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 MSSN For directions training/specialty:

31.05.01 GENERAL MEDICINE

(code And Name directions training/specialty)

Mastering the discipline is carried out within the framework of the implementation of the main professional educational program of higher education (MP HE):

GENERAL MEDICINE

(Name (profile/specialization) MP HE)

2025

1. COURSE GOAL(s)

The discipline “Biostatistics” is included in the specialty program “General Medicine” in the direction of 31.05.01 “General Medicine” and is studied in the 3rd semester of the 2nd year. The discipline is implemented by the Department of Medical Informatics and Telemedicine. The discipline consists of 3 sections and 11 topics and is aimed at studying the basic statistical methods used for processing medical data.

The purpose of mastering the discipline is formation in students of understanding and holistic perception of the basic concept of biostatistics and the concept of evidence in medicine, clinical and statistical significance of research results, acquisition of knowledge about modern information technologies, their trends development, skills development building information models, analyzing the results obtained, in pharmacological, biomedical, experimental and clinical research, developing skills in presenting data and analyzing the results of your own research using descriptive and analytical statistics methods, knowledge of statistical terminology.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

Mastering the discipline “Biostatistics” is aimed at developing the following competencies (parts of competencies) in students:

Table 2.1. List of competencies formed in students when mastering the discipline (results of mastering the discipline)

Cipher	**Competence**	**Indicators achievements competencies** (within the given disciplines)
OPK- 10	Capable decide standard professional tasks and activities with use of information, bibliographic resources, biomedical terminology, information, and communication technologies With considering main information requirements security	OPK-10.1 Can use modern information and communication tools and technologies in professional activities; OPK-10.2 Can observe rules information security in professional activities; OPK-10.3 Capable to use information and communication technologies, including general and special-purpose application software when solving professional problems
PC- 6	Capable To maintaining. medical documentation and organization of activities located V at the disposal of the secondary medical personnel	PC-6.2 Capable to analyze morbidity, disability and mortality indicators to characterize the health of the attached population;

3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF MP HE

The discipline “Biostatistics” belongs to the mandatory part of block 1 “Disciplines (modules)” of the higher education program.

As part of the educational program of higher education, students also master other disciplines and/or practices that contribute to achieving the planned results of mastering the discipline “Biostatistics”.

Table 3.1. List of components of EP HE that contribute to achieving the planned results of mastering the discipline.

Cipher	Name of competency	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
OPK- 10	Able to solve standard problems of professional activity using information, bibliographic resources, medical biological terminology, information, and communication technologies, taking into account the basic requirements of information security	Medical Informatics	Anesthesiology, resuscitation, intensive care; Telemedicine; Modern methods of medical statistics; Data analysis and visualization; Evidence-based medicine; Fundamentals of research work; Technologies and practice of programming in Python for the humanities;
PC- 6	Capable of maintaining medical records and organizing the activities of nursing staff at their disposal	Introductory practice to obtain primary professional skills: nursing (simulation center); Introductory practice to obtain primary professional skills: nursing; Internship to obtain primary professional skills: assistant to junior medical staff;	Public health and health care, health economics; Outpatient therapy; Faculty Therapy; Faculty of Surgery; Obstetrics and gynecology; Urology; Infectious diseases; Endoscopic urology; Modern methods of medical statistics; General surgery; Allergology; Radiation diagnostics; Oncology, radiation therapy; Ophthalmology; Propaedeutics of internal diseases; Hospital therapy; Hospital surgery, pediatric surgery; Pediatrics; Anesthesiology, resuscitation, intensive care; Telemedicine; Forensic Medicine; General medical practice: physician assistant in an outpatient clinic; Internship to gain primary professional skills and professional experience: procedural nurse assistant; Obstetrics and gynecology practice: assistant gynecologist; Assistant physician of a therapeutic profile: assistant physician of a general practitioner; Obstetrics and gynecology practice: assistant obstetrician; Surgical practice: assistant surgeon;

* - is filled in V compliance with matrix competencies and MP HE
** - elective disciplines /practice

4. SCOPE OF DISCIPLINE AND TYPES OF STUDY WORK

General labor intensity disciplines "Biostatistics" amounts to "2" credit units.

Table 4.1. Types of academic work by periods of mastering the educational program of higher education for full-time study.

