ANEXO I

Faculty of Business Science and Tourism

GENERAL SPECIFICATIONS

ACADEMIC YEAR 2026-2027

DEGREES IN BUSINESS ANDMINISTRATION & FINANCE AND ACCOUNTING

Subject Data

Name:
INTRODUCCIÓN A LA ECONOMETRÍA
English name:
INTRODUCTORY ECONOMETRICS

Code:	**Type:**
858510210 / 858610210 / 859010210 / 859110210	Obligatory

Hours:

	Total	**In class**	**Out class**
Time distribution	150	60	90

ECTS:

Standard group	**Small groups**			
	Classroom	**Lab**	**Practices**	**Computer classroom**
4.8	1.2	0	0	0

Departments:	**Knowledge areas:**
Economics	Quantitative methods for economics and business
Year:	**Semester**
2nd	2nd

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TEACHING STAFF

Name:	E-mail:	Telephone
Encarnación Cordón Lagares (coordinator)	ecordon@uhu.es	959 217 859
David Castilla Espino	david.castilla@dehie.uhu.es	959 217 868

Others Data (Tutoring, schedule...)

Group	Day and time	Dates
T1- 11	Tuesday and Thursday, from 8:30 to 10:30. Timetable and classroom are also available at business school web site: FCEYT	Large (48 hours) and small (12 hours) groups dates and timetable available on the Moodle site for the course.

Profa.: Dra. Encarnación Cordón Lagares (coordinator).
Department: Economics
Office: 62 (Faculty of Business Science and Tourism)
Office hours: http://goo.gl/3uBFX.

First semester				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Second semester				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**

Prof.: Dr. David Castilla Espino.
Department: Economics
Office: 62 (Faculty of Business Science and Tourism)
Office hours: http://goo.gl/F3z3K

First semester				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	9:30-10:30 & 12:30-14:30		9:30-10:30 & 12:30-14:30	
Second semester				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
12:30-14:30	17:30-20:30	12:30-13:30		

ANEXO I

SPECIFIC INFORMATION OF THE COURSE

1. Contents description:

1.1 In English:

- Classical Regression Model
- Multicollinearity
- Heteroscedasticity
- Autocorrelation
- Dynamic Models
- Simultaneous Equations Models
- Nonlinear Models

1.2 In Spanish:

- Modelo de Regresión Clásico.
- Multicolinealidad.
- Heterocedasticidad.
- Autocorrelación.
- Modelos dinámicos.
- Modelos de ecuaciones simultáneas.
- Modelos no lineales.

2. Background:

2.1 Situation within the Degree:

Compulsory course within the subject area of "Econometrics" that provides the introductory concepts necessary for the application of econometrics in the field of business management.

2.2 Recommendations

Have knowledge of Probability Theory and Statistical Inference.

3. Objectives (as result of teaching):

GENERAL OBJECTIVES

On completion of this course students should have a set of theoretical and practical knowledge that enables them to use econometric techniques to estimate causal models using time series and/or cross-sectional data for explanatory and predictive purposes.

SPECIFIC OBJECTIVES

After studying this course students should be able to:

- To broaden the student's knowledge of linear regression verifying and relaxing the basic assumptions of the classical model.
- To analyze the formulation of simultaneous equations models and dynamic models, especially those used for short-term forecasting with time series data.
- To enable the student to use econometric software packages, providing an effective tool for the estimation and validation of models.

4. Skills to be acquired

4.1 Specific Skills:

CE12: Develop the ability to design, draft, execute, and manage projects and reports, as well as to provide advice on specific business situations.
CE3: Understand the mathematical and statistical techniques and tools applied to the economic-business field for the quantitative analysis of economic-business reality.

