



Universidad de Jaén

FACULTY OF SOCIAL AND LEGAL SCIENCES

Econometrics

2024-2025

Grado en Administración y dirección de empresas

Doble Grado en Administración y Dirección de Empresas y Finanzas y contabilidad

Grado en Administración y Dirección de Empresas / Bachelor's Degree in Business

Administration and Management



CREA



Acceso Mayores 40

Guías docentes UJA

Horarios de tutorías

Llamamientos PAU

Movilidad (Coordinador)

P.O.D.

Solicitud bilingüismo

Syllabus 2024-25 - 11122014 - Econometrics (Econometría)

Caption

- Level 1: Tutorial support sessions, materials and exams in this language
- Level 2: Tutorial support sessions, materials, exams and seminars in this language
- Level 3: Tutorial support sessions, materials, exams, seminars and regular lectures in this language

[Back](#)[Full version \(Spanish\)](#)[English](#)**DEGREE:**

Grado en Administración y dirección de empresas

FACULTY:

FACULTY OF LAW AND SOCIAL SCIENCES

ACADEMIC YEAR:

2024-25

COURSE:

Econometrics

SYLLABUS

1. COURSE BASIC INFORMATION

NAME: Econometrics

CODE: 11122014

ACADEMIC YEAR: 2024-25

LANGUAGE: English

LEVEL: 3

ECTS CREDITS: 6.0

YEAR: 3

SEMESTER: PC

2. LECTURER BASIC INFORMATION

NAME: OLMO JIMÉNEZ, MARÍA JOSÉ

DEPARTMENT: U112 - ESTADÍSTICA E INVESTIGACIÓN OPERATIVA

FIELD OF STUDY: 265 - ESTADÍSTICA E INVESTIGACIÓN OPERATIVA

OFFICE NO.: B3 - 056

E-MAIL: mjolmo@ujaen.es

P: 953211909

WEBSITE: -

ORCID: <https://orcid.org/0000-0003-3527-3239>

LANGUAGE: -

LEVEL: 3

3. CONTENT DESCRIPTION

1. Introduction to econometric models

- Definition of Econometrics
- The econometric method
- Econometric models

2. The multiple linear regression model

- Model specification
- Ordinary least squares (OLS) estimation
- Properties of the OLS estimators
- Goodness of fit
- Confidence intervals
- Hypothesis testing
- Prediction

3. Extensions of the MLR model

- Extensions to non-linear models
- Regression with dummy variables

4. Model selection

- Specification errors
- Model construction
- Model selection criteria

5. Non-spherical errors

- Generalized least squares (GLS) estimation. Properties
- Confidence intervals and hypothesis testing
- Normality and residual analysis

6. Heteroskedasticity

- Nature of the problem. Causes and consequences of heteroskedasticity

- Heteroskedasticity detection
- Heteroskedasticity correction

7. Autocorrelation

- Nature of the problem. Causes and consequences of autocorrelation
- Autocorrelation detection
- Autocorrelation correction

8. Multicollinearity

- Nature of the problem
- Multicollinearity detection
- Multicollinearity correction

4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

Teaching sessions are divided into:

- **Theoretical sessions**, where learning content is developed and illustrative examples are shown using slides, the blackboard and econometric software.
- **Practical sessions** to solve exercises using econometric software.

The materials will be made available online through the virtual classroom platform. It is important that students have and read the materials for each chapter before the lesson.

Students with special educational needs should contact the Student Attention Service (Servicio de Atención y Ayudas al Estudiante) in order to receive the appropriate academic support

5. ASSESSMENT METHODOLOGY

The assessment methodology consist of:

- A **compulsory final exam** consisting of several exercises to be solved using the econometric software explained during the practical sessions (65%). This exam allows one to assess the acquired skills in the use of the statistical software, the choice of the appropriate method and the correct interpretation of the results.
- A **continuous assessment of the theoretical content** using multiple-choice tests (10%). These are useful to assess the level of understanding of basic concepts. Optionally, there will be a global multiple-choice theoretical test in the final examination for those students who do not pass this continuous assessment task.
- A **continuous assessment of the practice sessions** in which the proposed exercises are solved using econometric software (25%). These tests are compulsory. As there is no final exam for the practical sessions, this mark will be saved for the extraordinary call (if necessary).

