


ОНТҮСТІК-ҚАЗАҚСТАН <b>MEDISINA          AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ		SOUTH KAZAKHSTAN <b>MEDICAL          ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
Department: "Medical Biophysics and Information Technologies" Control and measuring tools for the course "Biostatistics"		№ 35-11(Б)-2025 p.1 out of 4

## CONTROL AND MEASURING DEVICES

### Questions of the program for border control 1

**Course:** Project activities and biostatistics

**Course code de** PAB 2303

**Educational program:** 6B10115 "Medicine"


**Number of academic hours/credits:** 150/5

**Year/Term:** 2/4


**Compiler:** PhD, ass. prof M.B. Ivanova

Head of department, ass. prof,  M.B. Ivanova

Protocol no. 12e from "28" 05 2025 y.

<p>ОҢТҮСТІК-ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ</p>		<p>SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казakhstanская медицинская академия»</p>
<p>Department: "Medical Biophysics and Information Technologies" Control and measuring tools for the course "Biostatistics"</p>		<p>№ 35-11(Б)-2025 p.2 out of 4</p>

1. Subject matter and objectives of biostatistics.
2. Population and sample.
3. Types of measurement scales.
4. Nominal and ordinal data.
5. Types of data collected in healthcare.
6. Spreadsheets as a type of application software.
7. Advantages of using spreadsheets.
8. System requirements for the STATISTICA software.
9. Menu bar in the STATISTICA program.
10. Types of documents in STATISTICA and their file extensions.
11. Operations with rows and columns in a spreadsheet.
12. Creating formulas in a spreadsheet.
13. Creating charts in STATISTICA.
14. Frequency distribution (frequency, cumulative frequency, relative frequency).
15. Sturges' rule.
16. Interval width. Lower boundary of the first interval.
17. Histogram and frequency polygon.
18. Stem-and-leaf plot.
19. Normal distribution.
20. Measures of central tendency (mean, mode, median, quartiles).
21. Measures of variability (range, interquartile range, variance, standard deviation, coefficient of variation).
22. Box-and-whisker plot.
23. *Basic Statistics and Tables* module in STATISTICA.
24. *Descriptive Statistics* procedure in STATISTICA.
25. Creating frequency distributions using the *Descriptive Statistics* procedure.
26. Creating histograms using the *Descriptive Statistics* procedure.
27. Creating stem-and-leaf plots using the *Descriptive Statistics* procedure.
28. Creating box-and-whisker plots using the *Descriptive Statistics* procedure.
29. Calculating measures of central tendency and variability using the *Descriptive Statistics* procedure.
30. Purpose of hypothesis testing.
31. Statistical tests.
32. Conditions for applying statistical tests.
33. Hypotheses.
34. Significance level.
35. Main steps of hypothesis testing.
36. Difference between independent and dependent samples.
37. Conditions for applying the two-sample *t*-test.
38. Student's *t*-test for two independent samples.
39. Conditions for applying the paired *t*-test.
40. Student's *t*-test for two dependent samples.
41. Procedures for calculating the *t*-test in STATISTICA.
42. Testing the normality assumption for samples compared using the *t*-test in STATISTICA.

<p>ОҢТҮСТІК-ҚАЗАҚСТАН  <b>MEDISINA          AKADEMIASY</b>          «Оңтүстік Қазақстан медицина академиясы» АҚ</p>		<p>SOUTH KAZAKHSTAN  <b>MEDICAL          ACADEMY</b>          АО «Южно-Казахстанская медицинская академия»</p>
<p>Department: "Medical Biophysics and Information Technologies"          Control and measuring tools for the course "Biostatistics"</p>		<p>№ 35-11(Б)-2025          p.3 out of 4</p>

43. Interpretation of the  $p$ -value for the  $t$ -test in STATISTICA.
44. One-way analysis of variance (ANOVA).
45. Conditions for applying one-way ANOVA.
46. Kruskal–Wallis test.
47. Conditions for applying the Kruskal–Wallis test.

ОҢТҮСТІК-ҚАЗАҚСТАН  
MEDISINA  
AKADEMIASY



SOUTH KAZAKHSTAN  
MEDICAL  
ACADEMY

АО «Южно-Казakhstanская медицинская академия»

«Оңтүстік Қазақстан медицина академиясы» АҚ

Department: "Medical Biophysics and Information Technologies"

Control and measuring tools for the course "Biostatistics"

№ 35-11(Б)-2025

p.4 out of 4