4.2 General, Basic or Transversal Skills:

CB1: That students have demonstrated possession and understanding of knowledge in a field of study that builds upon general secondary education, typically at a level supported by advanced textbooks, but also including some aspects involving knowledge at the forefront of their field of study.
CB2: That students know how to apply their knowledge to their work or vocation in a professional manner and possess the competencies usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their field of study.
CB3: That students have the ability to gather and interpret relevant data (usually within their field of study) to make judgments that include reflection on relevant social, scientific, or ethical issues.
CB4: That students can communicate information, ideas, problems, and solutions to both specialized and non-specialized audiences.
CB5: That students have developed the learning skills necessary to undertake further studies with a high degree of autonomy.
CG1: That students develop cognitive, instrumental, and attitudinal competencies in the context of Business Administration and Management.
CT1: To have a good command of the Spanish language, including various styles and the specific languages necessary for the development and communication of knowledge in the scientific and academic fields.
CT2: Development of a critical attitude in relation to analytical and synthetic capacity.
CT3: Development of an inquiry attitude that allows for the continuous review and advancement of knowledge.
CT4: Ability to use Computer and Information Competencies (C12) in professional practice.
CT6: To promote, respect, and safeguard human rights, equality without discrimination based on birth, race, sex, religion, opinion, or any other personal or social circumstance; democratic values; social equality; and environmental sustainability.

5. Training Activities and Teaching Methods

5.1 Training Activities:

- Theory/practice sessions on the program content.
- Academically guided activities by the teaching staff: seminars, lectures, development of assignments, debates, group tutorials, reports, assessments/self-assessments.
- Individual/autonomous student work.

5.2 Teaching Methods:

- Face-to-face theoretical classes.
- Face-to-face practical classes.
- Autonomous supervised work of the student.
- Assessment tests.
- Tutorials.

5.3 Development and Justification:

Methodology	**Activity**	**Description**	**No. of hours**
Face-to-face classes about theoretical and practical contents of the course.	Theoretical classes (Big groups)	Lectures by teachers, in which the participation of students in the classroom (discussions) is encouraged. Foundations and theoretical approaches	56
		Presentation and discussion of reports by students	
	Practical classes (Small groups)	Problems and case studies: approaches and solutions to specific problems related to the subject.	4
		Development of IT skills for subject-specific software.	
Individual / autonomous work of the student	Individual preparation of essays on theory and practical applications (following tutor's suggestions). Autonomous study of subject contents.	Documentation. Background reading, e.g. articles. Use of IT. Problem solving and case-study preparation. Theoretical (concepts and principles) and practical contents of the subject. Students independently explore topics not covered by lectures.	90

All the necessary material to follow the theoretical and practical classes will be available on the online learning platform, Moodle (https://moodle.uhu.es/). The page will contain information about the contents of the subject, the work plan, the schedule of lectures and practical, as well as interesting links about the subject.
Lectures will make use of the whiteboard (traditional and electronic version), computer presentations and supplementary material provided by the lecturer (photocopies, electronic files, etc.). The practical classes will focus on applying the content addressed in the lectures, with an emphasis on solving problems, the limitations and advantages of the techniques studied, and critical analysis of the results obtained. These practical sessions will be interactive, and the participation of students will be considered when assessing to the extent to which learning has taken place.
For practical classes there will be computers available in the computer classrooms at the school.

6. Detailed Contents

BLOCK I. CLASSICAL ECONOMETRIC MODEL

Topic 1. INTRODUCTORY ELEMENTS OF ECONOMETRIC MODELING

1.1. Introduction
1.2. Assumptions of the classical econometric model
1.3. Estimation and properties of the classical econometric model
1.4. Inference in the classical econometric model
1.5. Goodness of fit of the classical econometric model

BLOCK II. RELAXATION AND VIOLATION OF THE CLASSICAL ECONOMETRIC MODEL ASSUMPTIONS

Topic 2. HETEROSCEDASTICITY AND AUTOCORRELATION. GLS ESTIMATOR

2.1. Introduction
2.2. Generalized Least Squares (GLS) estimation
2.3. Detection, causes, and consequences of autocorrelation
2.4. Estimation in the presence of autocorrelation: GLS and Cochrane-Orcutt algorithm
2.5. Detection, causes, and consequences of heteroscedasticity
2.6. Transformations and solutions

