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

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

COURSE SYLLABUS

Maths

course title

Recommended by the Didactic Council for the Education Field of:

36.05.01 Veterinary medicine

field of studies / speciality code and title

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

Veterinary medicine

higher education programme profile/specialisation title

2025

1. COURSE GOAL(s)

The purpose of mastering the discipline "Maths" is to study the main sections of higher mathematics necessary for solving various kinds of applied problems

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the discipline "Maths" is aimed at developing the following competencies (parts of competencies):

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

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GC-1	Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	GC-1.1 Analyzes the task, highlighting its basic components; GC-1.2 Determines and ranks the information required to solve the problem; GC-1.3 Searches for information to solve the task for various types of requests
GC-12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	GC-12.1 Searches for the necessary sources of information and data, perceives, analyzes, remembers and transmits information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems;
GPC-4	Able to use in professional activities methods of solving problems using modern equipment in the development of new technologies and use modern professional methodology to conduct experimental studies and interpret their results	GPC-4.1 Owns the conceptual and methodological apparatus of the basic natural sciences at a level sufficient for full-fledged professional activity at the modern level GPC-4.2 Owns methods for solving problems using modern equipment

3.COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

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

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*
GC-1	Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	-	Philosophy, Disciplines of the interdisciplinary module, Educational practice, Preparation for passing and passing the state exam
GC-12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	-	Educational practice
GPC-4	Able to use in professional activities methods of solving problems using modern equipment in the development of new technologies and use modern professional methodology to conduct experimental studies and interpret their results	-	Educational practice, veterinary and industrial laboratories with the basics of design, Medical and industrial practice, Industrial practice, Preparation for passing and passing the state exam

* To be filled in according to the competence matrix of the higher education programme.

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Possible wording

The total workload of the course 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	2	3	4
Contact academic hours		*17*	*17*			
Lectures (LC)						
Lab work (LW)						
Seminars (workshops/tutorials) (S)		17	17			
Self-studies		*37*	*37*			
Evaluation and assessment (exam/passing/failing grade)		*18*	*18*			
Course workload	academic hours_	**72**	**72**			
	credits	**2**	**2**			

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1: Analytic geometry: straight line and curves of the second order	Topic 1.1. The simplest tasks. Different types of equations of a straight line Topic 1.2. Curves of the second order	S
Module 2: Basics of mathematical analysis	Topic 2.1. Functions: basic definitions and concepts. Function graphs. Review of basic elementary functions. Topic 2.2. Numerical sequences. The limit of the numerical sequence. Functions: limit and continuity Topic 2.3. Function differentiation. Investigation of functions with the help of derivatives. Topic 2.4. Integration of functions. Definite Integral Application	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)
Seminar	A classroom for conducting seminars, group and individual consultations, current and mid-term assessment; equipped with a set of specialised furniture and technical means for multimedia presentations.	List of specialised equipment, stands, visual posters, etc.
Self-studies	A classroom for independent work of students (can be used for seminars and consultations), equipped with a set of specialised furniture and computers with access to the electronic information and educational environment.	

* The premises for students' self-studies are subject to **MANDATORY** mention

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Mikheev V.I., Pavlyuchenko Yu.V. - Higher mathematics. - M.: FIZMATLIT, 2004 and 2007.

2. A short course in higher mathematics for chemical-biological and medical specialties. - M. FIZMATLIT, 2003.

3. Rekach F.V., Popov A.M. RUDN University, 2007, 2009. Lectures on higher mathematics. Ch.1,2

Additional readings:

1. Vygodsky M.Ya. Handbook of higher mathematics. - M.: FIZMATLIT, 2004.

Internet sources

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) http://lib.rudn.ru/MegaPro/Web
- EL "University Library Online" http://www.biblioclub.ru
- EL "Yurayt" http://www.biblio-online.ru
- EL "Student Consultant" www.studentlibrary.ru
- EL "Lan" http://e.lanbook.com/
- EL "Trinity Bridge"

2.Databases and search engines:

- electronic foundation of legal and normative-technical documentation http://docs.cntd.ru/
- 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 "Maths"

* 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 (competences in part) 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).

DEVELOPERS:

Senior Lecturer, Mathematical Institute		**Hassan N.Sh.**
position, department	signature	name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

Mathematical Institute		**Muravnik A.B.**
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HEAD
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