

SUBJECT TEACHING GUIDE

M198 - Econometrics

Master's Degree in Economics: Instruments of Economic Analysis

Academic year 2020-2021

1. IDENTIFYING DATA			
Degree	Master's Degree in Economics: Instruments of Economic Analysis	Type and Year	Compulsory. Year 1
Faculty	Faculty of Economics and Business Studies		
Discipline	Obligatory Subjects Module		
Course unit title and code	M198 - Econometrics		
Number of ECTS credits allocated	4	Term	Semester based (1)
Web			
Language of instruction	Spanish	English Friendly	Yes
		Mode of delivery	Face-to-face

Department	DPTO. ECONOMIA
Name of lecturer	ALEXANDRA PILAR SOBERON VELEZ
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Other lecturers	

3.1 LEARNING OUTCOMES

- Carry out empirical work, selecting the appropriate statistical-econometric methods according to the nature of the data and the problem to be analyzed and using specialized computer programs.

4. OBJECTIVES

That the student of this subject learn to model a specific problem from a theoretical point of view, and then, based on the model proposed by economic theory, incorporate the data and generate predictions and explanations of the variables of interest.

Provide students of this subject with the necessary tools to acquire the specific competences of the curricular lines that the students of the master decide to undertake.

6. COURSE ORGANIZATION

CONTENTS

1	<p>Topic 1. Statistical Review</p> <p>1.1 Probability and distribution.</p> <p>1.2 Foundations of mathematical statistics.</p> <p>1.3 Matrix algebra.</p> <p>Topic 2. General Linear Regression Model</p> <p>2.1. Specification.</p> <p>2.2. OLS estimation.</p> <p>2.3. Properties in finite samples.</p> <p>2.4. Asymptotic properties.</p> <p>2.5. Inference</p> <p>2.6. Prediction</p>
2	<p>Topic 3. General Framework: Nonlinear Models</p> <p>3.1. Linear regression model with heterocedastic perturbations. Aitken estimator.</p> <p>3.2. Maximum-plausible estimator. Cramer-Rao bound.</p> <p>3.3. Instrumental Variables Estimator.</p> <p>3.4. Generalized Method of Moments.</p> <p>3.5. General estimation method. Properties.</p> <p>3.6. Wald's Tests, Likelihood Ratio, and Lagrange Multiplier.</p> <p>3.7. Numerical optimization.</p>
3	<p>Topic 4. Regression Model with Time Series.</p> <p>4.1. Specification. Examples of econometric models with time series.</p> <p>4.2. OLS estimation. Properties of the estimators in finite samples.</p> <p>4.3. Asymptotic properties of the OLS estimator.</p> <p>4.4. Stationarity and weak dependency. Regression with non-stationary series.</p> <p>4.5. Properties of OLS estimators with autocorrelated perturbations.</p> <p>4.6. Autocorrelation detection.</p> <p>4.7. Robust inference with OLS in the presence of autocorrelation.</p> <p>4.8. Estimation of the GLRM in the presence of autocorrelation.</p>
4	<p>Topic 5. Panel data</p> <p>5.1. Modeling.</p> <p>5.2. Fixed and random effects.</p> <p>5.3. Basic tests.</p>

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Description Final written exam that will be common in the three universities and will be held the same day at the same time.	Written exam	Yes	Yes	50,00
Description Three tasks throughout the course, one for each topic (considering topic 1 and 2 together).	Work	Yes	Yes	50,00
TOTAL				100,00
Observations				
If it is not possible to carry out the evaluation in person due to the evolution of the pandemic, the evaluation system will be the same, being carried out electronically through the available resources.				
Observations for part-time students				
Part-time students will take the same final exam as full-time students. This exam corresponds to 100% of the grade. In case of obtaining a grade lower than 5 points out of 10, the students will take the same extraordinary exam as the full-time students.				
If it is not possible to carry out the evaluation in person due to the evolution of the pandemic, the evaluation system will be the same, being carried out electronically through the available resources.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Greene, W.H. (2003). *Econometric Analysis*. Ed. Prentice Hall, 5ª edición.

Wooldridge, J.M. (2019). *Introductory econometrics. A modern approach (7th ed.)*. Cengage Learning.