UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Quantitative Analysis of Social Phenomena

2526-1-F8804N001

Aims

Knowledge and understanding: to provide intermediate-level knowledge of the main quantitative data analysis techniques in sociology.

Applying knowledge and understanding: to provide the skills necessary to independently analyze the main types of quantitative databases in sociology, answering descriptive, predictive and causal questions.

Making judgments: to provide the critical reasoning tools for interpreting and evaluating the results of quantitative research in sociology.

Communication skills: to provide the skills needed to communicate the results of quantitative research in sociology.

Learning skills: to provide the necessary information to further explore the topics covered in the course.

Contents

Scientific method. Mathematics, statistics and social research. Quantitative social research design. Univariate and bivariate descriptive analysis techniques. Statistical inference. Regression function. Generalized linear regression model. Applications of regression analysis to social research: discrimination/prediction. Applications of regression analysis to social research: causal inference.

Detailed program

This course provides an intermediate introduction to the logic and practice of quantitative analysis of social

phenomena. The first part of the course provides an outline of the essential features of this type of analysis, understood as empirical analysis of human social phenomena based on the scientific method and statistics. The second part provides an overview of the main univariate and bivariate analysis techniques. The third part is devoted to statistical inference, presenting the frequentist and Bayesian approaches. The fourth part illustrates regression analysis as a tool for describing the observed variation in a given phenomenon of interest as a function of one or more characteristics of the objects of study. The final part of the course presents the main applications of regression analysis, including discriminant/predictive analysis and causal inference. All course topics are presented in both theoretical and applied terms using the statistical software Stata.

Prerequisites

Basic command of sociological theory and methodology, and fairly good skills in learning, writing and speaking.

Teaching form

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 70 percent of the time is devoted to the standard mode, while 30 percent of the time is devoted to the interactive mode. The course is taught in Italian.

Textbook and teaching resource

Pisati M. (2010) «Incompresa. Breve guida a un uso informato della regressione nelle scienze sociali», *Rassegna italiana di sociologia*, vol. 51, n. 1, pp. 33-60.

Pisati M. (2003) *L'analisi dei dati. Tecniche quantitative per le scienze sociali*, Bologna: il Mulino.

Other teaching materials posted on the course e-learning page.

Semester

First semester.

Assessment method

There are two modes in which the exam can be taken.

In *standard mode*, you take a written test consisting of three open-ended questions on topics from the course material. You have 60 minutes to complete the test. Each answer is scored between 0 and 11, and the overall

grade is the sum of the scores assigned to each answer. If the sum is less than 18, the test will be judged insufficient. If the sum is equal to or greater than 31, the grade will be 30 with honors. Answers will be evaluated based on three criteria: correctness, completeness, and clarity of exposition.

The alternative mode consists of taking five mandatory partial written tests during the course. The first four tests will be group exercises with groups of two people formed at the beginning of the course. The last test will be individual exercises. Group tests will be scored between 0 and 5.5, while the individual test will be scored between 0 and 11. The final exam grade is the sum of the scores assigned to each partial test, rounded to the nearest whole number if necessary. If the sum is less than 18, the exam will be failed. If the sum is equal to or greater than 31, the final exam grade will be 30 with honors. The evaluation of partial tests will be based on the following three criteria: (a) knowledge of relevant topics, (b) the ability to apply that knowledge independently to the analysis of real databases, and (c) the ability to correctly interpret and communicate the results of one's analysis clearly and effectively.

Office hours

By appointment only.

Sustainable Development Goals

QUALITY EDUCATION