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: Métodos Estadísticos y Econométricos **Type:** Compulsory

Department: Economics, Business Management, and Marketing

Type of learning: Classroom-based learning / Online

Languages in which it is taught: English, Spanish

Lecturer/-s:

304A	María Del Pilar Malagón Selma **(Profesor responsable)**	pilar.malagon@ucv.es
304B	María Del Pilar Malagón Selma **(Profesor responsable)**	pilar.malagon@ucv.es
305DA	María Del Pilar Malagón Selma **(Profesor responsable)**	pilar.malagon@ucv.es
CAOL	Alberto Sanz Cazorla **(Responsible Lecturer)**	alberto.sanz@ucv.es
CATT	Alberto Sanz Cazorla **(Responsible Lecturer)**	alberto.sanz@ucv.es
30GI4	María Del Pilar Malagón Selma **(Profesor responsable)**	pilar.malagon@ucv.es
30GI5	María Del Pilar Malagón Selma **(Profesor responsable)**	pilar.malagon@ucv.es

Module organization

Quantitative Methods

Subject Matter	ECTS	Subject	ECTS	Year/semester
Informática	12,00	Information Systems for Management I	6,00	1/2
		Information Systems for Management II	6,00	2/1
Matemáticas	6,00	Mathematics for Economics and the Business	6,00	1/1
Métodos Estadísticos y Econométricos	12,00	Econometrics	6,00	4/1
		Statistical Inference	6,00	3/2
Estadística	6,00	Descriptive Statistics	6,00	2/1

Recommended knowledge

It is recommended to take Mathematics for Economics and Business, Descriptive Statistics, and Statistical Inference before Econometrics. In particular, **it is considered essential and indispensable** to have acquired the prior knowledge corresponding to the courses Descriptive Statistics and Statistical Inference.

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 Demostrar poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio. [RAB1]

R2 Aplicar correctamente sus conocimientos a su trabajo o vocación de una forma profesional y ser capaz de elaborar y defender argumentos y resolver problemas dentro de su área de estudio. [RAB2]

R3 Ser capaz de recopilar e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética. [RAB3]

R4 Ser capaz de transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado tanto en español como en inglés. [RAB4]

R5 Demostrar un alto grado de autonomía en el aprendizaje. [RAB5]

R6 Elaborar respuestas teórico-prácticas basadas en la búsqueda sincera de la verdad plena y la integración de todas las dimensiones del ser humano ante las grandes cuestiones de la vida. [RAT1]

R7 Aplicar los principios derivados del concepto de ecología integral en sus propuestas o acciones, sea cual sea el alcance y el área de conocimiento y los contextos en las que se planteen. [RAT2]

R8 Respetar y poner en práctica los principios éticos y las propuestas de acción derivados de los objetivos para el desarrollo sostenible transfiriéndolos a toda actividad académica y profesional. [RAT3]

R9 Ser capaz de utilizar las tecnologías de la información y la comunicación (TIC) para buscar, almacenar, procesar y presentar la información de forma segura y eficiente, así como para interactuar y colaborar con otros agentes en el ámbito académico y profesional. [RAG1]

R10 Ser capaz de tomar decisiones de forma autónoma, responsable y razonada. [RAG2]

R11 Ser capaz de generar y desarrollar nuevas ideas y soluciones originales e innovadoras para los problemas y retos que se plantean en su ámbito de estudio y en su entorno profesional, demostrando iniciativa, flexibilidad y espíritu crítico. [RAG3]

R12 Demostrar la capacidad de emplear la indagación como fuente de aprendizaje. [RAG5]

R13 Ser capaz de integrarse y gestionar una empresa, organización, o área funcional. Entendiendo su posicionamiento competitivo e institucional en el mercado y en el entorno, e identificando sus fortalezas y debilidades, así como las amenazas y oportunidades que se le presentan, para mejorar su rendimiento y su sostenibilidad. [RAE6]

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):

	Weighting			
	1	2	3	4

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R7, R8	15,00%	Objective Tests
R1, R2, R3, R4, R5, R6, R9, R10, R11, R12, R13	25,00%	Completion of Theoretical-Practical Activities
R1, R2	10,00%	Class Attendance and Participation
R1, R2, R4, R6, R11, R12, R13	50,00%	Final Exam
R1, R2, R13	5,00%	Participation in Synchronous Communication Activities
R1, R2, R3, R4, R5, R6, R9, R10, R11, R12, R13	30,00%	Deliverable Activities
R1, R2, R7, R8	10,00%	Periodic Evaluations Through Online Questionnaires
R1, R2	5,00%	Participation in Discussion Forums
R1, R2, R4, R6, R11, R13	50,00%	Final evaluation with essay questions and practical scenarios (In-person activity)

Observations

1) In order to pass the course, it will be a **necessary but not sufficient requirement** to obtain at least 5 points out of 10 in the **in-person theoretical exam** of the subject, in any of the official sittings: first, second, early sitting, or single assessment. If the student fails the in-person theoretical exam, the final weighted grade of the course cannot exceed 4.9 points out of 10.
2) In the **early sitting** and in the **single assessment**, in addition to the in-person theoretical exam, students must take an **in-person practical exam** consisting of the development of an econometric model using a computer, in addition to the theoretical exam.
3) In the **second sitting**, students who have not passed the course may request, in addition to the in-person theoretical exam, to take an **in-person practical exam** consisting of the development of an econometric model using a computer, in order to try to improve the grade corresponding to the 50% related to participation in objective tests, completion of theoretical-practical activities, and attendance and participation in class.

4) Students who do not achieve at least **80% attendance** at in-person sessions will not be eligible for assessment through continuous evaluation. In this case, **single assessment** will automatically apply, consisting of:

·The same theoretical exam as the rest of the students.

·An in-person practical exam consisting of the development of an econometric model using a computer, in addition to the in-person final evaluation.

·The final grade will be obtained by applying the following percentages: 50% theoretical exam and 50% practical exam. It is a necessary requirement to obtain at least 5 points out of 10 in the in-person theoretical exam in order to pass the subject. These criteria will apply both in the first and second sittings.

SINGLE ASSESSMENT

According to the **General Regulations on Assessment and Grading of Official Programs and Proprietary Degrees at UCV**, the single assessment system is linked to the impossibility of class attendance by students enrolled in a degree program. It is, therefore, an extraordinary and exceptional assessment system available to those students who, in a duly justified and accredited manner, cannot undergo the continuous assessment system, and who formally request it from the professor responsible for the course. The professor will expressly decide on the admission of the student's request for single assessment and will notify them of its acceptance or rejection .

If admitted, the student must complete:

·The same theoretical exam as the rest of the students.

·An in-person practical exam consisting of the development of an econometric model using a computer, in addition to the in-person final evaluation.

·The final grade will be obtained by applying the following percentages: 50% theoretical exam and 50% practical exam. **It is a necessary requirement to obtain at least 5 points out of 10 in the in-person theoretical exam in order to pass the subject**. These criteria will apply in the first and second sittings, as well as in the early sitting.

REGARDING AI

With respect to the use of artificial intelligence in general in continuous assessment activities and in final evaluation exams (theoretical and practical), **the use of AI will not be permitted**. However, its use will be allowed in specific cases for completing activities in which the professor has expressly authorised it, following the professor's guidelines on the type of appropriate and responsible use.

Students who fail to comply with these good practices, whether in continuous assessment activities or in final evaluation exams (theoretical and practical), will receive a **grade of 0 (CERO points)** in the corresponding exam or project.

MENTION OF DISTINCTION:

The mention of "Honors" may be awarded to students who have obtained a grade equal to or greater than 9.0. Their number may not exceed five percent of the students enrolled in a group in the corresponding academic year, unless the number of students enrolled is lower.

Learning activities

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

M1	Lecture of contents by the teacher, analysis of competencies, explanation, and demonstration of abilities, skills, and knowledge in the classroom.
M3	Supervised group work sessions led by the teacher. Study of economic-business cases, both real and fictitious. Meaningful construction of knowledge through student interaction and activity. Critical analysis of values and social commitment.
M4	Supervised monographic sessions with shared participation.
M5	Application of interdisciplinary knowledge.
M6	Personalized and small-group attention. Instruction and/or guidance period conducted by a tutor with the aim of reviewing and discussing materials and topics presented in classes, seminars, readings, completion of assignments, etc.
M7	Set of oral and/or written tests used in the initial, formative, or summative assessment of the student.
M9	Group preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., to present or submit in theoretical classes, practical classes, and/or small-group tutorials.
M10	Student study: individual preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., to present or submit in theoretical classes, practical classes, and/or small-group tutorials.
M11	Presentation of content by the teacher, analysis of competencies, explanation, and demonstration of skills, abilities, and knowledge in the virtual classroom.
M12	Group work sessions via moderated chat led by the teacher. Study of economic-business cases, both real and fictitious, to construct knowledge through student interaction and activity. Critical analysis of values and social commitment.
M13	Monographic sessions throughout the course, focused on current aspects and applications of the subject.

M14 Problem-solving, comments, reports, to be submitted at deadlines throughout the course.

M15 Individual attention for monitoring and guidance of the learning process, conducted by a tutor with the objective of reviewing and discussing materials, topics, seminars, readings, completion of assignments, etc.

M16 Participation and contributions to discussion forums related to the subject, moderated by the course instructor.

M17 Set of tests, written or oral, used in the initial, formative, or summative assessment of the student.

M19 Group preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., for dissemination or submission.

M20 Student study: individual preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., for discussion or submission in electronic format.

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
On-campus Class M1, M4, M5	R1, R2, R6, R7, R8, R10, R13	22,50	0,90
Practical Class M3, M5, M7	R1, R2, R3, R5, R6, R8, R9, R10, R11, R12	15,00	0,60
Seminar M6, M9	R7, R8, R13	4,50	0,18
Group Project Presentation M7	R1, R2, R4, R5, R6	6,00	0,24
Tutoring M10	R1, R2	6,00	0,24
Evaluation M5, M7	R1, R2, R4, R5, R6, R9, R10, R11, R13	6,00	0,24
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group Work M3, M5, M7, M9	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13	30,00	1,20
Individual Work M4, M5, M7, M10	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13	60,00	2,40
TOTAL		**90,00**	**3,60**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Synchronous Virtual Session M11, M12, M13, M14	R1, R2, R3, R6, R7, R8, R9, R10, R13	4,00	0,16
Synchronous Virtual Practical Session M13, M14, M16, M19	R1, R2, R3, R5, R6, R9, R10, R11, R12, R13	4,00	0,16
Synchronous Virtual Seminar and Videoconference M15, M16, M20	R2, R3, R7, R8, R13	4,00	0,16
In-person Assessment M17	R1, R2, R3, R4, R5, R6, R10, R11, R13	3,00	0,12
Group Work M14	R1, R2, R3, R4, R5, R6, R9, R10, R11, R12, R13	10,00	0,40
Individual Work M14, M15, M16, M17, M19, M20	R3, R5, R6, R9, R10, R11, R12, R13	60,00	2,40
TOTAL		**85,00**	**3,40**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual Tutoring M14, M17	R1, R2, R3, R4, R5, R6, R9, R10, R11, R12, R13	50,00	2,00
Discussion Forums M15, M20	R1, R2	5,00	0,20
Continuous Assessment Activities M16, M20	R1, R2	10,00	0,40
TOTAL		**65,00**	**2,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Introduction to Econometrics	**Unit 0:** ·Course presentation ·Review of basic concepts covered in previous related courses and necessary for this subject **Unit 1:** ·Basic explanation of econometrics ·Introduction to linear regression
Linear Regression – Dummy Variables	**Unit 2:** ·What is a dummy variable? ·How to include a dummy variable in a regression model ·Systematic definition of regression parameters in models with qualitative variables
Model Validation – Linear Regression	**Unit 3:** ·Diagnosis and validation of the assumptions of the multiple regression model ·Basic assumptions of the regression model: ·Linearity ·Normality ·Linear independence ·Independence of errors ·Homoscedasticity

Other Models

Unit 4:

·Linear probability model
·Definition of a logistic regression model
·Evaluation of the logistic regression model
·Simultaneous Equation Models

Introduction to Time Series

Unit 5

·What is a time series?
·Basic components of a time series
·Additive model
·Multiplicative model

Stochastic Processes

Unit 6

·What is a stochastic process?
·Key factors in stochastic processes
·Stationary processes
·Non-stationary processes
·Autocorrelation functions (ACF)
·Partial autocorrelation functions (PACF)

ARIMA Models

Unit 7

·Introduction to ARIMA models
·Components of ARIMA models
·ARIMA model proposal
·Stationary processes
·Non-stationary processes

Temporary organization of learning:

Block of content	Number of sessions	Hours
Introduction to Econometrics	4,50	9,00
Linear Regression – Dummy Variables	4,50	9,00
Model Validation – Linear Regression	4,50	9,00
Other Models	3,00	6,00
Introduction to Time Series	4,50	9,00
Stochastic Processes	4,50	9,00
ARIMA Models	4,50	9,00

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