



FACULTAD DE CC. EMPRESARIALES Y
TURISMO

GUÍA DOCENTE

CURSO 2026-27

GRADO EN ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS

DATOS DE LA ASIGNATURA

Nombre:

ESTADÍSTICA Y MÉTODOS CUANTITATIVOS I ((INGLÉS)

Denominación en Inglés:

Statistics and Quantitative Methods I

Código:

858526108

Tipo Docencia:

Presencial

Carácter:

Básica

Horas:

Totales

Presenciales

No Presenciales

Trabajo Estimado

150

45

105

Créditos:

Grupos Grandes

Grupos Reducidos

Aula estándar

Laboratorio

Prácticas de campo

Aula de informática

4.8

1.2

0

0

0

Departamentos:

ECONOMIA

Áreas de Conocimiento:

MET. CUANTITATIVOS PARA LA ECONOMIA Y LA EMPRESA

Curso:

1º - Primero

Cuatrimestre

Segundo cuatrimestre

DATOS DEL PROFESORADO (*Profesorado coordinador de la asignatura)

Nombre:	E-mail:	Teléfono:
* Encarnación Cordon Lagares	ecordon@dehie.uhu.es	959 217 859

Datos adicionales del profesorado (Tutorías, Horarios, Despachos, etc...)

PROFESSOR					
NAME		PhD. Encarnación Cordón Lagares		CATEGORY	Professor (Associate)
UNIVERSITY		Universidad de Huelva			
DEPARTAMENT			Economics		
KNOWLEDGE AREA		Quantitative Methods for Economics and Business		UBICACIÓN	Faculty of Business Studies and Tourism
OFFICE	62	TELEPHONE	959217859	EMAIL	ecordon@uhu.es
VIRTUAL LEARNING PLATFORM			Moodle		
OFFICE HOURS:					
Period	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Firs semester		10:00-13:00		10:00-13:00	
Second semester	12:30-13:30	9:30-10:30; 12:30-13:30	12:30-13:30	9:30-10:30; 12:30-13:30	

DATOS ESPECÍFICOS DE LA ASIGNATURA

1. Descripción de Contenidos:

1.1 Breve descripción (en Castellano):

Estadística Descriptiva

- Distribuciones de frecuencias uni y multivariantes
- Representaciones gráficas
- Medidas de Posición, Forma y Dispersión
- Números Índice y series temporales

Teoría de la Probabilidad

- Experimentos aleatorios y sucesos
- Fundamentos del concepto de probabilidad
- Probabilidad condicionada, independencia y análisis bayesiano

Distribuciones de probabilidad

- Variables aleatorias discretas y continuas: funciones de distribución
- Características de una variable aleatoria
- Distribuciones de probabilidad

1.2 Breve descripción (en Inglés):

Descriptive Statistics

- Univariate and multivariate frequency distributions
- Graphical representations
- Measures of central tendency, shape, and dispersion
- Index numbers and time series

Probability Theory

- Random experiments and events
- Fundamentals of the concept of probability
- Conditional probability, independence, and Bayesian analysis

Probability distributions

- Discrete and continuous random variables: distribution functions
- Characteristics of a random variable
- Probability distributions

2. Situación de la asignatura:

2.1 Contexto dentro de la titulación:

This course in the Statistics area of the Bachelor's Degree in Business Administration and Management provides the fundamental concepts required for the application of statistical methodology in other courses of the degree programme offered in subsequent years.

This course provides the necessary knowledge of Descriptive Statistics and Probability Theory to enable students to successfully undertake the course Statistics and Quantitative Methods II, which is taught during the first semester of the second year of the degree programme and covers Statistical Inference and Regression Analysis.

2.2 Recomendaciones

Prerequisites: To take the course in English, you must hold a language proficiency certificate recognised by the University of Huelva, at a minimum B1 level.

Recommendations: Basic knowledge of Algebra and Mathematical Analysis

3. Resultado del aprendizaje: competencias, conocimientos y habilidades o destrezas

3.1 Competencias:

COM01: Dominar correctamente la lengua española, los diversos estilos y los lenguajes específicos necesarios para el desarrollo y comunicación del conocimiento en el ámbito científico y académico.

