UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Econometrics

2627-2-E4103B013

Learning objectives

Econometrics deals with the quantitative analysis of relevant economic phenomena.

This analysis is based on models which are grounded on economic theory, estimated with appropriate statistical techniques and applied to economic data.

This course provides students with: 1) statistical tools needed to specify, estimate and select models which describe the economic relationships among time series and cross-sectional variables; 2) basic knowledge of the econometric software Stata, which is applied to real and simulated data.

The course contributes to consolidating knowledge and understanding in the field of **econometrics** and the quantitative analysis of economic phenomena, as well as the ability to apply such knowledge, in line with the “Economics” learning area of the degree programme in Statistics, Machine Learning and Economics.

Contents

1. Introduction and definitions
2. The classical linear regression model
3. The generalized linear regression model
4. Diagnostic tests
5. Simultaneous equations models

Detailed program

a. Economics and statistics in econometric modelling

b. The classical linear regression model in brief: the OLS estimator

c. Heteroskedasticity and error autocorrelation: the GLS estimator

d. Diagnostic tests

e. The linear regression model with extra-sample information: the RLS estimator

f. The linear regression model with stochastic regressors: the IV estimator

g. Model specification

h. Simultaneous equations models: identification and estimation

Prerequisites

No formal propedeuticity is required. However, basic knowledge of statistics (descriptive and inference) and economics (microeconomics and macroeconomics) is necessary.

Teaching methods

All lectures are held in presence, with standard teaching modalities. In particular, 9 lectures are made of 2 hours. while 8 lectures are of 3 hours. In some lectures students are asked to use their own pc's and the econometric/statistical software Stata. Lectures take advantage of the virtual laboratories LIBaaS.

Assessment methods

The final exam, which is unique, is written and closed-book, with open questions, problems and exercises. The exam aims at evaluating both the theoretical (main econometric techniques discussed during the lectures) and empirical (critical interpretation of the output from the econometric models translating the main economic problems of interest for the applied economist) skills gained during the course.

Textbooks and Reading Materials

• A. Gardini, G. Cavaliere, M. Costa, L. Fanelli, P. Paruolo, Econometria, Franco Angeli, 2000

• J. Johnston, Econometrica, Franco Angeli, 3rd edition, 1993

• G. Koop, Logica Statistica dei Dati Economici, Utet, 2001

• M. Manera, Introduzione all'Econometria, Carocci, forthcoming

• F. Peracchi, Econometria, McGraw Hill, 1995

• J.H..Stock, M.W. Watson, Introduzione all'Econometria, Pearson-Prentice Hall, 2005

For specific parts of the programme, additional material will be indicated and made available.

Semester

Second semester.

Teaching language

Italian.

Sustainable Development Goals

QUALITY EDUCATION