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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  |  |
| **GENERAL INFORMATION** |
| Study program  | Postgraduate: Chemistry |
| Study Module (if applicable) | Research and development |
| Course title | Chemometry |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | second |
| Number of ECTS allocated | 7 |
| Name of lecturer/lecturers | Violeta Mitić |
| Teaching mode |  [x] Lectures [x] Group tutorials [x]  Individual tutorials [ ] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Learning objectives for this course will focus on developing a fundamental understanding of the following topics as they relate to the theory and practice of statistical analysis. This course is conceived as chemical discipline that uses mathematical and statistical methods to design or select optimal measurement procedures and experiments, and to provide maximum chemical information by analysing chemical data. Through participation in course activities, each student should expect to improve her/his knowledge of chemometry and to develop improved e problem-solving skills. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| 1. Methods for expression of analytical data. Approximate numbers and significant figures2. The grouping, sorting and displaying data. The types of error: random and systematic error, absolute error, relative error, detection and elimination of errors.3. Measures of central tendency4. Normal probability distributions. Binomial distribution, Poisson distribution Calculation of the limit of detection and limit of quantification5. Statistical software 6. Testing statistical hypotheses Type I and type II errors. Statistical significance7. Statistical parametric tests: Dixon Q-Test, Grubbs test, F-test, t-test8. Statistical nonparametric tests: Mann-Whitney U-test, Wald-Wolfowitz test, Wilcoxon rank sum test9. One-way analysis of variance (ANOVA), Introduction to Correlation and Regression Analysis10. Principal component analysis (PCA). Cluster analysis (CA) |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [ ]  English (complete course) [ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)[ ] Serbian with English mentoring [ ] Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **5** | **Written examination** | **30** |
| **Practical teaching** | **15** | **Oral examination** | **0** |
| **Teaching colloquia** | **50** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |