BASIC DETAILS:

Subject:	ECONOMETRÍA APLICADA		
Id.:	32266		
Programme:	GRADUADO EN ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS (CA)		
Module:	MÉTODOS CUANTITATIVOS PARA LA EMPRESA		
Subject type:	OBLIGATORIA		
Year:	2	**Teaching period:**	Segundo Cuatrimestre
Credits:	6	**Total hours:**	150
Classroom activities:	57	**Individual study:**	93
Main teaching language:	Inglés	**Secondary teaching language:**	Castellano
Lecturer:	OZCELIK, NADIN (T)	**Email:**	nozcelik@usj.es

PRESENTATION:

Economic theory suggests that certain relationships between economic variables have an important impact on policy design. To measure the magnitude of these relationships, we use econometric methods, which involve the application of statistical and mathematical tools to economic theory.

The course Applied Econometrics serves as an introduction to this field. We will begin by studying a series of key concepts and then proceed to introduce the simple linear model. Subsequently, we will examine the classical normal linear regression model and multiple regression models. Finally, we will relax some of the model's assumptions, analyzing issues such as multicollinearity, heteroscedasticity, and autocorrelation.

The course will combine theoretical foundations with a practical approach.

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	G01	Ability to analyse and summarise information from several sources.
	G02	Creative and efficient resolution of problems that arise in day-to-day, in order to ensure the highest levels of quality of professional work.
	G04	Use of information and communication technologies.
	G12	Ability to incorporate scientific research and evidence-based practice as a professional culture, updating knowledge and skills continuously.
	G15	Ability to establish and meet the most appropriate quality criteria and apply methodologies and work strategies geared towards continuous improvement.
Specific programme competences	E11	Learn the techniques and methods of quantitative nature applicable to the diagnosis, analysis and business exploration (mathematics, statistics and econometrics) being able to use the most appropriate tool in each situation.
Learning outcomes	R01	Suitably use econometrics in their field of work
	R02	Understand the importance of econometrics in the context of Economics Science.

PRE-REQUISITES:

It is highly recommended to have completed Statistics and Business Mathematics courses.

Es recomendable haber cursado las asignaturas de Estadística (2º curso) y Matemáticas (1º curso).

SUBJECT PROGRAMME:

Subject contents:

1 - Introducción

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

Learning activities:

Week		Unit/Block/Theme	Classroom sessions	Hours	Individual study activities	Hours
1	02/02/2026	1.Introducción	Lectura guía docente e introducción	4	Estudio individual	4
2	09/02/2026	1.Introducción	Clase magistral	4	Estudio individual	4
3	16/02/2026	2.Modelo lineal simple	Clase magistral; Resolución de ejercicios.	2	Estudio individual	6
4	23/02/2026	2.Modelo lineal simple	Clase magistral; Resolución de ejercicios.	4	Estudio individual; Tutorías	4
5	02/03/2026	2.Modelo lineal simple	Clase magistral; Resolución de ejercicios.	4	Estudio individual	4
6	09/03/2026	3.Interpretación de los coeficientes	Clase magistral; Resolución de ejercicios	4	Estudio individual	6
7	16/03/2026	3.Interpretación de los coeficientes	Clase magistral; Resolución de ejercicios. **Quiz on Unit 1 and 2, March 17.** **Trabajo en equipo para 21 de mayo.** **Group assingment due on May 21.**	2	Estudio individual.	6
8	23/03/2026	4.Modelo clásico de regresión lineal normal	Clase magistral; Resolución de ejercicios	4	Estudio individual	4
9	30/03/2026	4.Modelo clásico de regresión lineal normal	Clase magistral; Resolución de ejercicios	0	Estudio individual	6
10	06/04/2026	1.Introducción 2.Modelo lineal simple 3.Interpretación de los coeficientes 4.Modelo clásico de regresión lineal normal	Repaso **Prueba escrita intermedia. Written Test I**	4	Estudio individual	6
11	13/04/2026	4.Modelo clásico de regresión lineal normal	Clase magistral. Resolución de ejercicios.	4	Estudio individual; Tutorías	6
12	20/04/2026	5.Análisis de regresión múltiple	Clase magistral; Resolución de ejercicios	4	Estudio individual; Preparación de trabajos.	6
13	27/04/2026	5.Análisis de regresión múltiple	Clase magistral; Resolución de ejercicios	2	Estudio individual; Preparación de trabajos	6
14	04/05/2026	6.Flexibilización de los supuestos del modelo	Clase Magistral y ejecicios.	4	Estudio individual; Preparación de trabajos.	6
15	11/05/2026	6.Flexibilización de los supuestos del modelo 7.Series temporales	Clase magistral; Resolución de ejercicios	4	Estudio individual	6
16	18/05/2026	1.Introducción 2.Modelo lineal simple 3.Interpretación de los coeficientes 4.Modelo clásico de regresión lineal normal 5.Análisis de regresión múltiple 6.Flexibilización de los supuestos del modelo	Repaso. **Presentación de trabajos en grupo.** **Final group assignment presentations.**	4	Estudio individual	6
17	25/05/2026	2.Modelo lineal simple 3.Interpretación de los coeficientes 4.Modelo clásico de regresión lineal normal 5.Análisis de regresión múltiple	Prueba final	2	Estudio individual; Tutorías	6
18	01/06/2026	2.Modelo lineal simple 3.Interpretación de los coeficientes 4.Modelo clásico de regresión lineal normal 5.Análisis de regresión múltiple		1	Estudio individual	1
			TOTAL CLASSROOM HOURS:	57	**TOTAL INDIVIDUAL STUDY HOURS:**	93