A minimum of 3.5/10 is required in the final exam to calculate the combined mark.

Students who do not take the compulsory tests of the practical sessions will forfeit 25% of the final mark for all examinations.

Only materials approved by the teachers may be used in the final examination.

6. BOOKLIST ([Access the bibliography in the Library catalog](#))

MAIN BOOKLIST:

- Econometrics for dummies . Edition: 1st edition. Author: Pedace, Roberto.. Publisher: John Wiley & Sons.
 - **Notes:** electronic resource ([Library](#))
- Econometrics. Edition: 5th ed. 2011.. Author: Baltagi, Badi H. author.. Publisher: Springer Berlin Heidelberg.
 - **Notes:** electronic resource ([Library](#))
- Introductory econometrics : a modern approach . Edition: 5th. ed. Author: Wooldridge, Jeffrey M.. Publisher: South-Western, ([Library](#))
- Econometric analysis . Edition: 6th ed. Author: Greene, William H.. Publisher: Pearson Prentice Hall, ([Library](#))

ADDITIONAL BOOKLIST:

- Regression analysis by example . Edition: 4th ed. Samprit Chatterjee, Ali S. Hadi. Author: Chatterjee, Samprit. Publisher: Wiley-Interscience ([Library](#))
- Practical econometrics : data collection, analysis, and application . Edition: Especial edición India. Author: Hilmer, Christiana E.. Publisher: McGraw Hill Eductaion India ([Library](#))
- Introductory econometrics intuition, proof, and practice . Edition: 1st ed.. Author: Zax, Jeffrey S.. Publisher: Stanford Economics and Finance ([Library](#))
- Introduction to econometrics. Edition: 2nd ed. Author: Maddala, G.S.. Publisher: Prentice Hall International ([Library](#))
- guide to modern econometrics . Edition: 3rd.ed. Author: Verbeek, Marno. Publisher: John Wiley and Sons ([Library](#))

- Introduction to linear regression analysis. Edition: 2nd ed. Author: Montgomery, Douglas C.. Publisher: John Wiley & Sons ([Library](#))
- Solutions Manual to Accompany Introduction to Linear Regression Analysis, 5th Edition) . Edition: Fifth edition.. Author: Montgomery, Douglas C., author.. Publisher: Wiley ([Library](#))
- Introduction to econometrics . Edition: 5th ed.. Author: Dougherty, Christopher. Publisher: University Press ([Library](#))
- Essential statistics, regression, and econometrics. Edition: 1st edition. Author: Smith, Gary, 1945-. Publisher: Academic.
 - **Notes:** electronic resource ([Library](#))

7. SUSTAINABLE DEVELOPMENT GOALS

Fin de la pobreza

Igualdad de género

Reducción de las desigualdades

Acción por el clima

DETAILED INFORMATION

The theoretical and practical content of the course incorporates the Sustainable Development Goals (SDGs) and their corresponding targets in a cross-cutting manner to ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all. Therefore, it includes case studies or practical examples that illustrate how econometric techniques can be applied to address specific issues related to the SDGs. For example, analysing the impact of renewable energy policies on reducing carbon emissions (SDG 13), evaluating education programmes on reducing inequality (SDG 10) and gender gaps (SDG 5), or measuring and analysing poverty (SDG 1).

