



Information about the subject

Degree: Bachelor of Science Degree in Business Administration and Management

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 300402 **Name:** Econometrics

Credits: 6,00 **ECTS Year:** 4 **Semester:** 1

Module: Quantitative Methods

Subject Matter: Statistical and Econometric Methods **Type:** Compulsory

Field of knowledge: Ingeniería y Arquitectura

Department: -

Type of learning: Classroom-based learning / Online

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Module organization

Quantitative Methods

Subject Matter	ECTS	Subject	ECTS	Year/semester
Information Systems	12,00	Information Systems for Management I	6,00	1/2
		Information Systems for Management II	6,00	2/1
Mathematics	6,00	Mathematics for Economics and the Business	6,00	1/1
Statistical and Econometric Methods	12,00	Econometrics	6,00	4/1
		Statistical Inference	6,00	3/2
Statistics	6,00	Descriptive Statistics	6,00	2/1

Recommended knowledge

It is recommended to course Quantitative Methods for Economics, Descriptive Statistics and Statistical Inference before getting enrolled in Econometrics.



Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 To consult, based on the problem proposed, the most important information sources and make an adequate analysis form the data obtained.
- R2 To break down a complex problem into several parts and establish complex causal links . To recognize several possible causes of an event or several consequences of an action or a chain of events.
- R3 Given an already formalized problem, be able to apply the techniques learned to solve it and be able to decide whether or not you can get a solution or not, so that, in the second case, you can approximate the solutions. To be able to decide if the solution obtained is reasonable, according to the context in which the problem is formulated.
- R4 To express opinions clearly and precisely and to be able to ask control and follow-up questions. Given a "verbalized" problem, be able to translate it into formal language and identify economic facts based on their numerical substrate and be able to establish basic relationships.
- R5 To calculate the probability of complex economic events, obtained by means of econometric operations, and to recognize these operations in statements of real problems.
- R6 To express the conclusions of an econometric study in economic terms and to convey those conclusions to people unfamiliar with statistical terminology.
- R7 To be able to choose the adequate model and model's specification in order to solve the proposed problem.
- R8 Given a problem already formalized, to be able to apply the techniques learned to solve it and be able to decide whether or not you can obtain a solution or not, so that, in the second case, you can approximate the solutions.
To be able to decide whether the solution obtained is reasonable, according to the context in which the problem is formulated.
- R9 To incorporate new cognitive schemes or models and new ways of interpreting reality in order to present solutions for problems or situations using their experience in other similar ones. To apply standard solutions being able to make a critical assessment of them a posteriori to build econometric models. To know how to detect and correct the most common problems in regression models.



- R10 To express opinions clearly and precisely and know how to ask control and follow-up questions. Given a "verbalized" problem, be able to translate it into a formal language, and identify economic facts based on their numerical substrate and be able to establish basic relationships.
- R11 To handle office packages and especially be able to use the Excel formulation fluently. To be able to handle some of the usual computer tools, so that he/she can provide numerical approximations to the problems posed. To use and interpret the results of a computer program to handle the various econometric techniques, in order to overcome the obstacle of complex calculations associated with them.
- R12 To calculate, both by hand and using computer applications, the most important descriptive parameters of a data sample, as well as to build from them the most appropriate graphic representations. To calculate (by hand and with the help of computer applications) the equation of a regression line, interpret its parameters correctly, use it to make predictions, and calculate and interpret the residues of the observations.
- R13 To set up systems or practices for collecting information on a regular basis in the company. Simultaneously manage several complex projects, permanently establishing mechanisms for coordinating and controlling the information on the processes in progress.
- R14 To express the conclusions of an econometric study in understandable terms.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	That students have demonstrated knowledge and understanding in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.	X			
CB2	That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.	X			
CB3	That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.	X			
CB4	That students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.	X			
CB5	That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.	X			
GENERAL		Weighting			
		1	2	3	4
CG0	Speaking well in public.	X			
CG1	Capacity of analysis and synthesis.				X
CG3	Capacity to apply knowledge into practice.				X
CG5	Oral and written communication.		X		
CG6	Use of ICTs			X	



CG7	Information management.				X
CG8	Orientation to problem-solving.				X
CG9	Decision-making orientation.			X	
CG11	Creativity and ability to generate new ideas.		X		
CG13	Ability to learn and research skills.				X
CG18	Ability to obtain, from the data, valuable information for decision making.	X			

SPECIFIC	Weighting			
	1	2	3	4
CE14 To understand the potential impact of aspects related to the macro- and microeconomic environment and its institutions on business organizations (e.g. the monetary and financial system, domestic markets)				X
CE15 Ability to obtain, from the data, valuable information for decision making.				X
CE17 Application of professional criteria to the analysis of business problems.	X			
CE18 Ability to integrate in any functional area of a company and develop different tasks related to its management.			X	



Assessment system for the acquisition of competencies and grading system

In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
	15,00%	Objective Tests
	25,00%	Conduct of Theory-Practice
	10,00%	Class attendance and participation
	50,00%	Final Exam

Observations

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
	5,00%	Attendance and participation in the activities of synchronous communication
	25,00%	Conduct of deliverables
	15,00%	Regular evaluations through online questionnaires.
	5,00%	Participation in discussion forums
	50,00%	Final on-site assessment.