Observations for students exempt from compulsory attendance due to special circumstances:

Those students who are unable to attend 80 % of classes during the semester due to *justified reasons*, *for example*, *working while studying*, will have to get in touch with the lecturer and degree program coordinator by February 23. Those students are also responsible to hand in the individual and group assignments, and written tests specified in the PDU. If they fail to get an overall score of 5.0 out of 10, then they need to take resit exam.

Each particular case will be analysed to design a learning strategy and related individualized activities that ensure the achievement of the identified course objectives. In these cases, the student will need to attend the tutorials,

previously determined with the lecturer. If the student does not contact with the lecturer by September 26, they may lose their right to be evaluated in the first call since they exceed the allowed absences (20%).

Those students who have been exempt from compulsory attendance will be assessed with the same criteria as attending students. Students will only be allowed to be exempt from class attendance when *absence has been justified and agreed.*

Los estudiantes que, por causas justificadas (por ejemplo, compatibilizar estudios y trabajo), no puedan asistir al 80 % de las clases durante el cuatrimestre, deberán ponerse en contacto con la profesora de la asignatura y el coordinador del grado antes del **23 de febrero.** Estos estudiantes también serán responsables de entregar las tareas individuales y en grupo, así como de realizar las pruebas escritas especificadas en el PDU. En caso de no alcanzar una calificación global mínima de 5,0 sobre 10, deberán presentarse al examen de recuperación (convocatoria extraordinaria).

Cada caso particular será analizado con el fin de diseñar una estrategia de aprendizaje individualizada, con actividades adaptadas que garanticen la consecución de los objetivos de aprendizaje de la asignatura. En estos casos, el estudiante deberá asistir a las tutorías previamente acordadas con el profesor. Si el estudiante no contacta con el profesor antes del 26 de febrero, podría perder el derecho a ser evaluado en la primera convocatoria, al superar el límite permitido de ausencias (20 %).

Los estudiantes que hayan sido liberado de la asistencia obligatoria serán evaluados con los mismos criterios que el resto de los estudiantes asistentes. Esta exención solo será válida cuando la ausencia esté debidamente justificada y haya sido acordada con el profesor y la coordinación académica.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

Many class activities are carried out in pairs and groups through problem solving exercises with (or without) software, presentations, debates, project preparation, etc. Students should check the PDU every week. During theoretical classes, where the lecturer explains concepts orally with technological support, students are also expected to participate with questions. After theoretical classes, the student must study individually with the exercises and tasks to apply. During these sessions, students can ask questions, clarify concepts and ask for additional bibliography.The main methodologies used in this course will be:

Theoretical–practical classes: During these sessions, the main theoretical concepts will be introduced. The classes will be combined with individual and group exercises to reinforce the course content. Student participation will be encouraged through open questions, discussion of key economic issues, and the development of critical thinking skills.

Practical exercises: Those exercises aim to reinforce the knowledge. Active participation of students is encouraged.

Individual work: This assessment includes individual quizzes and practical exercises designed to evaluate students' understanding of econometric concepts and their ability to apply them independently **15%**.

Group assignment: This activity aims to help students apply the knowledge acquired during the course to real-life case studies. The assignment will be completed in groups of four or five students and, will be presented in class. he students must present the results of their group work, as requested by the professor. They must also answer questions asked by their professor, showing their understanding of the course material.This activity accounts for **%15** of the final grade.

Written test: A written test will be conducted after completing the material corresponding to the first three topics. Its purpose is to promote continuous study and to help students identify their weaknesses at an early stage. This test accounts for **% 20** of the final grade.

Use of specific econometric software: Students will work with **GRETL** (an open source statistical software) to analyze data and apply econometric techniques covered in the course.

Final exam: The final exam counts for **50%** of the final course grade and must be taken by all students in order to pass the course. It includes theoretical and practical exercises based on the topics covered throughout the semester.

Independent study: Students are expected to complete all independent study tasks and devote time to reviewing concepts and exercises.

Tutorial hours: Students are encouraged to attend tutorial sessions, since, tutorial sessions provide an opportunity to students to address their questions and ask for additional bibliography, etc. It is worth mentioning that students must contact with the lecturer via email and ask for an appointment beforehand.

IMPORTANT: Tutorials are sessions intended to address specific questions or doubts, not to provide private lessons or to explain the entire topic from the beginning.

Integration of English language in the subject:

Internationalization is one of the main objectives of CESUGA. The teaching staff will be gradually introducing materials, texts, audiovisual media and other content through English in the subjects they teach. This course of action is included in the principles of the European Area of Higher Education (EAHE). The aim is for students to naturally and effectively use English in authentic situations while studying subjects included in their degree programs. Exposure to the English language forms an intrinsic part of each degree programme's plan of studies.

Some activities in this subject will be carried out in English.

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	27
	Practical exercises	10
	Practical work, exercises, problem-solving etc.	16
	Coursework presentations	2
	Assessment activities	2
Individual study	Tutorials	7
	Individual study	41
	Individual coursework preparation	16
	Group cousework preparation	16
	Research work	8
	Compulsory reading	5
	Total hours:	150

ASSESSMENT SCHEME:

Calculation of final mark:

Otros (Individual work (15%), Group	100	%

assignment (15%), Written test (20%) and Final exam (50%)):		
TOTAL	100	%

Specific assessment criteria

Individual work: This assessment includes individual quizzes and practical exercises designed to evaluate students' understanding of econometric concepts and their ability to apply them independently **15%**.

Group assignment: This activity aims to help students apply the knowledge acquired during the course to real-life case studies. The assignment will be completed in groups of four or five students and, will be presented in class. he students must present the results of their group work, as requested by the professor. They must also answer questions asked by their professor, showing their understanding of the course material.This activity accounts for **%15** of the final grade.

Written test: A written test will be conducted after completing the material corresponding to the first three topics. Its purpose is to promote continuous study and to help students identify their weaknesses at an early stage. This test accounts for **% 20** of the final grade.

Final exam: The final exam counts for **50%** of the final course grade and must be taken by all students in order to pass the course. It includes theoretical and practical exercises based on the topics covered throughout the semester.

To pass this course, students must obtain an overall score of at least 5.0 across all evaluation components (Three written exams, group assignments and individual assignment). The material given by the lecturer will be an indication of what needs to be studied. The student will have to search for and work on various sources of information.

If the students fail to obtain 5.0 then they need to attend resit exams in July.

The resit exams or second call (convocatoria extraordinaria) will consist of a **single comprehensive exam** covering all topics included in the syllabus. This exam will account for **100% of the final grade**.

Spelling: Within the evaluation criteria, the University considers spelling a priority issue. Under the protection of the changes in the language standard in the Spanish language included in the Spelling of the Spanish Language (2010), published by the Real Academia Española, CESUGA has established some correction criteria related to this work that will be applied in all tests of the matter. The document that includes the set of criteria and its sanction is published in the University Teaching Platform (PDU) of the subject. The same applies if English is the main language. Refer to unacceptable grammar errors.

Plagiarism: Likewise, and in accordance with the University's Good Practices manual, the commission of plagiarism in any of the work carried out will be considered a very serious offense, since it violates the deontological code of any profession. All assignments/ tasks must be handed in through the PDU and will be checked through Turnitin to avoid plagiarism.

Electronic devices (e.g.smartphones, tablets, etc.) which can distract students or disrupt learning are not allowed in the classroom unless the lecturer specifically allows the use of certain devices (e.g. laptops).

Absences: Failure to attend class more than 20 % of the stipulated hours without authorization may lead to the loss of the evaluation on first call.

Regulation on Plagiarism and Unlawful Practices

Actions that constitute copying or plagiarism, whether in whole or in part, of an assessment instrument will result in the student receiving a fail (zero) for that assessment. In the case of group assessment instruments, the same grading will apply, with an attempt to individualise the responsibility of each member where possible. If individualisation of responsibilities is not possible or the responsibility is clearly collective, all members will receive the same fail grade (zero).

