Speciality "General Medicine"

ACADEMIC DISCIPLINE "BIOMEDICAL STATISTICS"
INFORMATION TECHNOLOGY IN HEALTHCARE MODULE 1.3

Academic discipline outline	Introduction to statistics. Fundamentals of probability theory. Descriptive statistics. Inferential statistics: confidence intervals, statistical hypotheses, and hypothesis testing criteria. Student's t-distribution. Parametric and non-parametric tests. Analysis of variance (ANOVA). Post hoc analysis. Multiple comparisons. Statistical methods for analyzing relationships between variables and forecasting. Correlation analysis. Correlation coefficient. Regression analysis. Simple linear regression. Nonlinear regression. Survival analysis. Data classification. ROC (Receiver Operating Characteristic) curve. Analysis of categorical data.
Resulting skills	To be capable of self-development and improvement in professional activities, to develop receptiveness to innovation and the ability to engage in innovative activities; To solve standard professional tasks based on the application of information and communication technologies, and to possess the skills to analyze the content of scientific publications and apply their results in professional practice.
Learning outcomes	A student must: **know:** the fundamentals of applying modern statistical methods in clinical medicine and healthcare research; methods for collecting and presenting biomedical information; techniques for describing and performing primary processing of biomedical data; core principles of statistical hypothesis testing; basic approaches to group comparison and rules for selecting appropriate statistical tests; key principles for analyzing relationships between variables; fundamentals of statistical modeling and forecasting; principles of medical ethics; **be able to:** transform data stored in various digital formats to address assigned tasks; apply computer technologies and relevant software for statistical processing and analysis of biomedical data; use reference materials to conduct statistical analyses;

	select appropriate methods for data presentation, description, and analysis; correctly interpret and communicate the results of statistical analyses; **master:** the current conceptual framework in biomedical data analysis; contemporary methods for collecting and organizing medical information; techniques for formatting tabular and graphical data; methods for automating routine tasks in medical data processing; modern approaches to statistical processing and analysis of biomedical information; procedures for testing statistical hypotheses; fundamentals of widely used statistical modeling and forecasting techniques; skills in using specialized software tools for statistical data processing in biology and medicine.
Semester(s)	3 semester
Prerequisite	Medical and biological physics. Informatics in medicine.
Credit value	3 credits
Academic hours	108 academic hours, of which: 36 class hours
Forms of midterm attestation	Test