Federal State Autonomous Educational Institution of Higher Education PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA named after Patrice Lumumba RUDN University

Institute of Medicine

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Mathematics

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Medicine

higher education programme profile/specialisation title

2024

1. COURSE GOAL(s)

The goal of the course "Mathematics" is to equip students with the knowledge for applying methods of mathematical analysis for solving the assigned tasks, acquire new mathematical and natural science knowledge using modern educational and information technologies

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) "Mathematics" is aimed at the development of the following competences /competences in part: **General Professional Competences- (GPC)-6 (GPC-6.3, GPC-6.4).**

Table 2.1. List of competences that students acquire through the course study

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GPC-6	Able to use in professional activity the basic laws of physics, chemistry, earth sciences and biology, apply methods of mathematical analysis and modeling, theoretical and experimental research, acquire new mathematical and natural science knowledge using modern educational and information technologies	GPC-6.3. Can apply the methods of mathematical analysis and modeling for solving the assigned tasks.
		GPC-6.4. Applies modern educational and information technologies to obtain new mathematical and natural science knowledge

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
GPC-6	Able to use in professional activity the basic laws of physics, chemistry, earth sciences and biology, apply methods of mathematical analysis and modeling, theoretical and experimental research, acquire new mathematical and natural science knowledge using		Medical Informatics Biostatistics Telemedicine
Competence code	**Competence descriptor**	**Previous courses/modules***	**Subsequent courses/modules***
	modern educational and information technologies		

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "Mathematics" is 2 credits (72 academic hours).

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)**

Type of academic activities		Total academic hours	Semesters/training modules	
			1	
Contact academic hours		**34**	**34**	
including:				
Lectures (LC)				
Lab work (LW)				
Seminars (workshops/tutorials) (S)		34	34	
Self-studies		**38**	**38**	
Evaluation and assessment (exam/passing/failing grade)				
Course workload	academic hours	**72**	**72**	
	credits	**2**	**2**	

* To be filled in regarding the higher education programme full-time training mode.

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Modules	Content	Learning activities *
Module 1 Common mathematics	**Topic 1.1.** Sets	S
	Topic 1.2. Sequences	S
	Topic 1.2. Series	S
Module 2 Algebra	**Topic 2.1.** System of equations	S
	Topic 2.2. Matrices	S
Module 3 Mathematical analysis	**Topic 3.1.** Derived functions	S
	Topic 3.2. Integration	S
Modules	**Content**	**Learning activities ***
	Topic 3.3. Differential equations	S

* - to be filled in only for **full** -time training: *LC - lectures; LW - lab work; S - seminars.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	**Classroom equipment**	**Specialised educational / laboratory equipment, software, and materials for course study** (if necessary)
Computer Lab	Computer Lab Classroom can be used for seminars, lab works and consulting. Equipped with a set of specialized furniture, computers with access to electronic information and educational environment (EIEE)	Set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector Epson EB-965H, laptop, Monoblock Acer Aspire C24- 865, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release)
Self-studies	Classroom for self-study (can be used for seminars and consulting. Equipped with a set of specialized furniture, computers with access to electronic information and educational environment (EIEE)	Set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector Epson EB-965H, laptop, Monoblock Acer Aspire C24- 865, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release)

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

- Lukyanova E.A. Mathematics for medical students. M.: Publ. by PFUR.-2014

Additional readings :

- Course: Mathematics for medical students.
- (http://esystem.pfur.ru/course/view.php?id=9025)

Internet-(based) sources:

1. EBS of RUDN University and third-party EBS to which students have access on the basis of concluded agreements:
   - RUDN University Library System http://lib.rudn.ru/MegaPro/Web
   - EBS "University Library Online" http://www.biblioclub.ru
   - EBS “Yurayt” http://www.biblio-online.ru
   - EBS "Student Consultant" www.studentlibrary.ru
   - EBS "Lan" http://e.lanbook.com/
   - TUIS: http://esystem.rudn.ru/
2. Database of medical and biological publications: - - Yandex search engine https://www.yandex.ru/
   - Google search engine https://www.google.ru/
   - SCOPUS abstract database http://www.elsevierscience.ru/products/scopus/

*Training toolkit for self- studies to master the course *:*

1. The set of lectures on the course “Mathematics”

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS’ COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (GPC-6.3, GPC-6.4) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

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