UAB
Universitat Autònoma de Barcelona

Econometrics

Code: 102105
ECTS Credits: 6

2025/2026

Degree	Type	Year
Accounting and Finances	OB	3

Contact

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Teachers

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

It is highly recommended that the student has successfully completed Mathematics I, II and Statistics I, II. Having full command of the materials presented in these courses is essential to succeed in Econometrics.

Objectives and Contextualisation

Econometrics presents basic tools for the empirical analysis of relationships between economic variables. The course begins with the simple regression model, already introduced in Statistics II, and continues with multiple regression, including both quantitative and qualitative regressors.

The goal of this course is for students to learn how to extract information from economic data using basic regression analysis, being able to rigorously assess the advantages and limitations of this tool. Major emphasis shall be placed on understanding the intuition behind the theoretical aspects of econometric analysis. Throughout the course numerous applications using real data will be presented to help students learn to value the empirical applications of the tools introduced.

Learning Outcomes

1. CM04 (Competence) Generate models and systems that can reliably and efficiently collect, store, share, process and retrieve data in digital settings.
2. CM05 (Competence) Use mathematical and statistical tools to calculate indicators and solve problems with deterministic and/or random components in the business economics field.
3. CM06 (Competence) Analyse business situations and prepare documents to manage them.
4. CM07 (Competence) Analyse quantitative and qualitative information related to economic phenomena and variables, especially in situations characterised by the presence of randomness.
5. CM08 (Competence) Identify situations characterised by the presence of randomness and analyse them using basic probabilistic tools.
6. CM09 (Competence) Analyse the causal relationship between economic variables.
7. KM06 (Knowledge) Describe the analytical tools required, both qualitative and quantitative, for problem-solving in situations of uncertainty (randomness) and decision-making at the different functional levels of the company.
8. SM04 (Skill) Manage (operate) the financial information existing in yearbooks, memories, databases, reports and on the internet.
9. SM05 (Skill) Use tools and statistics to solve problems in the business-economic sphere with random components.

Content

Unit 1: Introduction to econometric analysis

- What is econometrics? Objectives
- Causation versus correlation
- The nature of economic data: experimental data versus observational data
- The structure of economic data

Unit 2: The simple regression model: estimation

- The simple regression model. The regression line
- Least squares estimation. The fitted line. Goodness of fit
- Interpretation of the coefficients. Special cases: dependent variable in logs. Qualitative regressor
- Distribution of the estimator under classical assumptions. Statistical properties
- Applications

Unit 3: The simple regression model: inference

- Inference in a regression model
- Hypothesis testing with the t-statistic
- Confidence intervals for a regression parameter
- Applications

Unit 4: The multiple regression model: estimation

- The multiple regression model. The population regression function
- Least squares estimation. The sample regression function
- Goodness of fit. Coefficient of determination. Adjusted coefficient.
- Distribution of the estimator under ideal conditions. Statistical properties
- The components of the variance of the estimator
- Applications.

Unit 5: Linear regression analysis: inference and extensions

- Hypothesis testing with the t statistic. Confidence intervals
- Hypothesis testing using the F statistic
- Inference under the presence of collinearity
- Regression models with variables in log. Polynomial forms. Interaction terms

- Test of structural change
- Applications

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lab sessions	17	0.68	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05, CM04
Lectures	32.5	1.3	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05, CM04
Type: Supervised			
Tutoring	6	0.24	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05, CM04
Type: Autonomous			
Study and exercise solving	88.5	3.54	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05, CM04

The course will be structured as follows:

1. Lectures

During lectures, key concepts and methods will be presented using many examples to facilitate a clear understanding of the materials presented. An exercise list will be provided for each unit. Students will be asked to work on them, as an independent activity, in small groups or on their own. The instructor will select some exercises from the lists to be discussed in class and can use some of them as an evaluation activity.

2. Lab sessions

In order to better grasp the different econometric concepts and methods, some of the sessions will take place in the computer room, or in the classroom using personal computers. In these sessions econometric software (RStudio) will be used. The main goal fo these sessions will be for the student to learn to rigorously apply to tools presented.

3. Tutoring

Students can use instructor's office hours to get help on specific questions. Office hours will be announced in either the intranet (*Campus Virtual)* or in the instructor's webpage.

