COURSE DESCRIPTION (GENERAL DESCRIPTION)

Course title: Bases of data analyses in the cognitive field
Course code: PSZM21-KOGN-102
Head of the course: Attila Krajcsi

Oktatás célja

A tárgy képzési célja:
The course reviews some common analysis methods applied in cognitive research: general data analysis methods, related mathematical and statistical methods. The class reviews some commonly used software types. Mostly, we discuss aspects that are relevant in cognitive research. Several debated and misunderstood aspects will also be discussed.

Tanulási eredmények, kompetenciák
tudás:
- Understanding the theoretical and conceptual background for data manipulation and analysis
- Practical implementations for data analyses techniques

attitűd:
- Trying to understand the relation between seemingly independent concepts.
- Actively exploring how seemingly simple techniques could be used in innovative ways

képesség:
- Ability to use appropriate data analyses methods in real life research programs

Autonómia / felelősség:
- Students are able to apply the acquired knowledge on their own, in accordance with the ethical guidelines of psychology, but only for purposes corresponding to their level of competence.

Tantárgy tartalma

Fő tartalmi, tematikai egységek
- Which type of software to choose
- Analyzing behavioral data
    - Diffusion model analysis
- Hypothesis tests
    - The reasoning behind the tests and the main consequences
    - Bayesian and frequentist solutions
- Automatic data analysis
- Bases of data manipulation
    - Spreadsheet
- Reliability in cognitive areas
- Descriptives
    - Describing a single variable
    - Describing the relation of two variables, fitting functions

- Statistical simulations
  - Monte Carlo and bootstrapping methods
- Statistical analysis with computer programming

Tervezett tanulási tevékenységek, tanítási módszerek
- Hands-on analyses
- Data analyses homework

Számonkérési és értékelési rendszere
Követelmények és az értékelés módja, szempontjai:
követelmények
- Data analysis related practical task. The students are offered a series of types of tasks (e.g., reanalyzing former data with new methods) and they can choose between the tasks depending on which task fits their learning goals the most.

az értékelés módja: practical
- evaluating the submitted project work

az értékelés szempontjai:
- Approriateness of the solution provided for the data analysis task

Irodalom
Kötelező irodalom

Ajánlott irodalom
- Danielle J. Navarro / David R. Foxcroft / Thomas J. Faulkenberry: Learning statistics with R / jamovi / JASP
- Russell Poldrack: Statistical Thinking for the 21st Century
- Andy Field, (Jeremy Miles, Zoe Field): Discovering Statistics Using SPSS / R / SAS. Sage.
- Documentation (including tutorials) of the relevant software packages