UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Elements of Psychometrics With Software Lab 1

2021-1-E2401P131

Learning area

4: Knowledge of qualitative and quantitative research methodology

Learning objectives

Knowledge and understanding

- Descriptive statistics
- Inferential statistics
- Univariate and bivariate statistical inference

Applying knowledge and understanding

- Using SPSS (or another statistical software) for data analysis
- Ability to choose the most adequate data analysis technique for the context
- How to report results of statistical analyses in conformity to the prevailing standards in psychology.

Contents

The course aims at providing the basic knowledge of descriptive and inferential statistics. Furthermore, it addresses some techniques of statistical analysis and introduces the use of the SPSS (or of another statistical software).

Detailed program

- Descriptive statistics: measurement scales, central tendency and variability indices, standardized measures;
- Graphical synthesis and graphical exploration of the data;
- Introduction to probability;
- Basic inferential statistics: sampling distribution, hypothesis testing, confidence intervals;
- Parametric techniques: t-test for the difference between means (single sample, independent samples, paired-samples); linear correlation (Pearson's)
- Non-parametric techniques: Chi-squared test (equally-probable categories, independence, test of a model), correlation (Spearman)
- Effect size and its use
- Introduction to the concepts of power analysis

Prerequisites

As this is a compulsory first-year course, the only prerequisites are basic knowledge of mathematics/algebra and of computer use.

Possible specific lacunae will be handled during the lessons.

Teaching methods

Lectures in Italian, mostly split into blocks corresponding to the chapters of the coursebook. The statistical software will be discussed within the blocks, through exercises in class. Self-evaluation exercises may be available for some blocks (on the e-learning platform).

In parallel to the lectures, "software laboratories" will be available, during which students will use the statistical software(s) to enhance their learning.

Lessons will be held in presence or through online video lessons, according to the University's regulations regarding the COVID-19 emergency situation. In both cases, all lessons will be video recorded and made available to the students.

Assessment methods

Textbooks and Reading Materials