UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Statistics I

2425-1-E4102B005

Learning objectives

The Statistica I course is the first course of statistics in the bachelor of Statistica e Gestione delle Informazioni. It has as its objective to introduce students to the theoretical knowledge and practical skills of statistics that constitute the basis of the bachelor itself.

Knowledge and understanding

Students may be able to recognize the nature of statistical variables by knowing how to extract them from a database. They will also have to represent graphically in an appropriate way and be able to synthesize, through suitable indicators, the information that can be both univariate and bivariate.

Ability to apply knowledge and understanding

Students will be required to know how to perform simple data analysis (descriptive statistics) and have developed the ability to express themselves clearly and with language properties to be able to interact with professionals not necessarily trained in the statistical discipline.

Contents

Collection and classification of statistical data. Main tools of univariate and bivariate descriptive statistics.

Detailed program

- Statistics as a science

- Populations and statistical units
- Statistical variables and measurement scales
- Graphical representations
- Univariate frequency distributions
- Means
- Variability measures
- Standardized indices
- Asymmetry and skewness
- Bivariate distributions
- Stochastic independence and mean dependence
- Correlation.

Prerequisites

No formal prerequisites required.

Teaching methods

Lectures of theory and examples in the classroom. Exercises in the classroom with some exercises on the blackboard. Moreover, the teaching is flanked by tutoring activities in which further practical activities and corrections of exercises done at home are carried.

Classroom lectures: 36 hours
Classroom exercises: 18 hours

Assessment methods

The exam consists of a written test comprising 10 theory questions and some exercises. It is necessary to reach the sufficiency (18/30) in both parts that make up the written test.
The final mark in the written test is given by the arithmetic mean of the two marks only if both are sufficient.

Optional oral exam on request of the teacher or the student only if the written test is sufficient.

The written test consists of semi-open-ended theory questions and numerical exercises (to be carried out with the calculator). The theoretical questions allow verifying the knowledge of the main descriptive statistical indicators. The exercises allow verifying the ability to choose, calculate and comment on the appropriate statistical indicators in the context of simple practical problems. Furthermore, the theoretical questions and the exercises (with the relative comments) allow verifying the ability to express oneself with adequate technical language.

The oral test consists of exposition of theory topics. The student must be able to expound and argue theoretical concepts while also knowing how to make connections between different topics.

Textbooks and Reading Materials

G. Boari, G. Cantaluppi, Note di statistica descrittiva e primi elementi di calcolo delle probabilità, EDUCatt Università Cattolica, Milano, 2020

L. Deldossi, R. Paroli, Lezioni di statistica, G. Giappichelli Editore, Torino, 2015

G. Leti, L. Cerbara, Elementi di statistica descrittiva, Il Mulino, Bologna 2009

F. Mecatti, Statistica di base - Come, quando, perchè, McGraw-Hill, Milano 2022

L. Santamaria, Statistica descrittiva – Applicazioni economiche e aziendali, Vita e Pensiero, Milano 2006

A. Zanella, Elementi di statistica descrittiva, CUSL, Milano 2000

Semester

I Semester, I period

Teaching language

Italian

Sustainable Development Goals

QUALITY EDUCATION