

TOPICS FOR THE SELF-STUDY ON BIOMEDICAL STATISTICS

1. The concept of evidence-based medicine. History of development. Basic provisions and principles.
2. Types and design of clinical trials.
3. Data in biomedical research. Types of data in biomedical research. Description of the data.
4. Population. Sample. Methods of forming samples.
5. Random variable distribution. Types of distribution. Normal distribution. Properties of the normal distribution. Z-test.
6. Descriptive statistics. Measures of the central tendency. Measure of variation. Descriptive statistics for different data types and distributions.
7. Hypothesis. Hypothesis testing. Statistical significance. Statistical tests. The critical value of the significance.
8. Comparison of samples. Student's test. Application and errors.
9. Analysis of variance (ANOVA). A post hoc analysis.
10. Nonparametric tests for comparing samples. The main differences from parametric tests.
11. Analysis of categorical data. χ^2 -test. McNemar test.
12. Regression and correlation analyses. Paired regression and multiple regression.
13. Regression analysis. The principle of the "learning with a teacher" method. Logistic regression.
14. Classification. Cluster and discriminant analyses.
15. Survival analysis. The Kaplan-Meyer curve. Cox regression.