COM02: Desarrollar una actitud crítica e indagadora para el análisis, síntesis y avance del conocimiento.

COM04: Promover, respetar y velar por los derechos humanos, la igualdad sin discriminación por razón de nacimiento, raza, sexo, religión, opinión u otra circunstancia personal o social, los valores democráticos y la consecución de los Objetivos de Desarrollo Sostenible en los ámbitos ambientales, sociales y de gobernanza.

3.2 Conocimientos o contenidos:

C02: Conoce las técnicas e instrumentos matemáticos y estadísticos aplicados al ámbito económico-empresarial para el análisis cuantitativo de la realidad económico-empresarial.

3.3 Destrezas o habilidades:

HD07: Diseña, redacta, ejecuta y gestiona proyectos e informes, y asesora sobre situaciones concretas de empresas.

4. Actividades Formativas y Metodologías Docentes

4.1 Actividades formativas:

- Actividades dirigidas.
- Actividades supervisadas.
- Actividades autónomas.

4.2 Metodologías Docentes:

- Sesiones académicas teóricas.
- Sesiones académicas prácticas.
- Trabajo autónomo tutelado
- Pruebas de evaluación
- Tutorías
- Trabajo independiente del alumno/a

4.3 Desarrollo y Justificación:

Directed activities: 56 hours / 100% face-to-face attendance

Supervised activities: 4 hours / 100% face-to-face attendance

Independent learning activities: 90 hours / 0% face-to-face attendance

All materials required for the follow-up of lectures and practical sessions will be available through the Moodle virtual learning platform (<https://moodle.uhu.es/>). The course page will provide information on course contents, the work plan, lecture and practical session schedules, as well as relevant links and resources related to the course.

For lectures, the teaching resources employed will include traditional and electronic whiteboards, presentation slides supported by computer technology, and supplementary materials provided by the teaching staff (handouts, electronic files, etc.).

Practical sessions will focus on the application of the concepts covered in lectures. Particular emphasis will be placed on problem-solving procedures, their advantages and limitations, and the critical analysis of the results obtained. These sessions will be interactive, and student participation will be taken into account when assessing their progress and adaptation to the learning process. Some practical sessions will be held in computer laboratories in order to develop students' competencies in the use of software tools commonly employed in the statistical analysis of economic and financial data. Preference will be given to open-source software, although students will also be introduced to proprietary software widely used in the labour market.

Directed academic activities may occasionally include attendance at seminars (in Spanish or a foreign language), or the viewing or listening of multimedia materials (in Spanish or a foreign

language) related to the course contents. These activities may subsequently require the preparation of reports or the completion of questionnaires specifically designed to assess students' understanding of the material. Directed academic activities may also include problem-solving presentations by students at the board or through written reports; the application of the problem-based learning approach in collaborative groups supervised by course instructors through specific workshops; the analysis of case studies; or participation in course-related discussion forums moderated by the lecturer.

These directed academic activities are intended to take advantage of the benefits associated with this teaching methodology and to foster the competencies listed in this course guide, including the development of foreign language skills, effective use of university resources, autonomous learning, problem-solving abilities in the fields of finance, economics, and business, effective teamwork, work planning and organization, and the ability to design and carry out the selection and collection of statistical information in economic and financial contexts.

5. Temario Desarrollado

BLOCK I. DETERMINISTIC STATISTICAL TECHNIQUES

TOPIC 1. BASIC CONCEPTS OF DESCRIPTIVE STATISTICS

1.1. Introduction.

1.1.1. Concept of Statistics.

1.1.2. Methodology and objectives of Statistics.

1.1.3. Statistics in the business and economic context.

1.2. Basic concepts in Descriptive Statistics.

1.2.1. Population, units, and characteristics.

1.2.2. Types of characteristics: variables and attributes. Measurement scales.

1.2.3. Censuses and surveys.

1.2.4. Time-series and cross-sectional observations.

1.2.5. Representation of the distribution of characteristics: frequency distributions and graphical representations.

TOPIC 2. DESCRIPTIVE STATISTICAL ANALYSIS OF A SINGLE VARIABLE

2.1. Measures of central tendency.

2.1.1. Averages and their properties.

2.1.2. Measures of central tendency: arithmetic mean, median, and mode. Other measures of central tendency. Comparative overview.

