STATISTIC METHODS IN PSYCHOLOGY I

<table>
<tr><td>Credit points</td><td colspan="3">3 CP</td></tr>
<tr><td>Study course annotation</td><td colspan="3">The course provides an insight into the basic concepts and methods of mathematical statistics that psychologists can use in their research. The course gives students the opportunity to develop competencies in mathematical statistics methods for psychologists. The course introduces students to descriptive statistics, elements of probability theory, basics ofstatistical inference theory, correlation analysis and simple linear regression. The course develops skills to independently solve tasks of applying descriptive statistics, constructing confidence intervals and testing statistical hypotheses.</td></tr>
<tr><td>Aim of the study course</td><td colspan="3">Enables students to:
To acquire knowledge and develop competencies that would allow to work with modern statistical methods used in psychological research. To acquire basic statistical concepts, ideas and methods on which statistical hypothesis testing, population parameter estimation, correlation analysis, regression analysis and variance analysis are based; to acquire practical application of these theories in solving psychological tasks and interpreting the obtained results. To help develop competencies: general science (synthesize knowledge, methods), instrumental (use statistical terms, work with information), professional (basic statistical knowledge, methods), socio-personal and cultural (for example: self-development through textbooks and periodicals in English), a creative, critical approach to problem solving by analyzing the results obtained.</td></tr>
<tr><td>Objectives of the course</td><td colspan="3">• Systematic course acquisition according to the program;
• Reading of study literature (according to the list of literature), including English. Knowledge of all found terms in Russian, Latvian and English;
• Individual homework on the most important topics of the course;
• Use Excel software for calculations, use the Internet to obtain information via the Internet, check results of assignments and homework, use online calculators;
• Conduct discussions and presentations;
• Preparation of students for the study course Computer Analysisof Research Data.</td></tr>
<tr><td rowspan="2">Study course results</td><td>Knowledge</td><td>Skills</td><td>Competences</td></tr>
<tr><td>• Knowledge of the theoretical paradigms of general psychology and the history of its development
• In-depth knowledge and ability tocritically evaluate the basic theories of general psychology.
• Knowledge of the basic concepts of psychology.
• Ability to navigate in the main</td><td>• Ability to use an innovative approach to solve complex problems of psychology
• Basic skills in the study of scientific literature and presentation of conclusions
• Ability to analyze cognitive abilities using appropriate psychological</td><td>Academic competencies:
• Understanding psychology as a science
• Analysis of the basic concepts andtheories of psychological science.
• Understanding the methods ofresearch of psychological science.
• Understanding the basic laws ofcognitive activity of a person.
Professional competencies:
• Ability to use the basic</td></tr>
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	psychological areas, disciplines and theories, • Familiar with the basic laws of cognitive activity of a person; • Knowledge about personality and its basic characteristics.	terminology. • Ability to operate with the basic concepts of psychology • Able to distinguish scientifically based information from popular science;	concepts ofpsychology • Ability to select and analyzescientific literature on the topic. • Ppresentation skills and the ability tomake clear presentations. • The ability to use adequately scientific methods in accordancewith the objectives of the study. • • Understanding the ethical standards of psychology

Study course content	**Topics**	
	1	Measuring scales. Variables. Data tabulation,ranking. Frequency distributions. Graphics of empirical data. Quantiles
	2	Descriptive statistics. Measures of central tendency.Measures of variation. Quantiles variation indices. Boxplots. Skewness and Kurtosis.
	3	Investigation of relationships. Scatters. Pearson, Spearman, τ-Kendall, φ, point-biserial correlationcoefficients.
	4	Elements of probability theory. Random variables. Distributions: binomial, normal, f-Fisher-Snedekor,t-Student, and Chi-square.
	5	Statistic inferences. Point and interval estimates.
	6	Testing of statistical hypotheses. Hypotheses about variances, mean and correlation coefficients. Conformance test for normal distribution: skewness and kurtosis methods.
	7	Nonparametric tests: U-Mann-Whitney, T-Wilcoxon, Pearson Chi-square, Fisher (angular transformation).
	8	Elements of regression analysis. Linear and non-linear regression. R-squared statistic (coefficient of determination).
Form of assessment:	Differentiated written test during which the lecturer can ask questions.	

Obligatory literature:

1. T Blumenau, N.F. (2023). Statistical methods in psychology. Summary of lectures and control tasks.Riga: BSA, Moodle.
2. Howell, D.C. (2010). Statistical methods for psychology. Seventh edition. Wadsworth: Cengage Learning. Available in BIA “Moodle”.
1. Kristapsone, S. (2020). *Statistiskās analīzes metodes pētījumā*. Rīga. Turība.

Additional reading:

1. Heiman, G.W. (2011). Basic Statistics for the behavioural sciences. Sixth edition. Wadsworth: Cengage Learning. Available in BIA “Moodle”.
2. Langdridge Darren (2004). Introduction to Research Methods and Data Analysis in Psychology. Edinburg Gate, Harlow, Essex CM20 2J.E., England London: Pearson PrenticeHall and Associated Companies throughout the world. Available in BIA library.
3. Howitt, D., & Cramer D. (2005). Introduction to Statistics in Psychology - 3rd ed. - Harlow,England, London

and Associated Companies throughout the world: Pearson Prentice Hall. Available in BIA library.
4. Lowry, R. (n.d.). The Confidence Interval of rho. In VassarStats: Website for Statistical Computation. Copyright © 1998 – 2019. Retrieved from http://vassarstats.net/rho.html
5. Ellis, P.D. (2010). The essential guide to effect sizes. Statistical power, meta-analysis, and the interpretation of research results. Cambridge: University Press.

Other sources of information:

1. BSA bibliotēkas elektroniskā datu bāze(www.bsa.edu.lv):
2. EBSCO (ENG): http://search.ebscohost.com
3. Latvijas nacionālās bibliotēkas datu bāzeshttp://www.lnb.lv).
4. European Journal of Psychological Assessment. www.hhpub.com/journals/ejpa. Availablein BIA library.
5. Psychological Science. Research, theory, & Application in Psychology and RelatedSciences. www.psychologycalscience.org. Available in BIA library.
6. Methodology European Journal of Research Methods for the Behavioural and Social
7. Sciences. www.hogrefe.com/journals/methodology. Available in BIA library.

Changes and additions to the program and literature list are possible during the study process