Universidad de Navarra

Econometrics II (MEF)

Guía docente 2025-26

INTRODUCTION

Course description:

Building on the foundations laid in 'Econometrics I,' this 'Econometrics II' course delves deeper into the statistical and econometric techniques essential for microeconomic data analysis. Designed for students in the Master in Economics and Finance program, it aims to enhance your practical skills in applying these techniques to real-world scenarios.

The course focuses on the interplay between theory and application. Lectures will not only discuss relevant theories but will predominantly concentrate on their practical applications. We will frequently use examples to ensure that theoretical concepts are directly linked to their use in data analysis.

We will cover a range of advanced methods, equipping you with the necessary tools to effectively analyze and interpret microeconomic data. This course aims to refine your analytical skills, preparing you for more complex challenges in economics and finance.

'Econometrics II' serves as a vital step in your educational journey, enhancing your ability to apply econometric methods in professional contexts and enabling you to derive meaningful insights from microeconomic datasets.

GENERAL INFORMATION

- **School:** Economics and Business Administration
- **Department**: Economics
- **Degree:** Master in Economics and Finance (MEF)
- **Module:** Module I/Matter 1.3 Econometrics
- **Subject Matter:** Econometrics
- **Subject**: Econometrics II. Microeconometrics
- **Prerequisite Knowledge and Skills:** Econometrics I
- **ECTS credits**: 3.5 (87.5 hours of work)
- **Semester:** Winter
- **Language**: English
- **Professors**: Dr. Alex Armand (aarmand@unav.es) and Dr. Miguel Ángel Borrella-Mas (mborrella@unav.es)
- **Office Hours:** Contact by email for appointment
- **Class Schedule:** The classes will take place during the months of January to March 2024. See MEF' class schedule for more details (link to the web)

COMPETENCES

Learning objectives

- Understand identification and limitations of different data structures.
- Understand and critically choose different estimators for micro-level data.
- Being able to run single and multiple regressions and to interpret its results.
- Being able to work with panel data, to run fixed and random effects models.
- Being able to work with limited dependent variables.
- Understand sample selection problems.

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GENERAL COMPETENCES

- CG1) Train high-level specialists in both economic theory and finance
- CG2) To provide students with the appropriate and necessary mathematical and economical techniques to carry out the work, both theoretical and empirical, in the fields of economic theory and finance
- CG3) Familiarize students with research fields and the most relevant literature in economic theory and finance
- CG4) Develop students' critical capacity towards economic or financial phenomena and enhance their communication skills
- Provide students with the basic theoretical foundations to start doctoral studies in economics or finance

SPECIFIC COMPETENCES

- CE1) Study the main concepts and techniques of mathematical analysis, probability, and statistics required in the areas of economics and finance
- CE3) Appropriately use the econometric techniques employed in the analysis of microeconomics and in the analysis and modeling of financial time series
- CE4) Handle the main statistical and econometric software used in the areas of economics and finance

PROGRAM

The course will cover the following topics (Lectures 1-5: Armand / Lectures 6-10: Borrella)

Eventually, we may need to make small changes to the program as we go through the material. Relevant changes and additions will be announced and/or indicated.

OUTLINE

1. Identification and linear models
2. Introduction to non-linear models
3. Non-linear models I
4. Non-linear models II
5. Selection models
6. Instrumental Variable
7. Panel Data Models I
8. Panel Data Models II
9. Policy Evaluation methods I
10. Policy Evaluation methods II

EDUCATIONAL ACTIVITIES

The course is equivalent to 87.5 hours divided in lectures, assignments and personal study.

Teaching Methodology

Each lecture will be structured in the following format: 1. Discussion of theoretical arguments; 2. Coverage of a simple application to understand the arguments; 3. Discussion of real paper using the methodology. The combination of these three components provides students with an understanding of both theoretical and empirical issues related to the topic.

The course will cover 30 hours of lectures. Students are required to attend classes and to prepare the lectures.

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Assigments will cover 10 hours, while personal study will cover approximately 47.5 hours.

The lecture notes and the course material will be updated in the "Program" section along with the course.

ASSESSMENT

CONVOCATORIA ORDINARIA

The grading of the course is divided in the following components:

Individual assignment: 25%

The student will have to prepare presentation on a pre-defined measurement application. The objective is to choose how to measure a relation between two variables, use an application with real-world data, discuss the result, identify violations of general assumptions and propose / apply solutions. The last lecture of the course will be organized as student presentations of 10 minutes on their assignment and on a class discussion. The topic can be discussed with the instructor.

Problem Sets: 15%

Final exam: 60% – Sample exam question. **Important:** A minimun grade of 3.5 is required in the final exam in order to pass the course.

CONVOCATORIA EXTRAORDINARIA

A student who fails the course has to retake the final exam. It counts 60%, while the weight of the continuous evaluation is unchanged.

(*) Students with special learning needs

Accommodation will be provided for students with special learning needs, either regarding the methodology and/or evaluation of the course, but they will be expected to fulfill all course objectives.

OFFICE HOURS

Contact by email:

- Dr. Alex Armand (aarmand@unav.es)

- Dr. Miguel Ángel Borrella-Mas (mborrella@unav.es)

BIBLIOGRAPHY AND RESOURCES

The course will not follow a specific textbook, but the following three books are good general references for microeconometrics:

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Wooldridge, J. (2001), **Econometric Analysis of Cross-Section and Panel Data**. MIT Press, Cambridge, MA. Find it in the Library

Angrist, Joshua D., and Jörn-Steffen Pischke (2008), **Mostly harmless econometrics: An empiricist's companion**. Princeton university press, 2008. Find it in the Library

[MORE ADVANCED] Cameron, A. C., and P. K. Trivedi (2005), **Microeconometrics: Methods and Applications**. Cambridge University Press, New York, NY. Find it in the Library