Course Description
Statistics
Leading Lecturer: Zita S. Nagy

Aim of the course

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Goal of the course is provide theoretical background for understanding fundamental issues of statistical reasoning and to develop basic practical skills in statistical analyses.

Learning outcome, competences
knowledge:

- Knowledge of basic concepts, understanding of simple (univariate) analyses methods
- Knowledge of criteria for performing univariate analyses and understanding statistical output
- Ability of statistical reasoning: ability to perform appropriate (APA style) conclusions based on test results
- Understanding the limitations of statistical analyses

attitude:

- Developing sensitivity and interest towards using scientific methods in psychology research
- Using the acquired statistical knowledge in a flexible and creative manner

skills:

- Skills to perform descriptive statistics and report results
- Ability to formulate statistical hypotheses and test those with appropriate statistical tests
- Skills to run appropriate tests of inferential statistics in programs independently (using e.g. SPSS, JASP, PSPP, CogStat, ROPstat) and conclude results

Content of the course

Topics of the course
Basic statistical terms: variables and their types, sample and population, distributions and their characteristics, descriptive and inferential statistics, hypothesis testing, level of significance, effect size,
Parametrical and non-parametrical statistical tests for comparing groups and conditions: one-sample-, paired-samples- and independent-sampled t-tests; analyses of variance; the Mann-Whitney test, the Wilcoxon test, the Sign Test, the Kruskal-Wallis test, the Friedman test.
Comparing distribution of qualitative variables: the Chi-square test, McNemar test
Association analyses of quantitative variables using correlation and linear regression.

Learning activities, learning methods
lecture, assisted and self-development of practical skills

Evaluation of outcomes

Learning requirements, mode of evaluation, criteria of evaluation:
requirements

- active participation in class
- presenting theoretical knowledge discussed on lectures
- performance in class and completing homework assignments

mode of evaluation:
Written exam based on theoretical knowledge from the lectures and literature. graded from 1-5.

Practical grade from 1-5 based on performance of in class practical tasks, homework and midterms.

Final grade of the course is the mean of the exam (50%) and practical (50%) grades, if both are above 1 (rounded according to mathematical rules).

criteria of evaluation:

- Quantity and quality of theoretical knowledge related to basic statistical terms and methods of analyses.
- Quality of demonstrating practical skills in data analyses and concluding results.

Reading list

Compulsory reading list

Selected readings from:

- Minium, E.W., Clarke, R.C., Colodarci, T. (1999) 2nd ed.: Elements of statistical reasoning. Wiley: New York
- Andy Field (2009) Discovering Statistics Using SPSS (ISBN: 9781847879073)
- Online Statistics Education: An Interactive Multimedia Course of Study by David Lane and colleagues