2.1.3. Measures of position: quantiles.

2.2. Measures of dispersion.

2.2.1. Concept of dispersion.

2.2.2. Absolute measures of dispersion: range, variance, and standard deviation.

2.2.3. Relative measures of dispersion: coefficients of disparity and variation.

2.3. Measures of shape: skewness and kurtosis.

2.3.1. Analysis of the shape of a distribution.

2.3.2. Skewness and its measurement: coefficients of skewness.

2.3.3. Kurtosis and its measurement: coefficients of kurtosis.

2.4. Moments of a distribution.

2.5. Statistical analysis of concentration: the Lorenz curve and the Gini index.

2.6. Variable transformations: standardized variables.

TOPIC 3. BIVARIATE DESCRIPTIVE STATISTICS

3.1. Statistical analysis of two characteristics: general concepts.

3.2. Frequency distributions of two variables.

3.2.1. Correlation and contingency tables.

3.2.2. Marginal and conditional distributions.

3.2.3. Graphical representations.

3.2.4. Moments of a bivariate distribution.

3.3. Statistical independence.

3.4. Regression and correlation: an introductory overview.

TOPIC 4. TIME SERIES ANALYSIS

4.1. Introduction.

4.2. Components of a time series.

4.3. Trend analysis. Methods for trend estimation.

4.4. Seasonal analysis. Seasonal adjustment.

4.5. Rates of change in time series analysis.

4.6. Basic forecasting techniques.

TOPIC 5. INDEX NUMBERS

- 5.1. Introduction.
- 5.2. Simple and composite index numbers. Properties.
- 5.3. Price and quantity indices.
- 5.4. Deflation of economic series.
- 5.5. Linking and rebasing.
- 5.6. The Consumer Price Index (CPI).

BLOCK II. PROBABILISTIC MODELS

TOPIC 6. THE CONCEPT OF PROBABILITY

- 6.1. Introduction. Random phenomena and experiments.
- 6.2. Events and sample space.
- 6.3. Concept of probability.
 - 6.3.1. Classical probability.
 - 6.3.2. Frequentist probability.
 - 6.3.3. Subjective probability.
 - 6.3.4. Kolmogorov's axiomatic probability. Theorems derived from the probability axioms.
- 6.4. Conditional probability. Independence of events.
- 6.5. Compound probability. The multiplication rule.
- 6.6. The law of total probability and Bayes' theorem.

TOPIC 7. RANDOM VARIABLES

- 7.1. Concept of a random variable.
- 7.2. Discrete and continuous random variables.
- 7.3. Probability mass function and probability density function. Distribution function.
- 7.4. Properties of the main functions characterizing the distribution of a random variable.
- 7.5. Expected value and variance of a random variable. Properties.
- 7.6. Moments of the distribution of a random variable. Moment-generating function.
- 7.7. Markov's theorem. Chebyshev's inequality.

TOPIC 8. DISCRETE PROBABILITY MODELS

- 8.1. Introduction.
- 8.2. Discrete Uniform Distribution.
- 8.3. Bernoulli Distribution.
- 8.4. Binomial Distribution.
- 8.5. Hypergeometric Distribution.
- 8.6. Poisson Distribution.
- 8.7. Geometric (Pascal) Distribution.
- 8.8. Negative Binomial Distribution.

TOPIC 9. CONTINUOUS PROBABILITY MODELS

- 9.1. Introduction.
- 9.2. Continuous Uniform Distribution.
- 9.3. Gamma Distribution.
- 9.4. Exponential Distribution.
- 9.5. Normal Distribution.
- 9.6. Chi-Square Distribution.
- 9.7. Student's t Distribution.
- 9.8. Fisher-Snedecor F Distribution.
- 9.9. Relationships among the most commonly used probability models.
- 9.10. The Laws of Large Numbers and the Central Limit Theorem.