Topic 3. MULTICOLLINEARITY AND SPECIFICATION ERRORS

3.1. Introduction
3.2. Multicollinearity: causes and consequences
3.3. Estimation in the presence of multicollinearity
3.4. Principal components
3.5. Omitted and irrelevant variables
3.6. Regressor selection

BLOCK III. FUNCTIONAL FORM, NONLINEARITY AND SPECIFICATION

Topic 4. DUMMY VARIABLES AND STABILITY TESTS

4.1. Introduction
4.2. Dummy variables: interpretation and estimation
4.3. Panel data models
4.4. Structural change: tests

Topic 5. PREDICTIVE CAPACITY AND EXTENSIONS TO THE MODEL

5.1. Introduction
5.2. Predictive capacity
5.3. Functional forms and nonlinear models
5.4. Stochastic regressors and dynamic models

BLOCK IV. SIMULTANEOUS EQUATION MODELS

Topic 6. SIMULTANEOUS EQUATION MODELS

6.1. Introduction
6.2. Structural and reduced form of the model
6.3. The identification problem: solutions
6.4. OLS estimation of the model
6.5. Indirect Least Squares (ILS) estimation
6.6. Other estimation procedures: instrumental variables and Two-Stage Least Squares (2SLS)

7. Bibliography

7.1 Basic Bibliography:

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7.2 Additional Bibliography:

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- Díaz Fernández, M. y Llorente Marrón, M., (1998), ECONOMETRÍA, 1ª edición, Madrid: Pirámide, 299 págs.
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- Barcelona: Ariel, 219 págs.
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- edición, Nueva York: John Wiley & Sons, 866 págs.
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8. Systems and Assessment Criteria

8.1 System for Assessment:

- Written/oral exam.
- Continuous assessment.

8.2 Assessment Criteria and Marks:

8.2.1 Examinations Convocatory I

Assessment form	Description	Criterium	Weight on the final mark
Written exam with theoretical and practical contents	Final assessment based on a written exam, which will evaluate both the theoretical knowledge of the methodologies taught in the large group sessions and the ability to solve practical cases and present them in written report form. The theoretical part will consist of 2-3 questions to be developed depending on their length. The practical part will involve solving 2-3 practical exercises, depending on their length, with the aid of a calculator. Alternatively, and with prior notice from the teaching staff given well in advance, the final assessment could consist of a multiple-choice exam covering either theoretical or practical content.	• Degree of problem-solving ability and application of theoretical content to practice. • Correct interpretation of the problem statement in each practical case. • Appropriate choice of statistical and/or econometric techniques for each case. • Correct resolution of the practical case with the help of a computer, and appropriate presentation of the results obtained. • Level of development of synthesis skills • Degree of knowledge, understanding, and information. • Absence of errors. • Internal consistency of the exercise, and consistency with the overall body of knowledge. • Precision and accuracy of the answers. • Degree of understanding of the theoretical and practical fundamentals learned in the large group sessions. • Fluency and correct use of appropriate language and terminology in the presentation of results. • Adequacy in the correct resolution of the case: presentation of results and conclusions. • Correct use of spelling, grammar, and syntax.	Theoretical contents (30%) Problem solving and application of econometrics to finance (30%)
Continuous assessment	Active participation in theory and practice sessions will be evaluated through academically guided activities led by the teaching staff, including seminars, conferences, development of assignments, debates, group tutorials, reports, and/or evaluation/self-evaluation activities carried out throughout the semester. Additionally, several tests will be conducted in the computer lab, where students will be required to solve theoretical-practical questions based on specific cases, using specialized software.	• Correct interpretation of the problem statement in each practical case. • Appropriate selection of statistical and/or econometric techniques for each case. • Accurate resolution of the practical case with the aid of a computer and proper presentation of the results obtained. • Fluency and correct use of language and terminology appropriate to the presentation of results. • Degree of understanding of the theoretical and practical fundamentals learned in the large group sessions. • Degree of problem-solving ability and application of theoretical content to practice	Active participation 20%. computer lab (20%)

		• Adequacy in the correct resolution of the case: presentation of results and conclusions.	

The set of evaluation activities shall be subject to the Policy of Evaluation for undergraduate and postgraduate degrees at the Universidad de Huelva (the Governing Council of March 13, 2019): http://uhu.es/secretaria-general/sites/secretaria-general/files/2021-02/Rgto_evaluacion_grado_mofs_ccgg_19_03_13.pdf

Rating system

The rating system used in this subject is in accordance with that set out in article 5 of Royal Decree 1125/2003, of September 5, which establishes the European credit system and the grading system for official university degrees, and which is valid in all Spain. Results obtained by the student in each subject of the curriculum will be graded according to the following numerical scale from 0 to 10, with one decimal place, to which may be added the corresponding qualitative rating:
- 0.0 to 4.9: Fail (SS)
- 5.0 to 6.9: Pass (AP)
- 7.0 to 8.9: Good (NT)
- 9.0 to 10: Excellent (SB)

The weighted average of the marks obtained by the student in the different types of assessment described in the previous table must be at least 5 to pass the subject. In those cases, in which more than one activity is evaluated for a specific type of assessment, all of them will be weighted proportional to the contents assessed.
The written exams that evaluate the theoretical and practical contents can be passed throughout the course by means of periodic exams if the lecturers consider it appropriate. For these purposes, for the calculation of the average, all periodic tests will be weighted proportional to the contents assessed. In the case of a pass, they will substitute the final written exam in relation to the same content.
A practical application will be used by software in the computer classroom as a complement to the written exam and in substitution of the continuous evaluation and/or course work, in the resit exams that are listed below:
- Resit exam if continuous evaluation has not been passed.
- Resit exam in the following academic year, for students who choose a final single evaluation.
- Resit exam to complete a degree.
- Resit exam for students on mobility programmes.
- Final appeal exam by special dispensation.

The student must prove the acquisition of all the skills related to the practical application by software in the computer room and must obtain a minimum grade of 3 to be able to pass the subject in which it will have a weight equivalent to the tests of continuous evaluation and/or course work shown in the previous table (50%).
The evaluation criteria used in the different activities will correspond in general with the competences related in this guide and they are specified with no intention to be exhaustive in the following list:
- Ability to solve problems and apply the theoretical contents to practice.
- Ability to summarize.
- Knowledge and understanding of the contents.
- Absence of errors.
- Appropriate use of concepts and terminology.
- Internal coherence of the exercise and between it and all the knowledge.
- Correctness in the use of spelling, grammar and syntax.
- Ability to interrelate theories, models and concepts.
- Precision and accuracy of the answers.
- Capacity of students to plan, develop and present an empirical work on different facets of the subject.
- Oral and written communication ability of the student.
- Ability to use software and information-communication technologies.
- Use of the educational media of the University of Huelva available to students.

Those students who have a Good (Notable) final grade in the subject may request to increase their final grade to the coordinator of the subject. This will be done in writing to the Secretary Office of the Department. In this case, the teacher will suggest to the student an individual activity for that purpose. If the mark for this activity is equal to or greater than 5 on a numerical scale from 0 to 10, up to 2 points can be added to the student's final grade depending on the mark obtained in the activity up to a maximum grade of 10.
The mention "honors" will be awarded to students who have obtained a mark equal to or greater than 9.0. The number of mentions “honors” may not exceed 5% of the students registered in a subject in the same academic year, unless the number of students registered is less than 20, in which case, a single “honor” may be awarded.
For the calculation of the maximum number of honors, the number of students will be rounded up to the next highest number and students from the University of Huelva who are studying at another university within the framework of a national or international mobility programme will not be considered for the calculation. These students’ grades at the destination university will be recognized, regardless of whether the quota has been completed with students who take the subject at the University of Huelva.
When there is more than one student who meets the requirements to obtain the mention “honors” and the maximum number