8. VIRTUAL / CLASSROOM TEACHING SCENARIO

1. TEACHING METHODOLOGY AND FORMATIVE ACTIVITIES

Formative activities	Format	Teaching methodology: Description
11 computer-assisted sessions	Face-to-face (25%-50%)	The computer-assisted sessions will be devoted to practical computer exercises. If possible, these 50-minute sessions will be conducted with 25-50% of the students in the computer classroom and the rest via videoconference, with the group of students present in the classroom rotating periodically. Otherwise, an online format is used for all students.
40 sessions about the contents of the subject	Face-to-face (25%-50%)	Participatory masterclass sessions where the contents of the subject and the corresponding examples will be exposed. If possible, these 50-minute sessions will be conducted with 25-50% of the students in the computer classroom and the rest via videoconference, with the group of students present in the classroom rotating periodically. Otherwise, an online format is used for all students.
5 sessions to solve questions about the proposed list of exercises	Face-to-face (25%-50%)	In groups, students will have to solve and explain a selected exercise from each list of exercises proposed throughout the course . If possible, these 50-minute sessions will be conducted with 25-50% of the students in the computer classroom and the rest via videoconference, with the group of students present in the classroom rotating periodically.

		Otherwise, an online format is used for all students.
Tutorial sessions	Face-to-face + <i>Online</i>	Tutorial sessions are delivered in both face-to-face and online formats. Online tutorial sessions may be synchronous or asynchronous. Students are encouraged to use these sessions to ask questions and for the lecturer to check their progress.

If the room capacity is not exceeded, all the sessions will be face-to-face at 100%, without rotating the group of students.

2. ASSESSMENT METHODOLOGY

Ordinary call

Assessment tasks	Format	Description	Percentage
Written test (*)	Face-to-face	It consists of a series of practical exercises that will allow us to assess whether students have acquired the theoretical and practical knowledge of the subject. It takes place on the official date .	65%
Continuous assessment of the computer sessions	Face-to-face	4 compulsory practical tests throughout the course , in which students demonstrate their knowledge of econometric software, the selection of the appropriate technique and the accurate interpretation of results.	25%
Continuous assessment of the theoretical sessions	Synchronous online	It consists of multiple-choice theoretical questions throughout the course , in which students demonstrate their knowledge of the basic concepts of the subject.	10%

(*) A minimum of 3.5/10 is required in the final exam to calculate the combined mark.

A student will be marked as NO PRESENTADO (no mark) if they do not take the final exam.

The students who do not take the compulsory tests of the computer sessions renounce 25% of the final mark for all the calls.

Extraordinary call

The assessment criteria will be the same as in the ordinary call, except for those students who could not follow the continuous assessment tasks during the course for duly justified cause (in that case, the final exam will have a weight of 75% and it will consist of practical exercises and theoretical multiple-choice questions).

3. RESOURCES

The online videoconference system *GSuite Meet* will be used for face-to-face teaching on the same official weekdays and times established in the official timetables.

The adaptation to online teaching implies the use of synchronous and asynchronous activities with the support offered at the Intranet site *Docencia Virtual* (chat room, virtual room...).

E-mail will also be a good communication tool.

The practical sessions will be developed using the free open-source econometric software *Gretl*.

The students must have a microphone and camera on their computer or use their mobile phones.

Students may consult the electronic resources included in Section 6. BOOKLIST of the general course syllabus.

9. VIRTUAL TEACHING SCENARIO

1. TEACHING METHODOLOGY AND FORMATIVE ACTIVITIES

Formative activities	Format	Teaching methodology: Description
11 computer sessions	Online	Synchronous/Asynchronous computer sessions by videoconference. Each session will last 50 minutes. Free open-source econometric software will be used.
40 sessions about the contents of the subject	Online	Synchronous/Asynchronous masterclass sessions of 50 minutes where the contents of the subject and the corresponding examples will be exposed.
5 sessions to solve questions about the proposed list of exercises	Online	Synchronous sessions by videoconference where each group of students will have to explain the solution of the selected exercise. Next, a discussion will take place.
Tutorial sessions	Online	All tutorial sessions will be online (synchronously or asynchronously).

2. ASSESSMENT METHODOLOGY

Ordinary call

Assessment tasks	Format	Description	Percentage
Written test (*)	Face-to-face	It consists of a series of practical exercises that will allow us to assess whether students have acquired the theoretical and practical knowledge of the subject. It takes place on the official date .	65%
Continuous assessment of the computer sessions	Face-to-face	4 compulsory practical tests throughout the course , in which students demonstrate their knowledge of econometric software, the selection of the appropriate technique and the accurate interpretation of results.	25%
Continuous assessment of the theoretical sessions	Synchronous online	It consists of multiple-choice theoretical questions throughout the course , in which students demonstrate	10%

	their knowledge of the basic concepts of the subject.	
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(*) A minimum of 3.5/10 is required in the final exam to compute the combined mark.