6. Bibliografía

6.1 Bibliografía básica:

- Newbold, P., Carlson, W. L., & Thorne, B. (2022). Statistics for business and economics (Global ed., 10th ed.). Pearson.
- McClave, J. T., Benson, P. G., & Sincich, T. (2005). Statistics for business and economics (9th ed.). Pearson Prentice Hall.
- Mariappan, P. (2019). Statistics for business. Alpha Science International Ltd.
- Bajpai, N. (2009). Business statistics. Pearson Education India.
- Sharma, J. K. (2006). Business statistics. Pearson Education.

6.2 Bibliografía complementaria:

- McEvoy, D. M. (2018). A guide to business statistics. W. W. Norton & Company.
- John, J. A., Whitaker, D., & Johnson, D. G. (2018). Statistical thinking in business. Wiley.
- Jones, J.S. & Goldring, J. (2022). Explotatory and descriptive statistics. SAGE Publications

7. Sistemas y criterios de evaluación

7.1 Sistemas de evaluación:

- Prueba escrita/oral
- Evaluación continua

7.2 Criterios de evaluación relativos a cada convocatoria:

7.2.1 Convocatoria I:

CONTINUOUS ASSESSMENT

The continuous assessment system for this course is divided into three components corresponding to the theoretical content, practical problem-solving activities, and practical work involving the use of specialized software.

Assessment Method	Description	Assessment Criteria	Weight in Final Grade
Theoretical Content Examination	Final written examination assessing students' knowledge of the methodologies covered in the lecture sessions. The examination will consist of 3-4 theoretical questions requiring extended answers, depending on their scope. Alternatively, and subject to prior notification by the teaching staff, the examination may take the form of a multiple-choice test. Midway through the semester, the professors may administer an additional theoretical examination to assess the theoretical content covered up to that point	Appropriate use of concepts and terminology; ability to relate theories, models, and concepts; precision and accuracy of responses; level of understanding of the theoretical foundations covered in lectures.	25%
Practical Content Examination	Final written examination assessing students' ability to solve practical problems and present their solutions in the form of a written report, based on the content covered in lectures. The examination will consist of 3-4 practical exercises, depending on their scope, to be completed with the aid of a calculator. Midway through the semester, the professors may administer an additional theoretical examination to assess the theoretical content covered up to that point	Ability to solve problems and apply theoretical concepts in practice; synthesis skills; level of knowledge, understanding, and information; absence of errors; internal consistency of the exercise and coherence with the course content as a whole; correct use of spelling, grammar, and syntax; precision and accuracy of responses.	50%

Assessment Method	Description	Assessment Criteria	Weight in Final Grade
Computer Laboratory Tests (Directed Academic Activities)	Several assessments will be conducted throughout the second semester in computer laboratories. Students will be required to solve theoretical and practical questions based on specific case studies using specialized software.	Correct interpretation of each case study; selection of the appropriate statistical technique; correct solution of the case using computer software and appropriate presentation of results; fluent and accurate use of relevant language and terminology; appropriateness of results presentation and conclusions.	25%

Students following the continuous assessment system must obtain a minimum score of **3 out of 10** in each of the first two components (theoretical and practical examinations). If this requirement is met, the final grade will be calculated as the weighted average of the three assessment components according to the percentages indicated above.

The grading system used in this course complies with the provisions of Royal Decree 1125/2003 of 5 September, which establishes the European Credit Transfer and Accumulation System (ECTS) and the grading system for official university degrees throughout Spain. Accordingly, students will be assessed on a numerical scale from **0 to 10**, expressed to one decimal place, with the following qualitative classifications:

0.0-4.9: D. Fail (Suspenso)

5.0-6.9: Grade C (Aprobado)

7.0-8.9: Grade B (Notable)

9.0-10.0: Grade A (Sobresariente)

The "**Honours**" distinction (Matrícula de Honor) may be awarded to students obtaining a final grade of **9.0 or higher**. The number of honours distinctions awarded may not exceed **5% of the students enrolled in the course** during a given academic year, except when fewer than 20 students are enrolled, in which case a single honours distinction may be awarded.