of mentions “honors” has been reached, the mention “honors” will be awarded to the one with the highest final grade. In those cases, in which the students who opt for the mention “honors” have the same final grade, the lecturer will suggest an activity consisting of the preparation of an essay or individual work to those students so that a mention “honor” will be awarded to the student who has the highest score in this activity on a numerical scale from 0 to 10.
The student who decides not to take the written exam will be included in the record with the notation of Absent (*No presentado*).
Students have the right to take 2 out of 3 ordinary examinations. These exams have a maximum duration of three hours and must allow to evaluate 100% of the subject.
For the practical part of the exam, the student may have access, depending on the case, to the following aids or reference materials:
- A non-programmable calculator that does not allow conversion into a database (if there is any doubt, the student must consult the course instructor in advance of the exam). This calculator will not be provided by the department.
- Any other supplementary information that is provided, with prior authorization from the instructor.

8.2.1 Examinations Convocatory II

In the second ordinary call, students who opted for continuous assessment will retain, if agreed with the professor, the grades obtained in the tests carried out during the semester, which include the sections "Academic Activities Guided Related to the Use of Econometric Software" and "Participation in Theory and Practice Sessions." In this call, the tests corresponding to the first two sections (theory and practice) will be conducted. The minimum passing grades required, as well as the weightings of each of the activities that correspond to the final grade, will be the same as those in the first call.

The grading system used in the subject complies with the provisions of Article 5 of Royal Decree 1125/2003, of September 5, which establishes the European credit system and the grading system in official university degrees valid throughout the national territory. The results obtained by the student in each subject of the study plan will be graded according to the following numeric scale from 0 to 10, expressed with one decimal place, to which the corresponding qualitative grade may be added:

- 0.0 to 4.9: Fail (SS)
- 5.0 to 6.9: Pass (AP)
- 7.0 to 8.9: Good (NT)
- 9.0 to 10: Excellent (SB)

The mention "honors" will be awarded to students who have obtained a mark equal to or greater than 9.0. The number of mentions “honors” may not exceed 5% of the students registered in a subject in the same academic year, unless the number of students registered is less than 20, in which case, a single “honor” may be awarded.
For the calculation of the maximum number of honors, the number of students will be rounded up to the next highest number and students from the University of Huelva who are studying at another university within the framework of a national or international mobility programme will not be considered for the calculation. These students’ grades at the destination university will be recognized, regardless of whether the quota has been completed with students who take the subject at the University of Huelva.
When there is more than one student who meets the requirements to obtain the mention “honors” and the maximum number of mentions “honors” has been reached, the mention “honors” will be awarded to the one with the highest final grade. In those cases, in which the students who opt for the mention “honors” have the same final grade, the lecturer will suggest an activity consisting of the preparation of an essay or individual work to those students so that a mention “honor” will be awarded to the student who has the highest score in this activity on a numerical scale from 0 to 10.
The student who decides not to take the written exam will be included in the record with the notation of Absent (*No presentado*).
Students have the right to take 2 out of 3 ordinary examinations. These exams have a maximum duration of three hours and must allow to evaluate 100% of the subject.
For the practical part of the exam, the student may have access, depending on the case, to the following aids or reference materials:
- A non-programmable calculator that does not allow conversion into a database (if there is any doubt, the student must consult the course instructor in advance of the exam). This calculator will not be provided by the department.
- Any other supplementary information that is provided, with prior authorization from the instructor.

8.2.2 Examinations Convocatory II

It will consist of a written exam according to the characteristics and weights described in next section.

The mention "honors" will be awarded to students who have obtained a mark equal to or greater than 9.0. The number of mentions “honors” may not exceed 5% of the students registered in a subject in the same academic year, unless the number of students registered is less than 20, in which case, a single “honor” may be awarded.
For the calculation of the maximum number of honors, the number of students will be rounded up to the next highest number and students from the University of Huelva who are studying at another university within the framework of a national or international mobility programme will not be considered for the calculation. These students’ grades at the destination university will be recognized, regardless of whether the quota has been completed with students who take the subject at the University