Observations



MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Problem solving, commentaries, summaries to hand in periodically.
- M3 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.
- M5 Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through interaction and student activity.
- M7 Supervised monographic sessions with shared participation.
- M9 Application of multidisciplinary knowledge.
- M11 Personalized and small group attention. Period of instruction and / or orientation conducted by a tutor with the objective of reviewing and discussing the materials and topics presented in classes, seminars, readings, conducting work, etc.
- M13 Set of oral and/or written tests used in initial, formative or additive assessment of the student.
- M14 Student study: Group Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.
- M16 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.



- M17 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.
- M19 Groupwork sessions in the chat under supervision of the lecturer. Analysis of economic and business case studies, both real and fictitious, in order to build knowledge through the student's interaction and activity. Critical analysis of values and social commitment.
- M21 Monographic sessions though the semester, which will be aimed at current aspects and applications of the subject.
- M23 Set of written or oral tests used for the initial, formative or cumulative assessment of the student.
- M25 Student study: Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc., for their discussion or submission in electronic format.
- M27 Individual support for the monitoring and orientation of the learning process. It will be carried out by a lecturer and will pursue the revision and discussion of the materials, topics, readings, tasks, etc.
- M29 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc., for their discussion or submission.
- M31 Participation in discussion forums related to the subject under the supervision of the lecturer.



IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
On-campus Class M3, M7, M9	R2, R7, R9, R10	23,00	0,92
Practical Class M1, M3, M5, M7, M9, M11, M17	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14	15,00	0,60
Seminar M7	R3, R4, R6	5,00	0,20
Group Presentation of Papers M9	R4, R6, R10, R14	6,00	0,24
Office Assistance M11	R4, R10, R14	6,00	0,24
Assessment M13	R2, R3, R4, R6, R7, R8, R10, R12, R13, R14	5,00	0,20
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group Work M1, M9, M25	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R14	30,00	1,20
Independent Work M25	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R14	60,00	2,40
TOTAL		90,00	3,60



ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Synchronous Virtual Session M3, M7, M9	R2, R7, R9, R10	4,00	0,16
Synchronous Vitual Practical Session M1, M3, M5, M7, M9, M11, M17, M19, M31	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14	4,00	0,16
Seminar and Synchronous Virtual Videoconference M21	R3, R4, R6	4,00	0,16
On-site or Synchronous Virtual Assesment M13	R2, R3, R4, R6, R7, R8, R10, R11, R12, R13, R14	3,00	0,12
TOTAL		15,00	0,60

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual Work M1, M9, M25	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R14	60,00	2,40
Tutorial Support Sessions M11	R4, R10, R14	5,00	0,20
Group Work M1, M25, M29	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R14	10,00	0,40
Discussion Forum M19	R4, R6, R10, R14	10,00	0,40
Continuous Assessment Tasks M25	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R14	50,00	2,00
TOTAL		135,00	5,40



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Introduction to Econometrics	Chapter 0: <ul style="list-style-type: none">·Subject presentation·Review the previous subjects basic concepts which will be useful for the present one. Introduction to R programming and his common uses in data analysis.
Basic Linear Model	Chapter 1: Linear Regression. Chapter 2: Hypothesis and properties. Chapter 3: Dummy Variables. Chapter 4: Interpretation of the coefficients. Chapter 5: Hypothesis testing in the Basic Model.
Limits to the basic hypothesis	Chapter 6: Limits to the Basic Hypothesis. Chapter 7: Heteroskedasticity in the linear model. Chapter 8: Autocorrelation in the linear model.

Temporary organization of learning:

Block of content	Number of sessions	Hours
Introduction to Econometrics	4,00	8,00
Basic Linear Model	14,00	28,00
Limits to the basic hypothesis	12,00	24,00



References

- Ezequiel, J. U. (2019). Introduction to Econometrics. <https://www.uv.es/uriel/manual/Introduction%20to%20Econometrics%2012-09-2019.pdf>
- Gujarati, D., & Porter, D. (2004). Introduction to Econometrics