If the number of eligible candidates exceeds the number of honours distinctions available, priority will be given to students with a final grade of **9.5 or higher**. Should a tie still remain, an additional assessment of knowledge may be conducted to determine the award recipients.

Once the grades for each assessment component have been published, the date, time, and venue for the review of the corresponding examinations and/or assessment activities will be announced.

The assessment will be subject to the regulations, recommendations, protocols, etc. approved by the University of Huelva regarding the use of Artificial Intelligence

7.2.2 Convocatoria II:

In the **Ordinary Examination Period II**, students who opted for the continuous assessment

system may retain the grades obtained in the **Computer Laboratory Tests (Directed Academic Activities)** and **Participation in Theory and Practical Sessions**, subject to agreement with the course instructor.

During this examination period, students will sit the assessments corresponding to the first two components of the course evaluation system (theoretical and practical examinations). The minimum required marks and the weighting assigned to each assessment component in the calculation of the final grade shall remain the same as those established for **Ordinary Examination Period I**.

7.2.3 Convocatoria III:

For the **Ordinary Examination Period III**, the same types of assessments and conditions as those specified under the **Final Single Assessment** system shall apply.

Students following the continuous assessment system must obtain a minimum score of **3 out of 10** in each of the first two assessment components (theoretical and practical examinations). Provided that this requirement is met, the final grade will be calculated as the weighted average of the three assessment components, using the percentages indicated in the table above.

7.2.4 Convocatoria extraordinaria:

For the **Extraordinary November Examination Period**, the same types of assessments and conditions as those specified under the **Final Single Assessment** system shall apply.

Students following the continuous assessment system must obtain a minimum score of **3 out of 10** in each of the first two assessment components (theoretical and practical examinations). Provided that this requirement is met, the final grade will be calculated as the weighted average of the three assessment components, according to the percentages indicated in the table above.

7.3 Evaluación única final:

7.3.1 Convocatoria I:

The single final assessment, which students may opt to take in accordance with the University of Huelva's assessment regulations (13 March 2019), will consist of a single written examination in which students must demonstrate their theoretical and practical knowledge of the subject in accordance with the syllabus set out in this guide. In addition, this single written examination may include questions relating to the student's familiarity with the specific software used during practical sessions in the computer lab; these may form part of the aforementioned examination or be structured as a separate examination in the computer lab. The mark obtained in this examination will account for 100% of the final mark for the course.

The weighting for each section of the exam will be: theory (30%), problems (50%) and practical-software (20%). To apply the above weightings, a minimum score of 3 out of 10 must be achieved in each of the first two sections (theory and practical).

Each of the tests will last a maximum of 2.5 hours, and the teaching materials required to sit the tests will be those available on the Moodle e-learning platform, which is accessible to all students

enrolled on the course.

Please note that in order to be eligible for this assessment method, students must have applied for it within the first 15 days of the start of the academic year (or of their enrolment in the module, if they enrolled at a later date). Students must submit their request for this assessment method to the course coordinator; this may be done electronically (by email) and must be expressly acknowledged by the coordinator upon receipt.

7.3.2 Convocatoria II:

Students who opted for the single final assessment, or those who opted for continuous assessment but did not pass it, or who have not agreed with the lecturer to transfer the mark obtained in the section 'Computer Lab Tests (Supervised Academic Activities)', will be subject to the same type of tests and conditions as those specified in the section on the single final assessment for the first ordinary examination period.

7.3.3 Convocatoria III:

In this examination session, students will face the same type of assessments and criteria as those specified in the section on the single final assessment for the first ordinary examination session.

7.3.4 Convocatoria Extraordinaria:

In this examination session, students will face the same type of assessments and criteria as those specified in the section on the single final assessment for the first ordinary examination session.

Esta guía no incluye organización docente semanal orientativa