Type of educational work	**TOTAL,** ac.h.		**Semester(s)**
			3
Contact Job, ac.h.	*34*		*34*
Lectures (**LC**)	0		0
Laboratory work (**LW**)	34		34
Practical/seminar classes (**SC**)	0		0
Independent work of students, ac.h.	*26*		*26*
Control (exam/test with assessment), ac.h.	*12*		*12*
Total labor intensity of the discipline	**ac.h.**	***72***	*72*
	credit units	***2***	*2*

5. CONTENT OF DISCIPLINE

Table 5.1. Contents of the discipline (module) by type of academic work

Section number	Name discipline section	Content section (Topics)		Type of educational work*
Section 1	Fundamentals of medical and biological research.	1.1	Planning of biomedical research.	LW
		1.2	Research types.	LW
Section 2	Descriptive statistics.	2.1	Graphical representation of data.	LW
		2.2	Estimation of distribution parameters.	LW
Section 3	Statistical data analysis.	3.1	Testing statistical hypotheses.	LW
		3.2	Comparison of groups.	LW
		3.3	Regression analysis.	LW
		3.4	Correlation analysis.	LW
		3.5	Analysis of the relationship between qualitative characteristics.	LW
		3.6	Dispersive analysis.	LW
		3.7	Analysis of survivability.	LW

* - is filled in only By **PERSONAL** form training: *LC – lectures; LW – laboratory work; SC – seminar classes.*

6. MATERIAL AND TECHNICAL SUPPORT OF DISCIPLINE

Table 6.1. Material and technical support of discipline

Audience type	Equipment of an audience	Specialized educational laboratory equipment, software, and materials for mastering the discipline (if necessary)
Computer class	Computer class for conducting classes, group and individual consultations, ongoing monitoring, and intermediate certifications, equipped with personal computers (15 pcs.), a board (screen) and technical means for multimedia presentations.	A set of specialized furniture; technical means: multimedia Epson EB-965H projector, Acer Aspire C24-865 monoblock (15 pcs.), Internet access available. Software: Microsoft products (OS, office application suite, including MS Office/ Office 365, Teams, Skype)
For independent work	Auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to EIOS	A set of specialized furniture; technical means: multimedia projector Epson EB-965H, Acer Aspire All-in-One C24-865 (15 PC), there is Internet access. Software: Microsoft products (OS, office suite applications, V including MS Office/Office 365, Teams Skype)

* - the audience for independent work of students is **MANDATORY**!

7. EDUCATIONAL-METHODOLOGICAL AND INFORMATIONAL SUPPORT OF DISCIPLINE

Main literature:

1. 1. Statistical methods of analysis: textbook / E. A. Lukyanova, T.V. Lyapunova, EAT. Shimkevich. - Electronic text data. - Moscow: RUDN University, 2020. - 117 With.: ill.

2. 2. Biostatistics. Research planning. Description of the data. : educational and methodological allowance / E.A. Lukyanova, T.V. Lyapunova, EAT. Shimkevich. - Electronic text data. - Moscow: RUDN University, 2020. - 32 With.

Additional literature:

1. Khalafyan A.A., Borovikov V.P., G.V. Kalaidina G.V. Probability theory, mathematical statistics And analysis data. Basics theories And practice on computer. Statistica. Excel [Text]: more than 150 examples of problem solving: textbook for bachelors specialties non-mathematical directions, studying higher mathematics - economic, legal, information technologies, technical, natural science, humanitarian / - Moscow: URSS, cop. 2016. - 317 p. : ill., table; 22 cm.

2. 2. Rebrova ABOUT. "Statistical analysis medical data. Application package applied programs STATISTICA". Media sphere: Moscow, 2002 .

Resources information and telecommunications networks "Internet":

1. EBS RUDN University And third party EBS, To which students university have access based on concluded agreements

- Electronic library system RUDN University – EBS RUDN University http://lib.rudn.ru/MegaPro/Web
- EBS "University library online" http://www.biblioclub.ru
- EBS Juright http://www.biblio-online.ru
- EBS "Consultant student" www.studentlibrary.ru
- EBS "Trinity bridge"

2. Bases data And search engines

- electronic fund legal And regulatory and technical documentation http://docs.cntd.ru/
- search engine system Yandex https : / /www.yandex.ru/
- search engine system Google https://www.google.ru/
- abstract base data SCOPUS http://www.elsevierscience.ru/products/scopus/

Educational and methodological materials For independent work students at development discipline/module:*

1. Well lectures By discipline "Biostatistics"

* - all educational and methodological materials for students' independent work are posted in accordance with the current procedure on the discipline page **in TUIS** !

8. ASSESSMENT MATERIALS AND SCORE RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCIES IN A DISCIPLINE

Evaluation materials and a point rating system* for assessing the level of development of competencies (part of competencies) based on the results of mastering the discipline "Biostatistics" are presented in the Appendix to this Work Program of the discipline.

* - OM and PRS are formed on the basis of the requirements of the relevant local regulatory act of RUDN University.

DEVELOPERS:

Assistant professor		Lukyanova Elena Anatolyevna
Job title, BUP	*Signature*	*Full name*
Assistant professor		Lyapunova Tatyana Vladimirovna
Job title, BUP	*Signature*	*Full name*
Senior Lecturer		Shimkevich Ekaterina Mikhailovna
Job title, BUP	*Signature*	*Full name*

SUPERVISOR BUP:

Head of the department		Stolyar Valery Leonidovich
Job title, BUP	*Signature*	*Full name*

SUPERVISOR MP HE:

Head of the department		Sturov Nikolai Vladimirovich
Job title, BUP	*Signature*	*Full name*