UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Tecniche Quantitative di Analisi

2425-2-E4001N083

Learning objectives

The course aims at illustrating how to analyze, evaluate and formulate quantitative statements concerning human social phenomena, that is, claims about human social phenomena based on arguments expressed through the language of numbers.

Contents

The course provides an introduction to the analysis, evaluation and formulation of quantitative statements concerning human social phenomena.

Detailed program

The course provides an introduction to the analysis, evaluation and formulation of quantitative statements concerning human social phenomena, that is, claims about human social phenomena based on arguments expressed through the language of numbers. The first part of the course illustrates the three basic foundations of the quantitative study of social phenomena: critical reasoning, the scientific method and quantitative reasoning. Next, the course reviews quantitative data collection, that is, the set of operations aimed at translating the phenomena of interest into numerical empirical evidence. Finally, the course presents a set of basic techniques for analyzing and representing quantitative data. Three general topics are covered in this part of the course: the representation and analysis of distributions of qualitative and quantitative variables; the analysis of relationships between pairs of variables; and the elementary principles of causal analysis. It should be noted that some of the topics touched upon during the course are also covered in the *Statistics* course. These topics, however, are discussed in different ways in the two courses; in particular, this course favors an applied sociological perspective, with examples and references--including theoretical ones--regarding various types of social phenomena.

Prerequisites

Enrolling students are requested to possess the basic notions of mathematics and methodology of the social sciences.

Teaching methods

The course consists of 56 hours of in-person lectures. Each lecture consists of a first part, in which the content of interest is presented (standard mode), and a second part, in which individual or group exercises, presentations, and discussions by the students take place (interactive mode). The proportion of standard mode and interactive mode varies from lecture to lecture. Overall, about 60 percent of the time is devoted to the standard mode, while 40 percent of the time is devoted to the interactive mode.

Assessment methods

The examination can be carried out in two ways.

Participatory mode: It consists of carrying out a set of individual or group exercises during the course and presenting the results either orally (during lectures) or in written form, according to the instructions supplied by the lecturer on a case by case basis. Each exercise is graded, and all graded exercises are added together to determine the final grade. Access to this mode of examination requires regular and active participation in class, which will be verified by recording attendance.

Standard mode: It consists of taking a written test that requires answering twenty questions (eighteen multiple-choice and two open questions) on subjects taken from the teaching materials. Answers to multiple-choice questions will be scored 1.5 if correct, 0 points if incorrect; answers to open-ended questions will be scored 0-3. The test grade will be equal to the sum of the points obtained in all the questions, rounded up (first decimal equal to or greater than 5) or down (first decimal less than 5) to the nearest whole number; rounded sums equal to 31 will be equated to grade 30/30, while those equal to 32 or 33 will be equated to grade 30 cum laude. The time available for the test is 40 minutes.

Textbooks and Reading Materials

To prepare for the exam, students in the course should study and assimilate in full the contents of all teaching materials, which include:

a) A book on critical reasoning and the scientific method: Polidoro M., *Pensa come un? scienziat?. Come coltivare l'arte del dubbio*, Milano, PIEMME, 2021.

b) A book on quantitative data analysis: Corbetta P., Gasperoni G. and Pisati M., *Statistica per la ricerca sociale*, Bologna, il Mulino, 2001, chapters 1-7.

c) Other materials: additional examination materials (texts or videos) may be used, which, if necessary, will be

made available on the e-learning page of the course in the Learning Materials section.

Sustainable Development Goals

QUALITY EDUCATION