UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# SYLLABUS DEL CORSO

# Metodi Statistici per il Management

**2425-1-F7701M132-F7701M132-1**

## Learning objectives

The course aims to present to students the statistical methods, that are typically applied to multivariate data.

Knowledge and understanding: the theoretic lectures will make the student to know and understand the meaning of multivariate statistical tecniques in program.

Applying knowledge and understanding: basing on the theory, several case studies will be presented and carefully interpreted to make the student to understand the applicative relevance of the statistical topics in program.

Making judgements: the careful comment of the generated output about several data-sets will allow the student to make judgements, by evaluating the informative relevance and the knowlege in making decisions concerning the threated problems.

Communication skills: cause the choosen way of the evaluation in exam, the student will be able to write a scientific report in communictive and clear way.

Learning skills: cause of the several statistical analyses prented in the corse, the student will acquire, through learning, the necessary expertise in analyzing the data.

## Contents

Multivariate statistical data analysis

## Detailed program

· Multiple linear Regression

· Principal Components Analysis

· Cluster Analysis

· Correspondences Analysis

· Dicriminant Analysis

## Prerequisites

Elements of asymptotic inference and descriptive statistics

## Teaching methods

35 hours of theoretical lectures, 5 cfu, in physical presence. 25 hours in erogative way ( theotetical lectures abuout the topics of the program), and 10 in interactive way, which constist of showing and carefully commenting, in classroom in deep and interactive way several case studies, scientific papers, and nontrivial data analyses.

## Assessment methods

A paper (report), written in ENGLISH or in ITALIANO on an application on a data set of one or two tools presented in the course, by producing, in SPSS softwre, the output and developing a punctual comment on it. Then, the student will have a theoretical talk about the course program.

Following the guidelines in this syllabus, the exam consists of a CASE ANALYSIS, the description of a real situation or example of which the connection among different elements are discussed and analyzed with respect to one or more technical paradigms.

The scientific report will be written, as the reander already knows the statistical theoretic topic, according to the following steps:

1. introduction and presentation of the data-set
2. careful discussion the main output generated by the multivariate tecniques employed in the program
3. Scientific conclusions of the analysis.

The evaluation will concern:

- the compleetness of the work, basing on the steps in pdf "linee guida per la stesura del report"
- the accuracy in extracting the whole possible statistical information and the degree of scientificity of the obtained conclusions.

## Textbooks and Reading Materials

In italian:

Slides in e-learning website

In english:

- G. Chow, ECONOMETRICS, Mc Graw Hill,

chapter on "general linear regression", only

- W. Hardle, L. Simar APPLIED MULTIVARIATE STATISTICAL ANALYSIS, Method & Data Tecnologies ed.

chapters 11, 13, 14, 15, 22 (in 2019-20 edition)

## Semester

Second Semester

## Teaching language

Italian

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | AFFORDABLE AND CLEAN ENERGY | DECENT WORK AND ECONOMIC GROWTH | INDUSTRY, INNOVATION AND INFRASTRUCTURE | SUSTAINABLE CITIES AND COMMUNITIES | RESPONSIBLE CONSUMPTION AND PRODUCTION | CLIMATE ACTION | PEACE, JUSTICE AND STRONG INSTITUTIONS