COURSE DATA

DATA SUBJECT

Code: 36804
Name: Econometrics II
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1933 - Double Degree in Law and Economics_2022	Facultat d'Economia	4	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1933 - Double Degree in Law and Economics_2022	Asignaturas de cuarto curso	COMPULSORY

COORDINATION

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SUMMARY

Econometrics II is a compulsory, six-monthly subject, with a total teaching load of 6 credits ECTS (150 hours), taught in the fourth year of the Bachelor's Degree in Law-Economics (in the Bachelor's Degree in Economics, it is taught in the third year). The subject Econometrics includes the subjects Econometrics I and Econometrics II, the former being taught in the first semester of the course and the latter in the second semester of the course. The aim of the subject is to provide students with the basic knowledge of the discipline of Econometrics, which combines concepts from Economic Theory, Mathematics and Statistics, in order to provide the appropriate tools to analyse the economic reality and its evolution. It is therefore a subject of a high educational, practical and theoretical level that, together with the use of computer programs, provides students with a comprehensive view of the instruments of quantitative analysis of the economic reality.

The contents of Econometrics II are based on the knowledge acquired in Econometrics I in order to make extensions to economic problems and specific methods. A first part of the course is devoted to the study of endogeneity and some of the classical and current methods for identifying causal relationships. It also presents panel data (estimation of unit and time fixed effects), some of the most commonly used policy evaluation methods (causal analysis), and the estimation of binary variables (Logit and Probit models). The second part is devoted to the study of time series (dynamic models, stationarity study, ARIMA models for forecasting). Students will have to use prior knowledge from different subjects that they have studied

previously: algebra, calculus, statistics, Econometrics I.

Thus, this subject allows students to investigate real problems with data. Bearing in mind that economics, like the rest of the social sciences, is increasingly a 'data science', this subject is an essential part of the academic curriculum for students of Economics.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

- Relationship with other subjects in the same degree: this subject has no enrolment restrictions with respect to other subjects in the syllabus, although it is very difficult to take it successfully without having passed the subject Econometrics I.
- Other requirements: in order to successfully tackle this subject, it is advisable that students remember and manage the knowledge of algebra, calculus, statistics and Economic Theory that they have learnt in the rest of courses.

COMPETENCES / LEARNING OUTCOMES

DESCRIPTION OF CONTENTS

1. OLS Bias/Inconsistency.

1.1 Non-compliance with the 'zero conditional mean' of the error. Causes: omitted variables, measurement errors, simultaneity (all are 'confounding factors').
1.2 The case of SIMULTANEITY in economic relationships
- 1.2.1 Example: the market equilibrium
- 1.2.2 Structural form and reduced form model. A simple case with 2 equations.
- 1.2.3 Exclusion restrictions as a condition to identify causal effects. Rank and order conditions.
1.3 Instrumental variables estimation and MC2E ('2SLS').
1.4 Properties of IV estimation.
1.5 Endogeneity test, instrument weakness, and instrument validity.

2. Panel data

2.1 Structure and benefits of panel data.
2.2 Time and individual fixed effects ('two-way fixed effects', TWFE).
2.3 Fixed effects as a solution to unobservable heterogeneity biases.

3. The 'counterfactual' approach to identify causal relationships

3.1 Intuition: What would have happened if...? Parallelism with experimental data.
3.2 Presentation of some 'design' estimators: matching estimators, diff-in-diff estimation, regression in discontinuity, and the synthetic control method.
3.3 Necessary conditions in each case to validate the method.

4. Qualitative dependent variables

4.1 Discrete choice models.
4.2 Linear Probability Model, Logit and Probit.
4.3 Maximum Likelihood Estimation.
4.4 Interpretation of coefficients.

5. Dynamic models

5.1 Distributed lag models
5.2 Short- and long-term multipliers
5.3 Estimation with and without autocorrelated errors. Instrumental Variables
5.4 Tests for autocorrelation

6. Time series: forecasting with ARIMA models

6.1 Approaches to Economic Forecasting.
6.2 ARMA and ARIMA Processes.
6.3 Simple Autocorrelation Function and Partial Autocorrelation Function.
6.4 Identification, estimation, validation and prediction.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theoretical and practical classes	60,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	20,00
Independent study and work	50,00
Preparation of lessons	20,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

Formal aspects are minimised, giving priority to the intuitive discussion of concepts and the posing of questions of economic interest that can be answered with the use of real data. The aim is for students to achieve a practical mastery of econometrics.

The classes combine the presentation of the subject to be dealt with in each session, supported by the proposal of practical cases that will serve to motivate the questions that we want to answer with econometric theory and practice. The practicals will consist of both the resolution of analytical exercises, by the teacher and the student, and the resolution of practical cases with the use of the R package using the computer.

The practicals as well as the attendance and active participation in the classes will be part of the continuous assessment of the subject.

EVALUATION

This course will use the following evaluation procedure:

- Final exam (70% of the final mark): Written exam, consisting on theoretical and/or theoretical-practical questions and/or problems.

- Continuous assessment of the student based on the resolution of exercises and the preparation of assignments (30% of the final mark). This assessment will consist of the completion and presentation of both analytical and computer exercises for each subject, which will be linked to the student's participation

in the practical classes, as well as the delivery of any other work that the instructor deems appropriate to carry out throughout the semester. This continuous assessment is not recoverable, although the grade may be kept until the second sitting in the event that the student does not pass the final exam in the first sitting.

The final mark will be the weighted sum of the final exam and the continuous assessment (not recoverable). In order to add up the continuous assessment, it is essential to pass the exam.

In the event of failing the final exam, the mark that will appear in the official lists will be the mark obtained in that exam (calculated out of 10).

Students suspected of attempted copying, plagiarism or impersonation in the delivery of assignments or the exam will receive a final mark of zero.

The official regulations of the centre regarding the evaluation and grading of subjects can be consulted at the following link:
https://www.uv.es/graus/normatives/2017_108_Reglament_avaluacio_qualificacio.pdf

REFERENCES

Wooldridge, J (2016). Introducción a la econometría. 5ª Edición. Cengage Learning. English version: Wooldridge, J (2020). Introductory Econometrics: A Modern Approach. 7th Edition. Cengage Learning.

Gujarati, D. y Porter D.C. (2010) Econometría (5ª Edición). McGraw-Hill. (English version: Gujarati, D. and Porter D.C. (2009) Basic Econometrics, 5th Edition). McGraw- Hill.

Stock J.H. y Watson M.M. (2012) Introducción a la Econometría. (3ª Edition). Pearson (English version: Stock J.H. y Watson M.M. (2020) Introduction to Econometrics. 4th Edition, Global Edition). Pearson.

Greene, W. (1999). Análisis Econométrico (3ª edición). Prentice-Hall. Madrid English version: Green (2018) Econometric Analysis. (8th Edition), Pearson.

Heiss, F. (2016) Using R for Introductory Econometrics. Using the Independent Publishing Platform CreateSpace.

Econometría en YouTube (en inglés): https://www.youtube.com/playlist?list=PLwJRxp3blEvZyQBTTOMFRP_TDaSdly3gU