UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Psychometrics With Software Lab 2 - 2

2627-2-E2403P010-T2

Learning area

Methods, techniques and instruments for psychology
Statistics and quantitative methods

Learning objectives

Knowledge and understanding
• Statistics for correlation data
• Statistics for experimental data
• Simple and complex relationships among different types of variables
• Basics of measurement in psychology

Applying knowledge and understanding
• Ability to analyze data collected in different research designs
• Estimating and understanding simple and relationships among variables.
• Employing and evaluating different types of psychological measures
• Use of statistical software

Independent Judgment

- Understand and evaluate the quality of statistical analyses presented in the literature
- Critically assess and use different types of psychological measures

Communication Skills

- Write statistical results from empirical research in a clear and logical manner

- Understand and apply APA communication guidelines

Learning Skills

- Understand data-based conclusions encountered in other courses
- Understand the statistical analyses presented in the studies reviewed during thesis preparation

Contents

An overview of several statistical techniques and methodological concepts is provided, giving the student the ability to collect and analyze data in a wide range of research situations. Univariate statistical techniques are presented, with emphasis on the interpretation of results. Fundamental concepts related with measurement in psychology are also discussed.

Detailed program

- Introduction to statistical modelling
- Multiple regression
- Mediation
- ANOVA and general linear model
- Assumptions of the general linear model
- Non-parametric tests
- Introduction to measurement
- Validity and reliability of a measure
- Factor Analysis

Lab
Learning of the statistical software and pratical experience with the statistical techniques reviewed in class

Prerequisites

Descriptives statistics (measures of central tendency and dispersion); Basics of inferential statistics;

Teaching methods

Theoretical and practical classes. In the theoretical lessons the foundations of the statistical techniques are presented and discussed, their applicability, with special focus on the interpretation of the results. Using several examples found in the psychological literature, students with different mathematical backgrounds should be able to understand what is needed to carry out and interpreting the statistical analyses discussed in the course.
Practice sections in the computer labs with analyses of real data and discussion.

Assessment methods

Written final test with multiple-choice questions and open-end questions based on data analyses. Optional oral exam.

Multiple-choice questions will assess particularly the understanding of the theoretical models underlying psychometric measurement and data analysis techniques.

Open-ended questions will assess the ability to apply this knowledge for developing research projects and for analyzing data. The student will be assessed on their ability to understand a research design, select the statistical techniques useful to answer the researcher questions, execute them with the statistical software, interpret and report the results following international standard (APA)

The possibility of an oral exam is offered to students who consider that the result of the exam does not reflect their real competence and it will assess both theoretical knowledge and practical abilities. he oral exam mark with be averaged with the written exam mark to compose the final grade.

Students will also have the possibility to take simulation test, equivalent to the final test . The aim of the simulation is to acquaint students to the test environment and to give them feedback before the take the exam.

There will be no midterm assessments.

The final assessment takes into account the overall score obtained across the different parts of the exam, according to the following scale:

- 18: barely sufficient knowledge, minimal applied and interpretative skills;
- 19–22: sufficient knowledge of the core contents, with some uncertainty in applying them, and minimal interpretative skills;
- 23–26: fair knowledge, good applied skills with some inaccuracies, and fair interpretative skills;
- 27–30: solid knowledge, excellent applied and interpretative skills;
- 30 cum laude: fully adequate knowledge, full mastery, and excellent interpretative skills.

Textbooks and Reading Materials

Slides and additional material offered via elearning page.

Sustainable Development Goals

QUALITY EDUCATION