COURSE TITLE: Data Analysis with R (Luigi Lombardi, 15 hours - 3 cfu)

PERIOD: 2nd Semester 2024

COURSE CONTENTS, OBJECTIVES AND LEARNING OUTCOMES

Description of activity and topics:
[DETAILED TITLE] Robust statistical methods with R
Course outline: The goal of this short methodological course is to acquire knowledge and insight about the application of robust statistical methods to real data. In particular, some representative data analysis case-studies in the context of cognitive psychology will be discussed in detail. In general, robust statistical techniques are known to be resistant to outlying observations (outliers) in the data with benefits for the final model estimates. In this course we will present robust statistical methods for both univariate and multivariate data.

Specific learning objectives (i.e. specific knowledge and skills that the participants in the activity will acquire):
Acquire knowledge and insight about the application of robust statistical methods to real psychological/cognitive data by using the statistical package R.

DUBLIN DESCRIPTORS (Indicate the learning objective(s) that the activity aims to achieve, exercise and/or consolidate)

- ☒ systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;
- ☒ ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;
- ☐ ability to make a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication;
- ☒ ability to critically analyse, evaluate and synthesise new and complex ideas;
- ☐ ability to communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;
- ☒ ability to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society;

ENTRANCE REQUIREMENTS (Indicate any specific knowledge and/or skills that the student must have in order to participate in the activity)
Prerequisites: Participants should be familiar with basic inferential statistics and data analysis (univariate and multivariate statistical methods). It is also recommended that they are familiar with the R statistical package.

TEACHING AND LEARNING METHODS AND ACTIVITIES
Lectures and statistical labs

ASSESSMENT OF THE ACHIEVEMENT OF LEARNING OBJECTIVES (Possibily an activity carried out independently by the student functional to his/her research activity)

Evaluation of a data analysis report (max 5 pages) compiled by the student on an empirical dataset provided by the student.

BIBLIOGRAPHY /STUDY MATERIALS (video-lessons, etc.) (Specificare se il materiale va letto, visionato, etc. prima degli incontri)

In preparation