A student will be marked as NO PRESENTADO (no mark) if they do not take the final exam.

The students who do not take the compulsory tests of the computer sessions renounce 25% of the final mark for all the calls.

Extraordinary call

The assessment criteria will be the same as in the ordinary call, except for those students who could not follow the continuous assessment tasks during the course for duly justified cause (in that case, the final exam will have a weight of 75% and it will consist of practical exercises and theoretical multiple-choice questions).

3. RESOURCES

The online videoconference system *GSuite Meet* will substitute face-to-face interaction in the same official weekdays and times established in the official timetables.

The adaptation to online teaching implies the use of synchronous and asynchronous activities with the support offered at the Intranet site *Docencia Virtual* (chat room, virtual room...).

The e-mail will be also a good communication tool.

The practical sessions will be developed using the free open-source econometric software *Gretl*.

The students must have microphone and camera in their computer or, otherwise, use their mobile phones.

Students may consult the electronic resources included in Section 6. BOOKLIST of the general course syllabus.

DATA PROTECTION CLAUSE (on line exams)

Institution in charge of data processing: Universidad de Jaén, Campus Las Lagunillas, s/n, 23071 Jaén

Data Protection Delegate: dpo@ujaen.es

Purpose: In accordance with the Universities Law and other national and regional regulations in force, carrying out exams and assessment tests corresponding to the courses students are registered in. In order to avoid frauds while sitting the exam, the exam will be answered using a videoconference system, being able the academic staff of the University of Jaén to compare and contrast the image of the person who is answering the exam with the student's photographic files. Likewise, in order to provide the exam with evidential content for revisions or claims, in accordance with current regulation frameworks, the exam will be recorded and stored.

Legitimacy: compliance with legal obligations (Universities Law) and other national and regional regulations currently in force.

Addressees: service providers who are the owners of the platforms where the exams are carried out and with whom the University of Jaén has signed the corresponding data access contracts.

Storage periods: those established in current in force regulations. In the specific case of exam videoconference recordings, not before the examination records and transcripts are closed or the exam can still be reviewed or challenged.

Rights: you can exercise your right of access, amendment, cancellation, opposition, suppression, limitation and portability by sending a letter to the postal or electronic address indicated above. In the event that you consider that your rights have been violated, you may submit a complaint to the Andalusian Council for Transparency and Data Protection www.ctpdandalucia.es

CLASS RECORDING CLAUSE PERSONAL DATA PROTECTION

Person in charge: Universidad de Jaén, Paraje Las Lagunillas, s/n; Tel.953 212121; www.ujaen.es

Data protection delegate (DPO): TELEFÓNICA, S.A.U. ; Email: dpo@ujaen.es

Procedure aim: To manage proper recordings of teaching sessions with the aim of facilitating learning process under a multimodal and/or online teaching

Period for record storage: Images will be kept during legal term according to regulations in force

Legitimacy: Data will be managed according to legal regulations (Organic Law 6/2001, December 21, on Universities) and given consent provided by selecting corresponding box in legal admission documents

Data recipients (transfers or assignments): Any person allowed to get access to every teaching modality

Rights: You may exercise your rights of access, rectification, cancellation, portability, limitation of processing, deletion or, where appropriate, opposition. To exercise these rights, you must submit a written request to the Information, Registration and Electronic Administration Service of the University of Jaen at the address above, or by e-mail to the address above. You must specify which of these rights you are requesting to be satisfied and, at the same time, you must attach a photocopy of your ID card or equivalent identification document. In case you act through a representative, legal or voluntary, you must also provide a document that proves this representation and identification. Likewise, if you consider that your right to personal data protection has been violated, you may file a complaint with the Andalusian Data Protection and Transparency Council www.ctpdandalucia.es

Campus Las Lagunillas s/n | 23071 - Jaén

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