



Estadística Aplicada /
Applied Statistics

Grado en Creación,
Administración y Dirección
de Empresas



UNIVERSIDAD
NEBRIJA

SYLLABUS

Course: Estadística Aplicada / Applied Statistics

Degree: Grado en Creación, Administración y Dirección de Empresas

Type: Básica

Languages: Castellano e inglés

Modality: Presencial/a distancia

Credits: 6

Year: 2º

Semester: 2º

Professors: Ercoreca Llano, Ainhoa; Martín Rodríguez, Álvaro Antonio; López Gallego, Julián

1. COMPETENCES AND LEARNING OUTCOMES

1.1. Competences

- Basic competences: CB1, CB2, CB3, CB4, CB5
- General competences: CG1, CG2, CG4, CG6, CG7, CG8, CG9, CG10, CG11, CG12, CG13, CG14, CG15, CG16, CG17, CG21, CG22
- Specific competences: CE1, CE2, CE3, CE8, CE9, CE11, CE12, CE13, CE17, CE20, CE22, CE25, CE38

1.2. Learning outcomes

- Know, associate and apply the basic elements of business analysis.
- Be able to express oneself correctly in oral and written form in Spanish.
- Be able to express oneself correctly orally and in writing in English.
- Each subject of this module links its specific learning outcomes with the rest of the subjects of this report (i.e.: fundamentals of economics - economic analysis).

2. CONTENTS

2.1. Prerequisites

None.

2.2. Contents

La asignatura tiene como objeto la recogida, recopilación y reducción de datos a unas pocas medidas que permitan conocer las características existentes de una muestra y la inferencia, en su caso, de los resultados obtenidos a la población de donde se extrajo la muestra. Para conseguir estos objetivos, se estudian las medidas de posición y dispersión, se analizan las distribuciones conjuntas de frecuencias (regresión y correlación), se realiza el análisis clásico de series temporales y métodos de descomposición, se calculan números índices, se consideran los modelos de distribución de probabilidad y se estudian las distintas técnicas y herramientas de inferencia estadística (estimación y contraste de hipótesis). Se facilita el conocimiento de programas informáticos como herramientas para el tratamiento y análisis de la información.

The subject is aimed at collecting, collecting and reducing data to a few measures that allow to know the existing characteristics of a sample and the inference, where appropriate, of the results obtained to the population from where the sample was extracted. In order to achieve these objectives, the measurements of position and dispersion are studied, the joint frequency distributions are analyzed (regression and correlation), the classical analysis of time series and decomposition methods is performed, numbers are calculated indexes, the probability distribution models are considered and the different techniques and tools of statistical inference

2.3. Covered topics

1. INTRODUCTION, BASIC NOTIONS AND CONCEPTS Estadística. Clasificación.
 - Fractions, ratios and percentages (review)
 - Concept of individual, population (universe) and sample.
 - Variables and attributes
 - Scales or levels of measurement
 - Stages of statistical analysis
2. DATA COLLECTION
 - Fundamental concepts.
 - Sampling methods: probability sampling, non-probability sampling, other sampling.
 - Data sources: primary and secondary.
3. DATA SHEETS
 - Interpretation
4. GRAPHICAL REPRESENTATIONS AND FREQUENCY DISTRIBUTIONS
 - Frequency distributions of variables and attributes. Graphical representation
 - Measures of position
 - Measures of dispersion
 - Measures of shape
 - Measures of concentration: Gini index. Lorenz curve
 - Exercises on unidimensional analysis of variables
5. INDEX NUMBERS
 - Classification of index numbers. Simple and composite indexes
 - Deflation of economic series
6. TWO-DIMENSIONAL VARIABLES
 - Two-dimensional frequency distribution
 - Marginal distributions
 - Conditional distributions
 - Linear correlation and independence
 - Linear regression model
7. GAUSSIAN AND LAPLACE DISTRIBUTIONS
 - Normal distribution. Distribution function and properties
 - Use of tables
8. STATISTICAL INFERENCE: ESTIMATION
 - Introduction
 - Point estimation
 - Estimation of the population mean by confidence intervals
 - Estimating population proportion by confidence intervals
 - Sampling in finite populations
 - Confidence intervals. Sampling error. Sample size determination
9. STATISTICAL INFERENCE: TESTING OF HYPOTHESES
 - - Introduction
 - - Implications for the decision on a hypothesis
 - - Parametric hypothesis testing
 - - Testing non-parametric hypotheses

2.4. Individual/group assignments

During the course, some of the following activities, practices, reports or projects, or others of similar objectives or nature, may be developed:

- AAD 1: Practical exercises on introductory topics.
- AAD 2: Practical exercises on one-dimensional statistics.
- AAD 3: Practical exercises on index numbers.
- AAD 4: Practical exercises on two-dimensional statistics.
- AAD 5: Practical exercises on frequency distributions.
- AAD 6: Practical exercises on statistical inference.

