27429 - Econometrics III

Información del Plan Docente

Academic Year	2016/17
Academic center	109 - Facultad de Economía y Empresa
Degree	417 - Degree in Economics
ECTS	6.0
Course	4
Period	First semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning process designed for Econometrics III is based on the following aspects.

First of all, the teaching method will be based on the use of different techniques, depending on the objectives and competences of the subject.

The core of Econometrics III will be the development of different concepts of theoretical econometrics related to estimation and testing of econometric models. To ensure that the student has understood these theoretical concepts

there will be also some practical or applied classes where the student will solve some simple examples or develop some applied work. In this sense, some classes will be dedicated to computer lab work paying attention to the most widely used programs.

5.2.Learning activities

The syllabus offered to students will help them to achieve the proposed goals and it consists of the following activities

Theoretical lessons

Represent around the 50% of total activities with teacher presence. In these classes the teacher will present, in a sequential way, the basic concepts of theoretical econometrics. The students are recommended to attend all the classes, to take notes and to use the bibliography indicated for each part of the program.

Theoretical-Practical Lessons

These classes are dedicated to complete the understanding of the basic concepts developed in the theoretical classes, by solving simple analytical examples and doing applied exercises. It is expected that in these classes students will play a more active role.

Practical Lessons in the Computer lab

These classes will be hold in the class-rooms dedicated to Informatics in the center. The objective is twofold. First, the student should become familiar with informatics tools that are more widely used in applied work. And, secondly, it is expected that at the end of the process he/she is able to manage files with big quantities of data.

Tutorials

The teacher will schedule a tutorial calendar which will be published well in advance, with the objective of solving individual doubts and offering a more direct support to students.

5.3.Program

Part I: Statistical Concepts: Foundations and Revision

Unit 1 . Foundations

- Relevant questions
- Causality and experiments
- Economic data types
- Uses of econometric model

27429 - Econometrics III

Unit 2 . Revision of statistics

- Random variable and probability distribution
- Mean and variance
- Conditional distribution
- Estimation
- Tests and confidence intervals

Part II : Cross-Section data: stochastic regressors

Unit 3 . Simple regression model

- Assumptions
- OLS estimators
- Measures of fit
- Tests and Confidence intervals
- **Unit 4 . Multiple regression model**
- Assumptions
- OLS estimators
- Omitted variable bias
- Tests and confidence intervals
- Functional form

27429 - Econometrics III

Unit 5. Validation

- Internal and external validity
- Threats to internal validity
- The trade-off between bias and variance
- Autocorrelation and heterokedasticity tests

Part III: Time Series Models

Unit 6 . Univariate Analysis

- Stationary and nonstationary time series
- Deterministic and stochactic trends
- Unit root tests: Dickey-Fuller

Unit 7 . Multivariate Analysis

- VAR model
- Cointegration
- Error correction model

27429 - Econometrics III

Part IV: Other Topics

Unit 8 . Instrumental Variables

- Concept of instrumental variable
- Checking instrument validity
- Two stage least squares

Unit 9 . Panel Data Regression Models

- Motivation
- Panel data with two time periods
- Fixed efects regression

Unit 10 . Models with a Binary Dependent Variable

- The Linear Probability Model
- Probit regression
- Logit regression

5.4.Planning and scheduling

The total of hours dedicated to Econometrics III is 150, divided into 75 with presence of the teacher and other 75 of individual activity. With respect to the first 75 hours, 30 are dedicated to theoretical classes, 30 to practical classes and 15

for tutorials. In general terms, teachers will adopt the following schedule :

Table 1. Presently hours

	Part I	Part II	Part III	Part IV
Theoretical sessions	6	6	12	6
Blackboard Practical sessions	6	4	8	6
Computer lab sessions	0	2	4	0
Tutorials	2	6	6	1
Total sessions	14	22	26	13

Table 2. Distribution of independent learning

Individual study	8	12	15	10
Individual practical work	4	10	12	4
Total hours	12	22	27	14

5.5.Bibliography and recomended resources