UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Statistics for Research

2425-3-I0202D130-I0202D059M

Aims

Consolidation of basic knowledge of the main statistical-methodological tools of descriptive statistics and introduction to inferential statistics for study planning and data analysis

The module aims to make the student able to:

- Critically read the scientific literature that presents descriptive and inferential statistical analyzes with confidence intervals
- Have a solid basic knowledge to be involved in the design and implementation of studies

Contents

Confidence interval on the parameter p probability of an event (proportion)
Frequency tables and graphs
Order of magnitude and dispersion indicators
Gaussian Distribution (to approximate the trend of a histogram)
Confidence interval on the mu parameter

Detailed program

- UNIT A: Confidence interval on the proportion p (Chapter 9)
  Calculation of the point estimate of a probability
  Confidence interval: calculation of the interval estimate of a probability, interpretation, simulation
  Planning the interval estimate of a probability

-------> QUIZ

- UNIT B: Organizing and summarizing data (Chapter 2 and Chapter 3)
  Construction of a frequency table for a qualitative characteristic: absolute, relative, relative frequencies %
  Graphic representation with bar and pie charts
  Construction of a frequency table for a quantitative characteristic: aggregation into classes, absolute, relative, relative % frequencies
  Graphic representation with histogram
  Synthetic indicators of the order of magnitude and variability of the quantitative phenomenon: arithmetic mean (and/or median) and standard deviation

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- UNIT C : Gaussian Distribution and its use as a histogram approximation method (Chapter 7)
  Gaussian distribution: genesis and area calculation method

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- UNIT D : Confidence interval on mu (Chapter 9)
  Confidence interval: calculation of the interval estimate of a mu parameter, interpretation, simulation
  Planning the interval estimation of a mu parameter

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Prerequisites

Basic knowledge of descriptive statistics.

Teaching form

Specified in the syllabus of the course.

Textbook and teaching resource

- Book: Fondamenti di statistica Micheal Sullivan III, traduzione a cura di Emma Zavarrone, Pearson 2020, diponibile anche come e-book https://www.pearson.it/opera/pearson/0-7264-fondamenti_di_statistica
- Slides
- Video Clip

Semester

Specified in the syllabus of the course.

Assessment method

Specified in the syllabus of the course.

Office hours

Specified in the syllabus of the course.

Sustainable Development Goals

QUALITY EDUCATION