**Course catalogue**

# UKBH II-ZA03 Methodology of Scientific Research Work and Biostatistics

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| Programme | Food safety and Quality management |
| Level | Master's programme |
| Academic year Semester | 1 year Autumn Semester |
| ECTS credits | 8 credits |
| Lecturers | Prof.Anka Trajkovska Petkoska,PhD Associate prof. Sasko Martinovski, PhD Associate prof. Vesna Knight, PhD Prof. Gorica Pavlovska, PhD Associate prof. Valentina Pavlova, PhD |
| Language | Macedonian |
| Objective | Students should gain competences in methods for scientific and research activities, knowledge for planning and leading experimental work. They could be able in organizing experiments and making logic conclusions. Ability for preparation scientific / professional paper and posters. After successful completion of this course students are expected to be able to: <br> - comprehend basic ideas of the discussed methods. <br> - determine the appropriate statistical procedure, given the description of the experiment, the research question and the type of data. |
| Content | Importance of scientific work, and scientific methods. Search for professional literature and references, state-of-the-art, and their usage. Plagiarisam, impact factor, ethical writing. Structure of scientific work, manuscript, thesis. <br> Data acquisitions from filed / lab tests, industrial set-ups and consequently suitable calculations. Methodology of scientific work, hypothesis, organisation of the work, conduction, concludive remarks. Statistical approach in management of data obtained during scientific work. <br> Designing quantitative research: <br> - types of research questions for surveys and experiments in nutrition and technology science; <br> - sampling procedures; <br> Descriptive and deductive and statistical analysis: <br> - estimation, confidence intervals and testing hypothesis; apply a hypothesis test for a (difference of) population mean(s), intercept or slope. <br> - Regression analysis: introduction, meaning parameters, parameter estimation, t-test for one linear combination of the parameters, F-tests for linear restrictions; $X2$- test for nonparametric variable. <br> - analysis of variance: one-way, factorial designs; <br> - factor analysis: scale development, loadings, interpretation; <br> - practical work using software for calculation of statistics data. <br> In exercises, students will practically implement more statistical-logical-mathematical methods with examples of nutrition and food technology, such as, frequency, ranking, variance, correlation, linear and multiple regression, logical operations, histogram, making scenarios and graphically displaying the results. Exercises will be made in MS Excel. |
| Learning materials | Primary literature, additional refrences, books and scientific papers are referenced in class and posted on the course website. |