UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Statistics for Business Management - 2

2526-1-E1807M004-T2

Learning objectives

Economic disciplines often deal with big sets of data, with many different characteristics. This course aims at guiding students to the right choice of summary tools to describe correctly the phenomena under investigation.
Specific goals of the course are as follows:

- *knowledge and understanding*: students should know the possible kinds of data, the possible aspects of data which need to be summarized, the tools offered by statistics at this aim
- *applied knowledge and understanding*: students should be able to locate the exact kind of data faced and to assess their quality; students should be able to locate the aspects of data which need to be summarized in a specific applied problem; students should be able to locate the right statistical tools for a given summarization problem; students will be required to apply statistical tools both through manual calculation and by using specialized software.
- *making judgements*: students should be able to prevent incorrect or ambiguous interpretations of data; students should acquire a critical thinking of summarized data reported by third parties, possibly by proposing corrections
- *communication skills*: students should be able to choose suitable summarization tools, so that their results are easily interpreted by others, even by people without any specific skill in statistics
- *learning skills*: students should get a basic knowledge to deal with the study of further fields of statistics, which may be the object of other faculty courses.

Contents

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

Detailed program

Statistics as a science.

Applications of Statistics.

The branches of Statistics.

Summarizing univariate data.

Data collection.

Ratios of statistical data.

Frequency distributions and graphical displays.

Central tendency measures.

Variability measures.

Concentration measures.

Skewness measures.

Summarizing bivariate data.

Main interpolation methods.

The least squares method.

The least square line and its properties.

Bivariate frequency distributions.

Independence and association measures.

The regression function and the regression line.

Concordance and correlation.

Prerequisites

There are no propaedeutic exams. Specifically, the knowledge of concepts of mathematical analysis, such as derivatives and integrals, is not requested.

Teaching methods

20 lectures (theory and examples) of 2 hours each conducted in a traditional in-person format.
6 practical activities of 2 hours each conducted interactively in person.

12 hours of tutoring dedicated to the use of Excel for univariate and bivariate statistical analysis (the activity is subject to the availability of computer labs or classrooms equipped with power outlets and will be partially conducted remotely).

Assessment methods

The assessment methods consist of a final written test. No partial tests are provided. The possibility to ask for a supplementary oral test is guaranteed, at the discretion of both students and the teacher. In any case, the discretionary oral test can be only taken if the written test is graded 18/30 at least.
The written test contains exercises and open questions about the subjects dealt during lessons. The written test is organized into single questions, each graded from 2 to 4 points., with a total score of 31. The written test lasts 120 minutes. Examples of written tests, with solutions, can be found on the e-learning. Exam-papers showing is provided, so that students can ask for details about corrections and criteria used to grade.

Textbooks and Reading Materials

M. Zenga “Lezioni di statistica descrittiva (seconda edizione)”, Ed. Giappichelli, 2014

M. Zenga “Esercizi di statistica”, Ed. Giappichelli, 1993

M. Zenga “Richiami di matematica”, Ed. Giappichelli, 1992

G. Leti “Statistica descrittiva”, Ed. Il Mulino, 1983

Semester

Second semester.

Teaching language

Italian.

Sustainable Development Goals

QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE