



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Microeconometrics

2122-1-F8204B001-F8204B002M

---

#### Learning objectives

This course aims at providing students with advanced instruments, both theoretical and empirical, to estimate models for panel data (static and dynamic), models for qualitative response variables, models for limited dependent (i.e. censored and truncated) variables, models for count data and duration models.

At the end of the course students will be able to apply the techniques illustrated during lectures and classes to real situations, since they have developed adequate critical skills to choose the appropriate tools of investigation and to interpret the empirical findings.

#### Contents

- Introduction, motivation and definitions
- Models for pooled time series
- Models for longitudinal data
- Panel data and two-way models
- Dynamic panel data models
- Models for qualitative dependent variables: binary choices
- Models for qualitative dependent variables: multiple choices

- Models for limited dependent variables: censoring and truncation
- Count data models
- Duration models

## **Detailed program**

- Summary of introductory estimation techniques (OLS, GLS, IV)
- Cross-sectional heteroskedasticity and autocorrelation
- Fixed effects (OLS estimator with dummy variables, within transformation)
- Random effects, uncorrelated with the regressors (GLS estimator, between transformation)
- Random effects, correlated with some regressors (IV estimator)
- Two-way panel data models: fixed and random effects
- Dynamic panel data models: first differences, IV and GMM estimators
- Models for qualitative dependent variables: binary choices (Logit and Probit)
- Models for qualitative dependent variables: multiple choices (Multinomial and Conditional Logit, Nested Logit)
- Models for limited dependent variables: censoring and truncation (Tobit)
- Count data models (Poisson and Negative Binomial)
- Duration models

## **Prerequisites**

None. Nevertheless, introductory notions of econometrics, micro economics and macroeconomics are taken for granted.

## **Teaching methods**

Front-lectures (both in standard lecture rooms and in computer labs).

In the Covid-19 emergency period, lectures will be carried on by means of pre-recorded videos and live events in

videoconference.

## **Assessment methods**

The final exam, which is unique, consists of a written part and an oral part.

In the Covid-19 emergency period, oral exams will only be in videoconference. Oral exams will be carried on using the WebEx platform and in the e-learning page of the course a public link for external access to each exam session will be available.

## **Textbooks and Reading Materials**

- W. Greene, Econometric Analysis, Prentice Hall International, 4<sup>th</sup> edition, 2002
- G.S. Maddala, Limited-Dependent and Qualitative Variables in Econometrics, Cambridge University Press, 1983
- M. Manera, M. Galeotti, Microeconometria, Metodi e Applicazioni, Carocci, 2005
- J.M. Wooldridge, Econometric Analysis of Cross Sections and Panel Data, The MIT Press, 2002

## **Semester**

Second semester.

## **Teaching language**

Italian.

---