In the case of external placements, the resulting grade (fail, zero) entails the obligation to repeat the placement.

The final assessment of the impact of the grade (fail, zero) on an assessment instrument in relation to the final grade for the subject is at the discretion of the subject teacher.

For more information on what constitutes plagiarism and how to avoid it, you can consult: **https:/ / www.usj.es/ alumnos/ vidauniversitaria/ biblioteca/ investigacion/ como-publicar/ plagio**

Regulation on the Use of AI Systems

The use of any Artificial Intelligence in the learning activities such as carrying out the assignments, projects, tasks, essays, or research, including the exam, requires an authorisation and supervision from the lecturer(s). This authorisation will be indicated in the particular learning activity's instructions and must be strictly adhered to within the established scope and limits.

If the use of AI is allowed for the learning activity e.g. assignment, it will primarily be limited to the early stages of research, where it can serve as inspiration or suggest directions, but not to produce content that is directly included in submissions. If the reproduction of AI-generated texts is authorised, the student must clearly disclose this in the submitted document. This disclosure should explicitly indicate which AI methods and tools are embraced. In any case, the student must provide a detailed explanation of how AI was employed in the research process of the learning activity or assignment, including the prompts used, the checks performed to ensure the authenticity of the information proposed by the AI, and any modifications made to the AI-generated content.

The use of AI in learning activities and/ or academic work must respect the ethical principles of academic integrity and intellectual honesty. If a student misuses AI including the violation of the established regulations, the result will be a fail grade (zero) for the corresponding learning activity.

The final assessment of the impact of the fail grade (zero) on an assessment instrument in relation to the final grade for the subject is at the discretion of the subject teacher.

Assessment methods:

Assessment method	Learning outcomes assessed	Assessment criteria	%
Trabajos en equipo	R01 R02	Resolución correcta del caso, calidad de la presentación, estructura, lenguaje corporal, capacidad para responder las preguntas, vocabulario adecuado y conocimiento de la materia	15
Prueba final	R01 R02	Resolución correcta del examen, vocabulario correcto, presentación adecuada, dominio de la materia, ortografía	50
Trabajos individuales	R01 R02	Resolución correcta de los ejercicios propuestos en clase	15
Written test	R01 R02	Resolución correcta del examen, vocabulario correcto, presentación adecuada, dominio de la materia, ortografía	20
		Total weighting:	100

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Each particular case will be analysed to design a learning strategy and related individualized activities that ensure the achievement of the identified course objectives. In these cases, the student will need to attend the tutorials, previously determined with the lecturer. If the student does not contact with the lecturer by September 26, they may lose their right to be evaluated in the first call since they exceed the allowed absences (20%).

Those students who have been exempt from compulsory attendance will be assessed with the same criteria as attending students. Students will only be allowed to be exempt from class attendance when *absence has been justified and agreed.*

Los estudiantes que, por causas justificadas (por ejemplo, compatibilizar estudios y trabajo), no puedan asistir al 80 % de las clases durante el cuatrimestre, deberán ponerse en contacto con la profesora de la asignatura y el coordinador del grado antes del **26 de febrero.** Estos estudiantes también serán responsables de entregar las tareas individuales y en grupo, así como de realizar las pruebas escritas especificadas en el PDU. En caso de no alcanzar una calificación global mínima de 5,0 sobre 10, deberán presentarse al examen de recuperación (convocatoria extraordinaria).

Cada caso particular será analizado con el fin de diseñar una estrategia de aprendizaje individualizada, con actividades adaptadas que garanticen la consecución de los objetivos de aprendizaje de la asignatura. En estos casos, el estudiante deberá asistir a las tutorías previamente acordadas con el profesor. Si el estudiante no contacta con el profesor antes del 26 de febrero, podría perder el derecho a ser evaluado en la primera convocatoria, al superar el límite permitido de ausencias (20 %).

Los estudiantes que hayan sido liberado de la asistencia obligatoria serán evaluados con los mismos criterios que el resto de los estudiantes asistentes. Esta exención solo será válida cuando la ausencia esté debidamente justificada y haya sido acordada con el profesor y la coordinación académica.

Extract from the internal regulations of the permanence regime

A student who does not appear for the final test provided in the Teaching Guide when it has a weight equal to or greater than 40% will be considered a "Not Presented" and will not use up the sitting. If the final exam percentage is lower or there is no final exam, the student will be considered "Not Presented" if he or she has taken assessment elements that represent less than 40% of the final grade.

