UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Statistical Methods - 2 (Li-Z)

**2223-2-E3301M194-E3301M197M-T2**

## Learning objectives

The objective is to provide students with a solid foundation in some of the most important, broadly used, statistical and probabilistic model. The course also aims to provide some experience in applying those statistical methods to a broad range of real economic problems. The student will acquire the ability to interpret results and will develop his own point of view in reading tables and graphs, even made by a third part, related to economic studies.

## Contents

This course covers probability and statistical methods and their relevance in economics. The course contains three sections: the first one concerns basic tools for probabilistic computation; the second focuses on probability and several random variable models; in the third one, some techniques of statistical inference are introduced.

## Detailed program

This course covers probability and statistical methods and their relevance in economics.

The first part of the course is devoted to the definition of probability and to the foundation of the probabilistic theory, developed by the axiomatic approach. Also, the concept of random variable is introduced.

In the second part, the more important discrete and continuous random variables are introduced, as models for representing and characterizing quantitative phenomena. Conditional distributions and expectation are also presented and discussed.

The third part deals with those cases where it is not possible to observe economic phenomena on all units of the

population and where it takes place, therefore, a partial survey. Appropriate methodologies that allow to point estimate, or through a range of values, some of the characteristics of the population of interest are introduced.

## Prerequisites

An introductory course of descriptive Statistics.

## Teaching methods

Some lectures and some practical sessions are provided.

Tutoring is also provided, both during the course and in preparation to exams.

## Assessment methods

The exam consists of 'open' questions about theory and exercises. The former test students' knowledge and understanding of the main concepts of the subject. The latter measure students' ability in the application of such concepts to solve simple practical problems.

There is then an optional oral test on the topics covered in class. This oral test may result in either an increase or decrease in the mark obtained in the written test. Prior to the oral test, the student views the assignment and may ask for clarification of the correction and assessment. The optional oral test may become compulsory at the teacher's discretion.

## Textbooks and Reading Materials

M. Zenga: “Modello probabilistico e variabili casuali”, Ed. Giappichelli, 1995

M. Zenga “Elementi di inferenza statistica”, Vita e Pensiero, 2009

## Semester

First semester.

## Teaching language

Italian.

## Sustainable Development Goals