



Study program: Doctoral Academic Studies in Biomedical Sciences		
Name of the subject: APPLICATION OF BASIC STATISTICAL METHODS IN BIOMEDICAL SCIENCES		
Teacher(s): Petar D. Čolović, Dejan M. Pajić, Tanja D. Jevremov, Nina R. Brkić Jovanović, Tatjana Z. Krstić, Vojislava V. Bugarski Ignjatović		
Status of the subject: compulsory		
Number of ESPB points: 5		
Condition: -		
Goal of the subject Enable the graduate students to a) decide on the choice of the appropriate statistical procedures for research purposes b) analyze the data for research reports and scientific publications. Train the graduate students to perform data analyses using open statistical software. Critical reading of professional and scientific literature aimed at understanding and adequate application of statistical procedures in biomedical research.		
Outcome of the subject Knowledge: Statistical description and analysis of the data by applying the appropriate statistical procedures. Skills: Applying the descriptive and inferential statistical techniques. In line with the research goals and data features, application of the appropriate analytic techniques and presentation of the results in professional and scientific publications.		
Content of the subject <i>Theoretical lectures</i> Basic concepts – elements of research: objects, variables, data; measurement levels; sampling; statistical procedures in various research designs – 5 classes; Descriptive statistics: central tendency and dispersion measures – 5 classes; Statistical inference – 5 classes; Between- and within-group differences: t-test and ANOVA – 5 classes; Non-parametric techniques: chi-square test, non-parametric equivalents of the t-test and ANOVA – 5 classes; Correlation and regression: bivariate correlation, bivariate regression, multiple linear regression – 5 classes <i>Practical lectures</i> Application of the basic statistical procedures with open statistical software, and open and simulated data; elements of research: objects, variables, data; measurement levels; sampling; statistical procedures in various research designs – 5 classes; Descriptive statistics: central tendency and dispersion measures – 5 classes; Statistical inference – 5 classes; Between- and within-group differences: t-test and ANOVA – 5 classes; Non-parametric techniques: chi-square test, non-parametric equivalents of the t-test and ANOVA – 5 classes; Correlation and regression: bivariate correlation, bivariate regression, multiple linear regression – 5 classes		
Recommended literature <i>Compulsory</i> 1. HERZOG, M. F., Herzog, M. H., Francis, G. S., & Clarke, A. (2019). <i>Understanding Statistics and Experimental Design: How to Not Lie with Statistics</i> . Springer. https://www.doabooks.org/doab?func=fulltext&uiLanguage=en&rid=43708 2. Ewens, W. J., & Grant, G. R. (2006). <i>Statistical methods in bioinformatics: an introduction</i> . Springer Science & Business Media. 3. Riffenburgh, R. H. (2006). <i>Statistics in medicine</i> 2nd ed. Boston, US: Elsevier Academic Press. 4. van de Schoot, R., & Miočević, M. (Eds.). (2020). <i>Small Sample Size Solutions (Open Access): A Guide for Applied Researchers and Practitioners</i> . Routledge. 5. Navarro, D., Foxcroft, D., Faulkenberry, T., (2019), Learning Statistics with JASP: A Tutorial for Psychology Students and Other Beginners. https://learnstatswithjasp.com/ 6. Navarro, D.J., & Foxcroft, D. R. (2019). learning statistics with jamovi : A tutorial for psychology students and other beginners. (Version 0.7). DOI: 10.24384/hgc3-7p15		
Number of active classes	Theory: 45	Practice: 30
Methods of delivering lectures Classes, seminars		
Evaluation of knowledge (maximum number of points 100) lectures: 30 written exam: 70		