4. Studying

It is expected that the activities described above, take about one a fraction of the time that the student is supposed to dedicate to *Econometrics I.* The rest of the time should be filled with students' independent work (studying, reading the course textbook, problem solving,...). This activity is crucial to assimilate the theoretical aspects and the applications of the tools presented.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exercise submission and lab tests	25%	2.5	0.1	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05
Final exam	50%	2	0.08	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05
Midterm	25%	1.5	0.06	CM04, CM05, CM06, CM07, CM08, CM09, KM06, SM04, SM05

This subject does not offer the option for comprehensive evaluation. Student's evaluation will be based on the following activities:

1. Midterm exam

There will be a written test covering the material from Units 1,2 and 3. It will be a closed book exam.

2. Final exam

There will be a written test covering the material from Units 1,2,3,4 and 5. It will be a closed book exam.

3. Assignments

Students will be asked to turn two sets of exercises that will be done during lab sessions. The first set, with a weight of 10%, will be done in a lab session before the midterm. The second set, with a weight of 15%, will be done in a lab session before the final.

Grading Policy

a. Course grade is calculated according to the following expression:

COURSE GRADE=0.25*ASSIGNMENTS + 0.25* MIDTERM + 0.50*FINAL

b. To pass the course, the course grade needs to be equal or greater than 5. If the course grade is between 3.5 and 4.8, the student can sit in the retake exam, as established in section Retake process included below. The student will fail the course if the grade is below 3.5.

c. A student who has not participated in any of the assessment activities will be consideredas 'Not evaluable'.

Calendar of evaluation activities

The dates of the evaluation activities (midterm exams, exercises in the classroom, assignments, ...) will be announced well in advance during the semester. The date of the final exam is scheduled in the assessment calendar of the Faculty.

"The dates of evaluation activities cannot be modified, unless there is an exceptionaland duly justified reason why an evaluation activity cannot be carried out. In this case, the degreecoordinatorwill contact both the teaching staff and the affected student, and anew date will be scheduled within the same academic period to make up for the missed evaluation activity." **Section 1 of Article 115. Calendar of evaluation activities (Academic Regulations UAB)**. Students of the Faculty of Economics and Business, who in accordance with the previous paragraph need to change an evaluation activity date must formally request it by filling the following form: https://eformularis.uab.cat/group/deganat_feie/nou-reprogramacio-de-proves

Grade revision process

After all grading activities have ended, students will be informed of the date and way in which the course grades will be published. Students will be also be informed of the procedure, place, date and time of grade revision following University regulations.

Retake Process

"To be eligible to participate in the retake process, it is required for students to have been previously been evaluated for at least twothirds of the total evaluation activities of the subject." Section 3 of Article 112 ter. The recovery (UAB Academic Regulations). Additionally, it is required that the student to have achieved an average grade of the subject between 3.5 and 4.9.

The date of the retake exam will be posted in the calendar of evaluation activities of the Faculty. Students who take this exam and pass, will geta grade of 5 for the subject. If the student does not pass the retake, the grade will remain unchanged, and hence, student will fail the course.

Irregularities in evaluation activities

In spite of other disciplinary measures deemed appropriate, and in accordance with current academic regulations, *"in the case that the student makes any irregularity that could lead to a significant variation in the grade of an evaluation activity, it will be graded with a 0, regardless of the disciplinary process that can be instructed. In case of various irregularities occur in the evaluation of the same subject, the final grade of this subject will be 0".* **Section 10 of Article 116. Results of the evaluation. (UAB Academic Regulations).**

Use of AI

Prohibited use: In this course, the use of Artificial Intelligence (AI) technologies is not allowed at any stage. Any work that includes AI-generated content will be considered a breach of academic integrity and may result in a partial or total penalty in the grade for the activity, or more serious sanctions in severe cases.

Bibliography

- Stock,J.H. i Watson, M.M., *Introduction to Econoemtrics*.

- Wooldridge, J. M., *Introductory Econometrics: A Modern Approach*. South-Western Cengage learning.

Software

The software used in this course is RStudio.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	101	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	501	Catalan	first semester	morning-mixed

(PLAB) Practical laboratories	101	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	102	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	501	Catalan	first semester	afternoon
(TE) Theory	10	Catalan	first semester	morning-mixed
(TE) Theory	50	Catalan	first semester	afternoon