



IDENTIFYING DATA

Econometrics I

Subject	Econometrics I			
Code	V03G100V01501			
Study programme	Grado en Economía			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish English			
Department				
Coordinator	Álvarez García, María Begoña Miles Touya, Daniel Gustavo			
Lecturers	Álvarez García, María Begoña Miles Touya, Daniel Gustavo			
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Web				
General description	This course is an introduction to multiple regression methods for analyzing data in economics and related fields. Students learn how to conduct empirical studies, as well as how to analyze and interpret results from other empirical works.			

Training and Learning Results

Code	
C1	Understand the basic mathematical tools required to formalize economic behavior.
C10	Ability to use technical tools to formulate simple models concerning economic variables.
D1	Respect civic and ethical values. Strong commitment to work ethic.
D5	Skills to make coherent and intelligible statements both in oral and written form.
D7	Promote critical and self-critical thinking.

Expected results from this subject

Expected results from this subject	Training and Learning Results	
Understand basic econometric tools from a theoretical and applied point of view.	C1	
Use of basic tools and procedures to quantify relationships between economic variables.	C1 C10	
Ability to use econometric tools for solving economic problems.	C1 C10	D1 D7
Develop skills to argue and obtain conclusions from empirical evidence.		D5 D7

Contents

Topic	
TOPIC 1: Empirical questions and the problem of causal inference. Econometric models	<ul style="list-style-type: none"> - Types of empirical questions and examples. - The problem of causal inference. - Methods for estimating causal effects.
TOPIC 2: Linear regression model (I)	<ul style="list-style-type: none"> - Selection on observables. - Linear regression model: specification. - Ordinary Least Squares estimation. - Interpretation of estimates: when do we identify a causal effect?
TOPIC 3: Linear regression model (II)	<ul style="list-style-type: none"> - Goodness of fit. - The random component of the Ordinary Least Squares estimator. - Assumptions of the regression model. - Precision of the estimates. - Properties of the Ordinary Least Squares estimator.

TOPIC 4: Linear regression model (III)	<ul style="list-style-type: none"> - Obtaining additional information from the parameter estimates: changes of scale of the variables; elasticities; Beta coefficients. - Non-linearities between the dependent variable and the explanatory variables of the model.
TOPIC 5: Inference in the linear regression model	<ul style="list-style-type: none"> - Assumption of normality. - Hypothesis testing on a single parameter. - Confidence intervals. - Contrasts of multiple restrictions on the parameters.
TOPIC 6: Dummy variables	<ul style="list-style-type: none"> - A single independent dummy variable. - Dummy variables for multiple categories - Interactions involving dummy variables.
TOPIC 7: Specification and data problems in regression analysis	<ul style="list-style-type: none"> - Consequences of misspecification of regression model - Multicollinearity
TOPIC 8: Heteroscedasticity	<ul style="list-style-type: none"> - Detection - Consequences - Solutions
TOPIC 9: Correlation of error terms across observations	<ul style="list-style-type: none"> - Detection - Consequences - Solution
TOPIC 10: Endogeneity	<ul style="list-style-type: none"> - Causes of endogeneity: omitted variable bias, measurement error in explanatory variables, bidirectional causality. - Instrumental variables estimation.

Planning

	Class hours	Hours outside the classroom	Total hours
Practices through ICT	20	30	50
Lecturing	28	40	68
Objective questions exam	2	15	17
Problem and/or exercise solving	0	15	15

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Practices through ICT	Computer practices are designed to train students to explore a dataset, write code to analyze relationships and to test hypotheses about some economic phenomenon. The course requires use of GRETL and/or Python (free econometric softwares).
Lecturing	Lectures will develop the concepts and methodologies of the subject.

Personalized assistance

Methodologies	Description
Lecturing	Students will be able to solve doubts in personal tutorials that will be arranged in advance by email (alvarez@uvigo.es). They will take place in person at office 337.
Practices through ICT	Supervision of students' work on the computer-oriented exercises in lab sessions.
Tests	Description
Objective questions exam	Students may contact the lecturer during the exam preparation if some issues are still unclear. All enquiries about the subject material should be made in personal tutorials similar to lecturing
Problem and/or exercise solving	Students will be able to solve doubts in personal tutorials or in class.

Assessment

	Description	Qualification	Training and Learning Results
Practices through ICT	Exercises with real-world databases using GRETL and/or Python. Students following continuous assessment must attend all practical sessions (except for justified reasons). In some sessions, students must hand in their work.	30	C1 D1 C10 D5 D7
Objective questions exam	The questions will refer to contents seen both in the theoretical classes and in the practical sessions.	35	C1 D1 C10 D5 D7

Problem and/or exercise solving	Resolution and delivery of problems done during the theoretical class sessions and/or out of class hours.	35	C1 C10	D1 D5 D7
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Other comments on the Evaluation

All students are entitled to two examination calls:

- Ordinary call, in the teaching semester.
- Extraordinary call, in June/July

In each call, the student can choose to be assessed using the continuous assessment (**CA**) system or, alternatively, opt for a Global Assessment (**GA**) exam. **The default assessment is the CA.** Students must inform the teacher about their withdrawal from continuous assessment by email before October 15th. The choice of the GA implies the waiver of the right to be assessed through the remaining CA activities; it also implies the waiver of the grade obtained up to that moment in any of the tests already taken.

Continuous assessment (CA):

- Attendance to lectures and practical sessions is mandatory (except for justified reasons).
- First opportunity (ordinary call): The final grade is the weighted average of the grades corresponding to practical work (30%), problems and exercises (35%) and midterm exam (35%). If a student does not earn a grade of at least 5 points, he or she may waive the midterm exam grade and take a final exam on the official date of the first GA exam. In this case, the final grade will be the weighted sum of the grade for the practical work (30%) and the final exam (70%).
- Second opportunity (extraordinary call June/July): The grade will be the weighted sum of the practical work mark (30%) and the final exam mark (70%), which will be taken on the official date of the second GA exam call.

Global assessment(GA, in the case of waiving continuous assessment):

- First opportunity (ordinary call): 100% of the mark is achieved through a final exam.
- Second opportunity (extraordinary call in June/July): 100% of the mark is achieved through a final exam.

* **Only for Spanish students:** The assessment in the "Convocatoria Fin de Carrera" will be through GA exam (100%).

The dates the GA exams (first and second call) and the "Convocatoria Fin de Carrera" exams are those approved by the Faculty Board for the academic year 2025/26. See <https://fccee.uvigo.es>.

Students must take into account Title VII (The use of illicit means) of the Regulation on the assessment, grading, quality of teaching and the student learning process.

Sources of information

Basic Bibliography

Stock, JH and Watson, MW, **Introduction to Econometrics**, 3th, Pearson, 2015

Stock, J.W y M. Watson, **Introducción a la Econometría**, Prentice-Hall, 2012

Wooldridge, JM, **Introducción a la Econometría. Un enfoque moderno**, Cengage Learning, 2016 (o anteriores)

Wooldridge, JM, **Introductory Econometrics. A Modern Approach**, 7th, Cengage Learning, 2019 (o anteriores)

Complementary Bibliography

Dougherty, C, **Introduction to econometrics**, 5th, Oxford University Press, 2016

Recommendations

Subjects that continue the syllabus

Econometrics II/V03G100V01601

Quantitative Techniques to Analyse Economics/V03G100V01914

Subjects that it is recommended to have taken before

Statistics: Statistics 1/V03G100V01205

Mathematics: Mathematics 1/V03G100V01104

Statistics II/V03G100V01403
