MEDICAL STATISTICS

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
3	108	Exam

The course is the study of the basics of medical statistics using lecture materials and laboratory workshops. The aim of the course is to provide students with knowledge about conducting statistical research on data in medicine, including their differences from similar research in computer science. In particular, the course examines examples of clinical and experimental medical research, their methods, features and analysis of results from the point of view of machine learning methods. In addition, the course includes an overview of research on current approaches to the analysis of medical data. The laboratory workshop includes tasks for the statistical analysis of data from the medical information system of a specialized medical center.

Course structure:

1. THEORETICAL AND ORGANIZATIONAL FOUNDATIONS OF STATISTICAL ANALYSIS
    1.1. Basic theories, methods and techniques for the application of statistical analysis in modern scientific research. A systematic approach to the organization of scientific research.
    1.2. Features of the organization of social and hygienic research. Features of the organization of experimental clinical research.
    1.3. Statistical summary and grouping of statistical data, requirements for the validity of conclusions and proposals for the conducted scientific research.

2. DESCRIPTIVE STATISTICS METHODS
    2.1. Absolute and relative values, averages, small sample, calculation features with a small number of observations, errors of statistical values, significance of statistical indicators, representativeness of statistical indicators, time series and their processing, standardized statistical indicators.

3. NONPARAMETRIC METHODS
    3.1. Correspondence criterion χ^2, sign criterion, Wilcoxon criterion, Kolmagorov-Smirnov criterion, etc. Assessment of the relationship between qualitative characteristics: association coefficient, contingency coefficient, Pearson and Chuprov's mutual conjugation coefficients.

4. ANALYTICAL STATISTICS METHODS
    4.1. Indicators of the relationship of statistical values. Correlation analysis. Expert judgment method, concordance coefficient. Regression analysis. Analysis of variance.