



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Microeconometrics

2627-1-F8206B001-F8206B001-2

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#### 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**

All lectures are held in presence, with standard teaching modalities. In particular, 6 lectures of 2 hours held in presence with standard teaching modalities and 10 lecture of 3 hours held in presence with standard teaching modalities. In some lectures student are asked to use their own pc's and the econometric/statistical software Stata. Some 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 lectures) and empirical (critical interpretation of the output from the econometric models translating the main economic problems and questions of interest for the applied economist) skills gained during the course.

## **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**

## **Teaching language**

Italian.

## **Sustainable Development Goals**

QUALITY EDUCATION

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