Universitat Autònoma de Barcelona

# Economic Models 2016/2017

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

Michael David Creel

## External teachers

Pau Milán

## Prerequisites

No specific prerequisits.

## Objectives and Contextualisation

This module seeks two main objectives. On the one hand, it teaches students how to analyze, interpret and organize economic data with advanced econometric and statistical techniques. On the other, 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.

## Skills

- 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

**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

**Macroeconomics III**

16. Representative consumer theories of inequality. Representative consumer theories. Perfect Aggregation and distributional dynamics. Borrowing constraints and welfare.

17. Idiosyncratic uncertainty. The complete markets case. The incomplete markets case. Perfect Aggregation does not hold. Precautionary saving. Does market incompleteness matter?

18. Fiscal Policy. Optimal capital income taxation with incomplete markets, revisiting Chamley. Optimal taxation: a quantitative evaluation.

19. Frictional labor markets. Search and matching in frictional labor markets. Extensions in the

Neoclassical Model of Growth and in the Real Business Cycles model with incomplete markets

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

## Evaluation

| | |
|---|---|
| Final Exam | 80% |
| Class attendance and active participation | 10% |
| Problem sets and assignments | 10% |

## Evaluation activities

| Title | Weighting | Hours | ECTS | Learning outcomes |
|---|---|---|---|---|
| Class Attendance and Problem sets and assignments | 20% | 0 | 0 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |
| Final Exam | 80% | 0 | 0 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |

## Bibliography


• Stock J. H. and M. W. Watson, Introduction to Econometrics (second or third edition, US or international).

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• Stock, J. H., J. Wright and M. Yogo, 2002, "A Survey of Weak Instruments and Weak Identification in Generalized Method of Moments," Journal of Business and Economic Statistics, 20, 518 - 529.

• Stock, J. H. and M. Yogo, 2005, "Testing for Weak Instruments in Linear IV Regression," Ch. 5 in D. W. K. Andrews (ed.), Identification and Inference for Econometric Models, New York, Cambridge University Press, 109--120.

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• 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.

• Ljungqvist, L., and T. Sargent (2000): Recursive Macroeconomic Theory, MIT press.