Universitat Autònoma de Barcelona

2019/2020

Economic Models

Code: 40097
ECTS Credits: 15

Degree	Type	Year	Semester
4313805 Economic Analysis	OB	1	2

Contact

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Use of Languages

Principal working language: english (eng)

Teachers

Jordi Massó Carreras

Pau Milan Sole

External teachers

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Prerequisites

No specific prerequisits.

Objectives and Contextualisation

This module seeks two main objectives:

On the one hand, the course covers the basic and standard concepts of non-cooperative and cooperative Game Theory at a graduate level.

On the other it teaches students how to analyze, interpret and organize economic data with advanced econometric and statistical techniques. In part two it shows students how to use advanced econometric techniques and theoretical models to make economic forecasts and therefore, be able to evaluate important economic policies. The student also learns how to use the main software packages necessary for data analysis.

Competences

- Apply the methodology of research, techniques and specific advanced resources to research and produce innovative results in a specific area of specialisation
- Capacity to articulate basic economic theory, analytically deriving them from mathematical reasoning
- Capacity to identify basic statistical analysis and econometric techniques deriving them from the laws of probability and statistics
- Conceptually analyse a specific economic problem using advanced analytical tools
- Find, compile and analyse economic data using advanced econometric techniques

- Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
- Student should possess the learning skills that enable them to continue studying in a way that is largely student led or independent
- Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
- Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
- Use new technology for the collection and organisation of information to solve problems in professional activities
- Use the main computer packages to program economic data analysis

Learning Outcomes

1. Apply the methodology of research, techniques and specific advanced resources to research and produce innovative results in a specific area of specialisation
2. Critically analyse the different estimators and basic empirical methods
3. Describe the underlying basis for modelling dynamic economic phenomena on a macroeconomic scale
4. Frame an economic question in a mathematical problem and derive the answer using mathematical logic
5. Identify the possibilities and limitations of basic empirical analysis
6. Implement an empirical analysis with all its stages using publicly accessible data bases
7. Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
8. Program basic methods of estimation
9. Student should possess the learning skills that enable them to continue studying in a way that is largely student led or independent
10. Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
11. Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
12. Use new technology for the collection and organisation of information to solve problems in professional activities

Content

Game Theory

1.- Introduction to Game Theory and Some Examples

2.- Games in Normal Form

3.- Games in Extensive Form

4.- Nash Equilibrium and Related Issues

5.- Repeated Games

6.- Games of Incomplete Information

7.- Bargaining Theory

8.- Cooperative Games

Econometrics I

1. Causal inference vs. forecasting and types of data

2. Conditional expectations and their properties

3. Identification, estimation, and inference in bivariate OLS regression

4. Identification, estimation, and inference in multiple OLS regression

5. Measurement error bias and solutions

6. Sample selection bias and solutions

7. Reverse causality bias and solutions

8. Standard error bias and solutions

9. Identification, estimation, and inference in linear IV regression

10. Weak instrument bias and size distortion

11. Extremum estimator

Econometrics II

12. Maximum likelihood

13. Generalized Method of Moments

14. Introduction to time series analysis

15. Additional topics in econometrics

Methodology

• Theory classes

• Practice classes

• Learning based on problem solving

• Tutorials

• Personal study

• Study groups

• Textbook reading

• Article reading

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Theory classes	112.5	4.5	2, 1, 3, 4, 5, 6, 8, 10, 11, 9, 7, 12
Type: Supervised			

Problems sets, tutorials	75	3	2, 1, 3, 4, 5, 6, 8, 10, 11, 9, 7, 12
Type: Autonomous			
Personal study, study groups, textbook readings, article readings	187.5	7.5	2, 1, 3, 4, 5, 6, 8, 10, 11, 9, 7, 12

Assessment

Final Exams	50%
Class attendance and active participation	20%
Problem sets and assignments	30%

A module consists of different courses which are evaluated through final exams, problem sets and assignments and other class activities such as class attendance, presentations, etc.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Class Attendance and Problem sets and assignments	50%	0	0	2, 1, 3, 4, 5, 6, 8, 10, 11, 9, 7, 12
Final Exams	50%	0	0	2, 1, 3, 4, 5, 6, 8, 10, 11, 9, 7, 12

Bibliography

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F. Vega-Redondo (2003). Economics and the Theory of Games. Cambridge University Press.

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Cameron and Trivedi, (2005) Microeconometrics: Methods and Applications, Cambridge University Press.
Wooldridge (2002) Econometric Analysis of Cross Section and Panel Data, MIT Press, Cambridge- Mass, USA.
Greene, W.H. (2000) Econometric Analysis, Pearson Prentice Hall.
Cameron, A.C. and P.K. Trivedi, Microeconometrics - Methods and Applications

Davidson, R. and J.G. MacKinnon, Econometric Theory and Methods
Gallant, A.R., An Introduction to Econometric Theory
Hamilton, J.D., Time Series Analysis
Hayashi, F., Econometrics