



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA
ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

SECOND CYCLE Master in Chemistry

Course name	Measurement Data Processing			
Course code	Course status	Semester	Hours of instruction	ECTS
2C16HEM012	Mandatory	I	2+1	4
Teacher(s)	Prof. Duško Bogdanić PhD			

Prerequisite course(s)	Entry requirements
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Course goals
The course aims to introduce the student to the basic elements of statistics in chemistry in a clear, understandable, and practical way. As statistical methods make it possible to use data to understand the essence of chemical problems, the emphasis of the course is on understanding and intuitively presenting statistical concepts rather than rigorously explaining them mathematically. Particular attention is given to defining and solving specific examples and problems that arise in practice. The course aims to acquire the necessary knowledge of statistics that enable students to properly understand and display the results of measurements in other courses that they will follow during their studies.

Learning outcomes
The outcome of this course is to enable the student, through individual work on a computer, to use modern software packages to process the results of measurements in chemistry, correctly display, understand and properly select statistical tests, draw conclusions and interpret the results of statistical data processing.

Course content
Measurement and errors in Statistics. The sample, the population. Error estimation and presentation of measurement data. Data grouping. Tabulation. Graphical presentation of data. Probability, probability density, the distribution function, and the density of distribution. Measures of central tendency and data dispersion. The Gaussian distribution. Confidence intervals. Statistical tests. Regression and correlation. Linear correlation. Correlation coefficient. The least-squares method. Detection limit.

Teaching methods
Frontal instruction and interactive teaching, research assignments, exercises, individual monitoring, advisory, and tutorial work with students.

Books and other learning materials
James N. Miller, Jane C. Miller: Statistics and Chemometrics for Analytical Chemistry , 6 th Ed., Pearson Education Ltd., Harlow, 2010. William P. Gardiner: Statistical Analysis Methods for Chemists: A Software Based Approach , Royal Society of Chemistry Publishing, Cambridge, UK, 1997

Course activities and grading method
Midterm paper. Colloquia. Final exam.

Seminar	40	Final exam	60
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Additional course notes
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Name of the teacher who prepared this form	Duško Bogdanić
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