2.5. Learning Activities

Learning Activities:		
In-Person Learning	Horas	Presencialidad %
A1 Lectures	45	100%
A2 Discussion Sections	9	100%
A3 Mentoring	9	100%
A4 Individual / Group Assignments	18	0%
A5 Online Assignments	6	50%
A6 Extracurricular Materials	6	0%
A7 Self Study	51	0%
A13 Exam	6	100%
Online Learning	Horas	Presencialidad %
A9 Asynchronous Classes	12	0%
A10 Discussion Sections, Synchronous or Asynchronous	12	0%
A3 Mentoring	24	0%
A4 Individual / Group Assignments	18	0%
A5 Online Assignments	12	0%
A6 Extracurricular Materials	12	0%
A7 Self Study	54	0%
A13 Exam	6	100%

Methodologies:

In person: MD1, MD2, MD3, MD4, MD5

Online: MD1, MD2, MD3, MD4, MD5

3. GRADING RUBRICS

3.1. Grades

Grades are calculated as follows:

- 0 - 4,9 Fail (SS)
- 5,0 - 6,9 Pass (AP)
- 7,0 - 8,9 Notable (NT)
- 9,0 - 10 Outstanding (SB)

The mention of "Matrícula de Honor" may be awarded to students who have obtained a grade equal to or greater than 9.0.

3.2. Evaluation criteria

Ordinary session

Modality: In person

Evaluation Criteria	Porcentaje
S1 Attendance and Participation	10%
S2 Individual / Group Assignments	30%
S3 Midterm Exam (On-Site)	10%
S4 Final Exam (On-Site)	50%

Modality: Online

Evaluation Criteria	Porcentaje
S10 Participation (Forums and Supervised Activities)	10%
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	60%

Extraordinary session

Modality: In person

Evaluation Criteria	Porcentaje
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

Modality: Online

Evaluation Criteria	Porcentaje
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

Restricciones y explicación de la ponderación: Para poder hacer media con las ponderaciones anteriores será necesario obtener al menos una calificación de 5 en la prueba final.

Asimismo, será potestad del profesor solicitar y evaluar de nuevo las prácticas o trabajos escritos, si estos no han sido entregados en fecha, no han sido aprobados o se desea mejorar la nota obtenida en ambas convocatorias.

En todo caso, la superación de cualquier materia/asignatura está supeditada a aprobar las pruebas finales presenciales e individuales correspondientes.

3.3. Restrictions

Minimum Grade

To be able to qualify for inclusion of the above evaluation criteria percentages in the calculation of the final grade, it is necessary to obtain at least a grade of 5.0 in the final test.

Attendance

Student who have missed more than 25% class meetings (unexcused) may be denied the right to take the final exam in the ordinary session.

Writing Standards

Special attention will be given to written assignments, as well as to exams, regarding both presentation and content in terms of grammatical and spelling aspects. Failure to meet the minimum acceptable standards may result in point deduction.

3.4. Plagiarism warning

Nebrija University will not tolerate plagiarism under any circumstances. Reproducing content from sources other than a student's own work (the internet, books, articles, and peers' work, among others) without proper citation will be considered plagiarism.

If these practices are detected, they will be considered a serious offense, and the sanctions provided for in the Student Regulations may be applied.

4. BIBLIOGRAPHY

Required reading:

ANDERSON D., SWEENEY D., WILLIAMS, T., FREEMAN, J. SHOESMITH, E. (2017). Statistics for Business and Economics, Cengage Learning.

NEWBOLD P., WILLIAM C., THORNE B. (2022), Statistics for Business and Economics, Global Edition. Pearson Education Limited.

Recommended reading:

SIEGEL A.F., WAGNER M.R. (2021), Practical Business Statistics. Academic Press.

CASAS SÁNCHEZ, J. M., SANTOS PEÑAS, J. (2002). Introducción a la estadística para la administración y dirección de empresas. 2ª edición. Ed. Centro de Estudio Ramón Areces.

CASAS SÁNCHEZ, J. M. Y OTROS (2006). Ejercicios de estadística descriptiva y probabilidad. Ed. Pirámide.

MARTÍN CASTEJÓN, P. J.; LAFUENTE LECHUGA, M. y FOURA MARTINEZ, U. (2015). Guía práctica de Estadística aplicada a la empresa y al marketing.

LIND, D. (2012). Estadística Aplicada para Negocios y Economía. Madrid. Ed. Mc Graw Hill

PEÑA, D. y ROMO, J. (2003). Introducción a la estadística para las Ciencias Sociales. Madrid, Ed. McGraw Hill.

ROOS, S. (2008). Introducción a la Estadística. Barcelona, Reverté S.A.

TRIOLA, M.F (2018). Estadística. Ed. Pearson.

MARTÍN PLIEGO, F.J. (2004). Introducción a la estadística económica y empresarial (Teoría y práctica), Ed. AC.

SÁNCHEZ FIGUEROA, C.; CASAS SÁNCHEZ, J.M., CORTIÑAS VÁZQUEZ, P. (2018). Inferencia estadística para Economía. Ed. Universitaria Ramón Areces.