of Huelva.
When there is more than one student who meets the requirements to obtain the mention "honors" and the maximum number of mentions "honors" has been reached, the mention "honors" will be awarded to the one with the highest final grade. In those cases, in which the students who opt for the mention "honors" have the same final grade, the lecturer will suggest an activity consisting of the preparation of an essay or individual work to those students so that a mention "honor" will be awarded to the student who has the highest score in this activity on a numerical scale from 0 to 10.
The student who decides not to take the written exam will be included in the record with the notation of Absent (*No presentado*).
Students have the right to take 2 out of 3 ordinary examinations. These exams have a maximum duration of three hours and must allow to evaluate 100% of the subject.
For the practical part of the exam, the student may have access, depending on the case, to the following aids or reference materials:
- A non-programmable calculator that does not allow conversion into a database (if there is any doubt, the student must consult the course instructor in advance of the exam). This calculator will not be provided by the department.
- Any other supplementary information that is provided, with prior authorization from the instructor.

8.2.3 Examinations Convocatory III

The tests of this examination will have the same structure as those for the final single evaluation test.

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8.2.4 Extraordinary Convocatory

The tests of this examination will have the same structure as those for the final single evaluation test.

8.3 Single Final Evaluation:

The final single assessment, which may be chosen by students who so wish according to the University of Huelva's evaluation regulations (03/13/2019), will consist of a single written exam in which the student must demonstrate theoretical and practical knowledge of the subject according to the syllabus outlined in this guide. This single written exam will include questions related to the student's familiarity with the specific software used during the computer lab sessions, which may be part of the exam or structured as a separate exam in the computer lab.
The weighting of each section of the exam will be as follows: theory (40%), practical-problems (40%), and software practice (20%). The instructional materials necessary for completing the assessments will be those provided on the Moodle e-learning platform, available to all students enrolled in the course.
To apply the above percentages, it is necessary to achieve a minimum score of 3 out of 10 in the theory and problem-solving sections.
The grading system used in the subject complies with the provisions of Article 5 of Royal Decree 1125/2003, of September 5, which establishes the European credit system and the grading system in official university degrees valid throughout the national territory. The results obtained by the student in each subject of the study plan will be graded according to the following numeric scale from 0 to 10, expressed with one decimal place, to which the corresponding qualitative grade may be added:

- 0.0 to 4.9: Fail (SS)
- 5.0 to 6.9: Pass (AP)
- 7.0 to 8.9: Good (NT)
- 9.0 to 10: Excellent (SB)

The mention "honors" will be awarded to students who have obtained a mark equal to or greater than 9.0. The number of mentions "honors" may not exceed 5% of the students registered in a subject in the same academic year, unless the number of students registered is less than 20, in which case, a single "honor" may be awarded.
For the calculation of the maximum number of honors, the number of students will be rounded up to the next highest number and students from the University of Huelva who are studying at another university within the framework of a national or international mobility programme will not be considered for the calculation. These students' grades at the destination university will be recognized, regardless of whether the quota has been completed with students who take the subject at the University of Huelva.
When there is more than one student who meets the requirements to obtain the mention "honors" and the maximum number of mentions "honors" has been reached, the mention "honors" will be awarded to the one with the highest final grade. In those cases, in which the students who opt for the mention "honors" have the same final grade, the lecturer will suggest an activity consisting of the preparation of an essay or individual work to those students so that a mention "honor" will be awarded to the student who has the highest score in this activity on a numerical scale from 0 to 10.
The student who decides not to take the written exam will be included in the record with the notation of Absent (*No presentado*).
Students have the right to take 2 out of 3 ordinary examinations. These exams have a maximum duration of three hours and must allow to evaluate 100% of the subject.
For the practical part of the exam, the student may have access, depending on the case, to the following aids or reference materials:
- A non-programmable calculator that does not allow conversion into a database (if there is any doubt, the student must consult the course instructor in advance of the exam). This calculator will not be provided by the department.
- Any other supplementary information that is provided, with prior authorization from the instructor.
The student's request to opt for this evaluation modality must be addressed to the course coordinator and may be submitted by electronic means (email), within the deadlines established by the regulations, with the coordinator providing explicit confirmation of receipt of the request.