

Faculty of Philosophy / PSYCHOLOGY / Advanced Statistical Methods in Psychology

Course:	Advanced Statistical Methods in Psychology			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
10174	Mandatory	2	6	4+4+0
Programs	PSYCHOLOGY			
Prerequisites	None.			
Aims	Getting the basic principles of statistical data analysis and getting the most commonly used methods of statistical analysis in psychology. Acquiring knowledge and skills necessary to select the appropriate statistical procedure to test the hypothesis. Acquiring knowledge necessary for competent monitoring the psychological literature and critical approach to the results of psychological research.			
Learning outcomes	After the student passes this exam, he/she will be able to: 1. Conducts testing of parameter differences between samples. 2. Implements and interprets the ANOVA test and related post hoc tests. 3. Understand the difference between correlation and regression analysis. 4. Interprets the results of regression and correlation analysis. 5. Implements and interprets non-parametric statistical tests. 6. Understand the difference between parametric and non-parametric statistical analysis. 7. Works with raw data and applies correct statistical techniques. 8. Get to know the basics of using the IBM SPSS statistical tool and perform analyses.			
Lecturer / Teaching assistant	Doc. dr Milena Lipovina-Božović, mr Nina Rajković			
Methodology	Lectures and exercises in the application of statistical methods of data analysis. Consultations. Studying for tests and a final exam.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Conclusion on the reliability of statistical measures. Testing differences of arithmetic means, large samples, independent and dependent.			
I week exercises	Conclusion on the reliability of statistical measures. Testing differences of arithmetic means, large samples, independent and dependent. Examples/SPSS.			
II week lectures	Proportion difference testing. Dependent and independent samples.			
II week exercises	Proportion difference testing. Dependent and independent samples. Examples/SPSS.			
III week lectures	Types of Errors in Statistical Difference Testing. The power of the test.			
III week exercises	Types of Errors in Statistical Difference Testing. The power of the test. Examples/SPSS.			
IV week lectures	Dispersion analysis.			
IV week exercises	Dispersion analysis. Examples/SPSS.			
V week lectures	Significance of post hoc tests.			
V week exercises	Significance of post hoc tests. Examples/SPSS.			
VI week lectures	Non-parametric statistics. Chi-square test.			
VI week exercises	Non-parametric statistics. Chi-square test. Examples/SPSS.			
VII week lectures	Contingency tables. Contingency coefficient and Kramers fi.			
VII week exercises	Contingency tables. Contingency coefficient and Kramers fi. Examples/SPSS.			
VIII week lectures	A non-parametric test for testing two independent samples.			
VIII week exercises	A non-parametric test for testing two independent samples. Examples/SPSS.			
IX week lectures	A non-parametric test for testing two dependent samples.			
IX week exercises	A non-parametric test for testing two dependent samples. Examples/SPSS.			
X week lectures	Non-parametric test for testing multiple samples (independent and dependent).			
X week exercises	Non-parametric test for testing multiple samples (independent and dependent). Examples/SPSS.			
XI week lectures	Correlation coefficients.			
XI week exercises	Correlation coefficients. Examples/SPSS.			
XII week lectures	Testing the significance of the correlation coefficient.			

XII week exercises	Testing the significance of the correlation coefficient. Examples/SPSS.					
XIII week lectures	Regression analysis.					
XIII week exercises	Regression analysis. Examples/SPSS.					
XIV week lectures	Forecasting and forecast effectiveness using linear regression models.					
XIV week exercises	Forecasting and forecast effectiveness using linear regression models. Examples/SPSS.					
XV week lectures	Multiple correlation.					
XV week exercises	Multiple correlation. Examples/SPSS.					
Student workload	In semester Teaching and the final exam: (9 h 20 min) x 16 = 149 hours and 20 minutes. Necessary preparation before semester starts: 2 x (9 h 20 min) = 18 h and 40 min. Total work hours for the subject: 7 x 30 = 210 hours. Additional hours for preparation of the repeated exam take 42 hours. Structure: 149 hours and 20 minutes. (Lectures) + 18 hours and 40 minutes (preparation) + 42 hours (additional work).					
Per week			Per semester			
6 credits x 40/30=8 hours and 0 minuts 4 sat(a) theoretical classes 0 sat(a) practical classes 4 excercises 0 hour(s) i 0 minuts of independent work, including consultations			Classes and final exam: 8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts Total workload for the subject: 6 x 30=180 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 36 hour(s) i 0 minuts Workload structure: 128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)			
Student obligations			Students are required to attend classes, do a colloquium, a final exam and 2 homework assignments.			
Consultations			After the lectures and exercises.			
Literature			• Petz, B. (2012). Osnovne statističke metode za nematematičare. Naklada Slap. • Howell, D.C. (2012). Statistical Methods for Psychology. 8th edition. Belmont, CA: Wadsworth, Cengage Learning. • Tenjović, L. (2020). Statistika u psihologiji – priručnik. Beograd: Centar za primenjenu psihologiju			
Examination methods			Colloquium 40 points, Class activity 5 points, Homework 5 points, Final exam with 50 points. A passing grade is obtained if at least 50 points are accumulated cumulatively.			
Special remarks			Lectures and exercises are partly realized by using raw statistical databases in order to acquire some SPSS commands.			
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points