Competencies		
A/02.7 Examination of the patient in order to make a diagnosis	PC-3 Ability and readiness to collect and analyze complaints that a patient presents with, anamnestic data, examination results, results of laboratory and instrumental tests, biopsy and other studies in order to identify patient's condition or establish the presence or absence of a disease	CI.PC-3_1- collects patient's anamnesis, conducts examination, palpation, percussion and auscultation in healthy people with noninfectious and infectious diseases of internal organs, provides a diagnostic assessment of the identified symptoms, diagnoses syndromes; CI.PC-3_2- identifies pathogenetic and pathomorphological features of diseases of internal organs; CI.PC-3_3- selects required additional diagnostic methods, evaluates their results in order to recognize patient's condition, establish the presence or absence of the disease

	PC-4 Ability and readiness to identify main pathological conditions, syndromes, symptoms of diseases, specific diseases of a patient in accordance with International Statistical Classification of Diseases and Related Health Problems	CI.PC-4_1- diagnoses syndromes and makes preliminary diagnoses based on the results of a physical examination in noninfectious and infectious diseases of internal organs; CI.PC-4_2- conducts differential diagnosis of noninfectious and infectious diseases of internal organs, assesses the prognosis, formulates the need for additional counseling by doctors of different specialties; CI.PC-4_3- makes the final diagnosis and formats it in accordance with the ICD

3.2. Types of professional activity corresponding to competencies developed over the course of mastering **Б1.В.05 Medical genetics**:

Types of professional activity objectives

1. Medical

Kinds of professional activity objectives

1. Diagnostics

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**	
			5	**6**
			hours	**hours**
1		2	3	4
Classroom hours (total), including:		**38**	**20**	**18**
Lectures (L)		14	8	6
Practical classes (C)		24	12	12
Independent work of the student (IW), including:		**34**	**16**	**18**
Preparing for classes (CP)		20	10	10
Preparing for continuous assessment (CAP)		7	3	4
Preparation for interim assessment (IAP)		7	3	4
Type of interim assessment	pass/fail test (T)	T		T
	exam (E)			
TOTAL: TOTAL credit value	hrs.	**72**	**36**	**36**
	credits	**2**	**1**	**1**

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. 5	
1.	The subject and objectives of medical genetics. Medical genetics in the system of medical knowledge, and its relationship with other clinical and medical-preventive disciplines. Mutations	2
2.	Diagnostic techniques in medical genetics	2
3.	Semiotics of hereditary and genetically determined diseases. Pathogenesis and diagnostic significance of symptoms	2
4.	Diagnosis of hereditary, polygenic, and systemic diseases during physical examination. Additional methods and their diagnostic significance	2
	Hours per semester total	**8**
	Semester No. 6	
1.	Diagnosis of systemic genetically determined diseases and syndromes: chromosomal disorders, single-gene disorders	2
2.	Diagnosis of systemic genetically determined diseases and syndromes: multifactorial disorders	2
3.	Prevention of hereditary pathology. Types of prevention of hereditary diseases. Levels of prevention. Methods and forms of preventive measures. Medical and genetic counseling	2
	Hours per semester total	**6**

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

No.	Practical Class Topic	Hours
1	2	3
	Semester No. 5	
1	Definition of genetics, branches of genetics research, types of genetic diseases. Mutations	4
2	Diagnostic techniques in medical genetics, pedigree analysis, cytogenetic studies, fluorescence in situ hybridization, DNA analysis and biochemical analysis	4
3	Semiotics of hereditary and genetically determined diseases. pathogenesis and diagnostic significance of symptoms	4
4	Physical diagnosis of hereditary, polygenic, and systemic diseases. Additional methods and their diagnostic significance	4
	Hours per semester total	**16**
	Semester No. 6	
1	Diagnosis of systemic genetically determined disease syndromes: chromosomal disorders, single-gene disorders. Practical training: descriptive assignments, case studies (mini-cases)	4
2	Diagnosis of systemic genetically determined diseases and syndromes: multifactorial disorders	4
3	Prevention of hereditary pathology. Types of prevention of hereditary diseases. Descriptive assignments, case studies (mini-cases)	4
4	Levels of prevention. Methods and forms of preventive measures. Medical and genetic counseling, descriptive assignments, case studies (mini-cases)	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. 5		
1	The subject and objectives of medical genetics. Medical genetics in the system of medical knowledge, and its relationship with other clinical and medical-preventive disciplines. Mutations	Preparing for practical classes; Preparing for tests and assignments	4
2	Diagnostic techniques in medical genetics, pedigree analysis, cytogenetic studies, fluorescence in situ hybridization, DNA analysis and biochemical analysis	Preparing for practical classes; Preparing for tests and assignments	5
3	Semiotics of hereditary and genetically determined diseases. pathogenesis and diagnostic significance of symptoms	Preparing for tests; Preparing slides presentations	4
4	Preparing for interim assessment (IAP)		3
	Hours per semester total		**16**
	Semester No. 6		
1	Diagnosis of systemic genetically determined disease syndromes: chromosomal disorders, single-gene disorders. Practical training: descriptive assignments, case studies (mini-cases)	Preparing for practical classes; Preparing slides presentations	6
2	Diagnosis of systemic genetically determined diseases and syndromes: multifactorial disorders	Preparing for practical classes; Preparing slides presentations	4
3	Prevention of hereditary pathology. Types of prevention of hereditary diseases	Preparing for practical classes; Preparing slides presentations	4
8	Preparing for interim assessment (IAP)		4
	Hours per semester total		**18**

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	Medical Genetics	Akulenko, L.V.	GEOTAR-Media, 2015 Access Mode: http://www.studmedlib.ru/book/ISBN9785970433614.html	Unlimited access
2	Medical Genetics	Lynn B. Jorde	https://books.google.ru/books?id=BaYQbkC64rIC&hl=ru	Unlimited access
3	Essential Medical Genetics	Tobias Edward S., Connor Michael	https://books.google.ru/books/about/Essential_Medical_Genetics/	Unlimited access

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	https://books.google.ru/books/about/Essential_Medical_Genetics/	Robert Nussbaum	https://libguides.tulane.edu/geneticsed	Unlimited access
2	Medical Genetics and Law	Mair Crouch	https://www.amazon.com/Medical-Genetics-Law-International-Perspective/dp/3031789571	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 31.05.01 General Medicine 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 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. 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 Conducting events that facilitate development of civil culture (roundtable discussions, discussions/debates, and talks).	Portfolio
	Covert Focusing on civic values-oriented position and legal awareness. Cultivating mindful social position during professional activity.	
Social values	Overt 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.	Portfolio
	Covert Identification in social structure during period of education and in professional activity.	