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

Biostatistics

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

2023-2024

1. COURSE GOAL(s)

The goal of the course "Biostatistics" is to equip students with the basic knowledge of statistical methods for medical data analysis and formation of skills for their practical application.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) "Biostatistics" is aimed at the development of the following competences /competences in part: **General Professional Competences- (GPC)-10 (GPC-10.1, GPC-10.2, GPC-10.3).**

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

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GPC-10	Able to solve standard tasks of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies, taking into account the basic requirements of information security	**GPC-10.1** Be able to use modern information and communication tools and technologies in professional activities
		GPC-10.2 Be able to follow the rules of information security in professional activities
		GPC-10.3 Able to use information and communication technologies, including application software for general and special purposes in solving problems of professional activity

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-10	Able to solve standard tasks of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies, taking into account the basic requirements of information security	Biology Normal Physiology, Mathematics, Medical informatics	Public health and health care Clinical Pharmacology

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "Biostatistics" is 2 credits (720 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	
			3	
Classroom learning , *ac.h.*		**36**	**36**	
Including:				
Lectures (LC)				
Lab work (LW)		36	36	
Seminars (workshops/tutorials) (S)				
Self-studies		**36**	**36**	
Evaluation and assessment (exam/passing/failing grade)				
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	**Topic 1.1.** PLANING of BIOMEDICAL RESEARCH	**LW**

Course module title	Course module contents (topics)	Academic activities types
BASICS OF BIOMEDICAL RESEARCH	**Topic 1.2.** TYPES OF RESEARCH	**LW, SS**
Module 2 DESCRIPTIVE STATISTIC	**Topic 2.1.** GRAPHICAL DATA PRESENTATION	**LW, SS**
	Topic 2.2. ESTIMATES OF DISTRIBUTION PARAMETERS	**LW, SS**
Module 3 STATISTICAL ANALYSIS	**Topic 3.1** STATISTICAL HYPOTHESIS TESTING	**LW, SS**
	Topic 3.2 COMPARING GROUPS	**LW, SS**
	Topic 3.3 REGRESSION ANALYSIS	**LW, SS**
	Topic 3.4 CORRELATION ANALYSIS	**LW, SS**
	Topic 3.5 ANALYSIS OF THE CONTINGENCY TABLES	**LW, SS**
	Topic 3.6 ANALYSIS OF VARIANCE	**LW, SS**
	Topic 3.7 SURVIVAL ANALYSIS	**LW, SS**

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)

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
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, Shimkevich EM, Lyapunova TV Statistical methods of analysis. M .: RUDN. 2020, 117 p.
- Lukyanova E.A., Lyapunova T.V., Shimkevich E.M. Biostatistics. Research planning. Description of the data. M .: RUDN. 2020, 32 p.
- Course: Biostatistics (http://esystem.pfur.ru/course/view.php?id= 3584)

Additional readings:

- A.A. Khalafyan, V.P. Borovikov, G.V. Kalaidin. Probability theory, mathematical statistics and data analysis. Fundamentals of theory and practice on a computer. Statistica. Excel [Text]: more than 150 examples of problem solving: a textbook for bachelors of non-mathematical specialties studying higher mathematics - economic, legal, information technology, technical, natural science, humanitarian / - Moscow: URSS, cop. 2016 .-- 317 p. : ill., table; 22 cm; ISBN 978-5-9710-3040-9
- Rebrova O. "Statistical analysis of medical data. Application of the STATISTICA application package". MediaSphere: Moscow, 2002.

- M.A. Kamenskaya Information Biology: Textbook of Institutions - M: Publishing Center Academy, 2009.
- S. Glants Medical and biological statistics. Per. from English - M., Practice, 1998.-459 p.
- Gmurman V.E. Probability theory and mathematical statistics: Textbook. pos. for universities. Ed. 9th, erased. - M .: Higher school, 2003 .-- 480 p.: Ill.

Internet 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/

Learning toolkits for self- studies located in RUDN LMS TUIS.

Learning toolkits for implementation of control work and self-study on «Biostatistics»

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

1. The set of lectures on the course ”Biostatistics”

* 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:

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