A student will be considered ”Presented” to a test or assessment item if he or she takes it and, once the questions or instructions have been submitted and/or viewed and/or read, decides to withdraw.

In the event of a failure, the Teaching Guide may specify whether the results of the tests or assessment elements taken will be carried over to the next sitting within the same academic year. In any case, the results of tests or assessment elements from a sitting, if considered a "Not Presented," cannot be used for the next sitting within the same academic year. In general, the results of the evaluation tests of a course cannot be saved for the next courses.

Regulation for plagiarism and illegal practices

Any total or partial copying or plagiarism in an evaluation will result in a fail (zero) in said evaluation. In the case of group evaluations, they will be scored in the same way, trying to individualise the responsibility of each member, if possible. If this is not possible or the responsibility is clearly of all members, all of them will be awarded a fail (zero). In the case of external work placements, the resulting grade (fail, zero) obliges the student to repeat said work placements. The scope of the grade of the final assessment (fail, zero) in an evaluation with

respect to the final subject grade is at the discretion of the subject teacher. To find out more about what plagiarism is and how to avoid it, you can consult: **https://www.usj.es/alumnos/vidauniversitaria/biblioteca/investigacion/como-publicar/plagio**

Regulation for the use of AI systems

The use of any form of Artificial Intelligence (AI) in carrying out learning activities such as assignments and exams, including projects, assignments, essays or research, requires due authorisation and supervision of the corresponding teaching staff. This authorisation will appear in the specific statement of the assessed learning activity and the scope, and limits established therein must be strictly respected.

Where the use of AI is authorised for the development of a learning activity, it will be limited primarily to the early stages of the research, where it can provide inspiration or suggest direction, but not to produce content that is included directly in the final submission. If authorisation is given to reproduce texts generated by AI, the student must clearly disclose this fact in the submitted document. The AI methods and tools used must be expressly specified. In any case, the student must provide a detailed explanation about how the AI has been used in the research or process of the activity and/or work, including any prompts used, the verifications carried out to guarantee the authenticity of the information proposed by the AI and the modifications made to the content generated by the AI. The use of AI in learning activities and/or academic work must respect the ethical principles of academic integrity and intellectual honesty. If the student makes inappropriate use of AI in violation of the established regulations, the result of the grade in the corresponding learning activity will be a fail (zero).

The scope of the grade of the final assessment (fail, zero) in an evaluation with respect to the final subject grade is at the discretion of the subject teacher.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

Angrist, Joshua and Pischke, Jörn-Stefffen (2009). Mostly Harmless Econometrics: An Empiricist's Companion.Princeton University Pres
GUJARATI, D. y PORTER, D. Econometría. McGraw Hill, 2010
Stock, James H. and Watson, Mark W. (2020). Introduction to Econometrics, 4th Edition, Global Edition.Pearson Education
Wooldridge, Jeffrey M. Introductory Econometrics: A Modern Approach. 6th Edition. Cengage Learning

Recommended bibliography:

DIAZ, A. Estadística aplicada a la administración y la economía. Editorial: McGrawHill, 2013
DÍAZ, M. y LLORENTE, Mª. M. Econometría. Pirámide Ediciones, 2008
GARCÍA, R., HERRERÍAS, J.M. y PALACIOS, F. Econometría: Ejercicios resueltos. Pirámide, 2017
GREENE, W. Análisis econométrico, (tercera edición). Madrid. Prentice-Hall, 2011
STOCK, J. y WATSON, M. Introducción a la Econometría. Pearson, 2012
WOOLDRIDGE, J. Introducción a la econometría: un enfoque moderno. Cengage Learning, 2010

Recommended websites:

Applied Econometric Association	http://www.aea-eu.com/uk/
Dougherty: Introduction to Econometrics 5e	https://global.oup.com/uk/orc/busecon/economics/dougherty5e/
Eurostat	http://ec.europa.eu/eurostat
Instituto Galego de Estatística	http://www.ige.eu/
Instituto Nacional de Estadística	http://www.ine.es/
Journal of Applied Psychology	https://www.apa.org/pubs/journals/apl
Journal of Applied Statistics	https://www.tandfonline.com/toc/cjas20/current

Journal of Financial and Quantitative Analysis	https://www.cambridge.org/core/journals/journal-of-financial-and-quantitative-analysis
Quantitative economics	https://onlinelibrary.wiley.com/journal/17597331
Statistical Methods and Applications	https://www.springer.com/journal/10260
UCLA Statistics Methods and Data Analysis	https://stats.oarc.ucla.edu/other/dae/

OBSERVATIONS: