UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Statistics I

2425-1-E4101B005

Learning objectives

The primary objective of this course is to discuss the elements of **descriptive statistics**, both univariate and bivariate. The course contributes to the achievement of the training objectives in the learning area of: "**Statistics**".

Contents

The course is devoted to **descriptive statistics** and is organized into two main sections. The first section covers **univariate statistics**, including frequency distributions, measures of central tendency, variability, and shape. The second section focuses on **bivariate statistics**, with a particular emphasis on measures that quantify the relationship between two variables.

The detailed program of the course is available at course web page.

Detailed program

Section I: univariate statistics

- Preliminary concepts
- Frequency distributions
- Measures of central tendency
- Measures of variability and concentration
- Main graphical representations
- Symmetry, kurtosis and multimodality
- Categorical data and heterogeneity indexes

Section II: bivariate statistics

- Covariance and correlation
- Simple linear regression
- Partial correlation
- Analysis of variance
- Contingency tables
- Dependence among variables

Prerequisites

There are no prerequisites. However, it is strongly recommended the knowledge of basic notions of mathematics.

Teaching methods

Lessons are held both in classroom and in lab, integrating theoretical principles with practicals aspects of data analysis.

The 48 hours of lectures will be in person.

Assessment methods

The method for verifying the knowledge acquired during the course is based on a **written exam**. The exam includes **open-ended theoretical questions** and **exercises** similar to those covered in class.

Textbooks and Reading Materials

Textbooks (in Italian)

- Piccolo, D. (2010), *Statistica*, Terza edizione, Il Mulino.
- Cicchitelli, G., D'Urso P. e Minozzo, M. (2022), *Statistica. Principi e metodi*, Quarta edizione, Pearson.

Reading material (in Italian)

- Cairo, A. (2020). *Come i grafici mentono*, Raffaello Cortina Editore.
- Spiegelhalter, D. (2020). *L'arte della statistica*. Einaudi

Additional teaching material will be made available in the course website.

Semester

The course is scheduled in the first semester.

Teaching language

Italian

Sustainable Development Goals

QUALITY EDUCATION