Code: M-PSI/03	**Credits: 9**
Matter: Research Methods I (Psychometrics)	
Main language of instruction: Italian	
Other language of instruction: English	

Teaching Staff

Head instructor
Prof. Francesco Maria Melchiori - francesco.melchiori@unicusano.it

Didactic tutor:
Dr. Nicoletta Guglielmo - nicoletta.guglielmo@unicusano.it

Introduction

1) Objective:

The main objective of the course is to develop knowledge, starting from an elementary level, useful for statistical analysis and data interpretation in research context and/or for psychological treatment. The course is structured to ensure the immediate application of statistical concepts and data analysis in psychology. Students will be able to incorporate the results of their analysis into laboratory reports, and how to interpret results sections of journal articles, that means to stress conceptual understanding rather than mere knowledge of procedures.

Objectives

2) Course Structure:

This is an undergraduate-level distance-learning course in research methods and statistics and it is divided in nine modules corresponding to the nine formative credits. Course delivery is mainly asynchronous on the proprietary LMS with recorded lessons and corresponding slides and documentation. The interactive teaching is delivered through the forum (virtual classrooms) and video-chatrooms that constitute an synchronous discussion space, where teachers and / or tutors identify the most significant topics and subjects of teaching and interact with students. In particular, in the interactive teaching area, e-tivity with information on course contents will be proposed to the students.

Competencies:

1) **Use and interpret basic statistical analyses**
   - Summarize distribution information
   - Appropriate use of parametric/non-parametric statistics
   - Tests for association of categorical and correlation of continuous data
2) **Impute data into a spreadsheet (such as Excel) and use of a statistical analysis package (JASP)**
   - Application of statistical tests through JASP GUI
3) **Interpret basic statistical analyses and write up the results as a report in APA style**

Syllabus

3) Program of the course:
Subject 1. Introduction to research methodology and scaling theory in psychology
Subject 2. Quantitative research in psychology and JASP for statistical computer assisted analysis
Subject 3. Variable Classification and measurement scales
Subject 4. Experimental designs and sampling designs
Subject 5. Descriptive statistics and plotting data (visualization)
Subject 6. Probability Theory and probability distributions (Distributions of Random Variables)
Subject 7. Principles of inferential statistics: basic concepts and test for categorical data
Subject 8. Parametric Tests of Hypotheses
Subject 9. Measure of variable relationships: correlation and regression

Evaluation system and criteria

Student Project work (50% of final grade): short presentation of the student about the results of data analysis conducted through the JASP software on an example database. Appraisal of critical reasoning and reporting competence.

Final exam (50% of final grade): A written test, in which the student should choose 2 questions (or exercises) out of 4. The evaluation of the written test will be determined by the degree of knowledge demonstrated, use of the correct test and related skills.

Bibliography and resources

4) *Materials to consult:*
- Course materials provided by the professor
- Learning Statistics with JASP: A Tutorial for Psychology Students and Other Beginners, written by Danielle J. Navarro, David R. Foxcroft, and Thomas J. Faulkenberry. https://learnstatswithjasp.com/

5) *Recommended bibliography:*
- Aron, A., Coups, E. J., & Aron, E. (2013). Statistics for psychology (6th ed). Boston: Pearson.