

DATOS BÁSICOS DE LA GUÍA DOCENTE:

Materia:	ESTADÍSTICA		
Identificador:	32258		
Titulación:	GRADUADO EN ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS (CA)		
Módulo:	MÉTODOS CUANTITATIVOS PARA LA EMPRESA		
Tipo:	MATERIA BASICA		
Curso:	2	Periodo lectivo:	Primer Cuatrimestre
Créditos:	6	Horas totales:	150
Actividades Presenciales:	65	Trabajo Autónomo:	85
Idioma Principal:	Inglés	Idioma Secundario:	Castellano
Profesor:	OZCELIK , NADIN (T)	Correo electrónico:	nozcelik@usj.es

PRESENTACIÓN:

The statistics course, applied to the field of economics and business administration, aims to provide adequate techniques to promote the correct interpretation of economic data.

This course aims to develop the necessary skills and competences by providing adequate statistical methods and techniques for the most accurate analysis of economic data, which is crucial prior to any decision-making process in the business environment. Furthermore, this course aims to offer the essential techniques to support and enhance other courses and modules that require statistical skills.

COMPETENCIAS PROFESIONALES A DESARROLLAR EN LA MATERIA:

Competencias Generales de la titulación	G01	Capacidad de análisis y síntesis de las informaciones obtenidas de diversas fuentes
	G02	Resolución creativa y eficaz de los problemas que surgen en la práctica diaria, con el objetivo de garantizar los niveles máximos de calidad de la labor profesional realizada
	G03	Capacidad de organización y planificación del trabajo en el contexto de la mejora continua
	G04	Uso de las tecnologías de la información y la comunicación
	G10	Capacidad de aplicar los conocimientos adquiridos, adaptándolos a las exigencias y particularidades de cada situación y persona
	G12	Capacidad de incorporar la investigación científica y la práctica basada en la evidencia como cultura profesional, actualizando conocimientos y destrezas de manera continua.
	G13	Capacidad de desarrollar estrategias de aprendizaje a lo largo de toda la vida para que sea capaz de adquirir nuevos conocimientos, a través del desarrollo su propio itinerario académico y profesional
	G14	Capacidad de comunicación oral y escrita en el idioma materno y en inglés, según las necesidades de su campo de estudio y las exigencias de su entorno académico y profesional.
Competencias Específicas de la titulación	E11	Conocer las técnicas y métodos de naturaleza cuantitativa aplicables al diagnóstico, análisis y prospección empresarial (matemáticas, estadística y econometría) siendo capaz de utilizar la herramienta más adecuada en cada situación.
Resultados de Aprendizaje	R01	Desarrollar análisis de datos mediante software estadístico
	R02	Valorar e interpretar la información estadística que se transmite en documentos científicos
	R03	Redactar y exponer análisis estadísticos de datos.
	R04	Emplear las técnicas estadísticas básicas para el análisis de datos
	R05	Identificar y describir los elementos básicos de Estadística descriptiva e inferencial.

REQUISITOS PREVIOS:

It is recommended to have successfully completed Business mathematics (32252) course.

PROGRAMACIÓN DE LA MATERIA:

Observaciones:

The course programme is composed of three main units:

Contenidos de la materia:

1 - Descriptive statistics
1.1 - Introduction to statistics
1.2 - Frequency tables, frequency distributions, and graphic presentation
1.3 - Measures of central tendency, measures of dispersion and grouped data
1.4 - Describing data: Displaying and exploring data
2 - Probability
2.1 - Probability concepts
2.2 - Discrete probability distributions
2.3 - Continuous probability distributions
3 - Inferential statistics
3.1 - Estimation and confidence intervals
3.2 - Hypothesis testing

La planificación de la asignatura podrá verse modificada por motivos imprevistos (rendimiento del grupo, disponibilidad de recursos, modificaciones en el calendario académico, etc.) y por tanto no deberá considerarse como definitiva y cerrada.

Previsión de actividades de aprendizaje:

Semana	Unidad/Bloque/Tema	Sesiones presenciales	Horas	Actividades de trabajo autónomo	Horas
1	09/09/2024 1.1. Introduction to statistics	Introductory week. Presenting teaching methods, evaluation criteria, assignment deadlines, use of the PDU.	4	Review theory and work on exercises	2
2	16/09/2024 1.2. Frequency tables, frequency distributions, and graphic presentation	Theoretical class and practical exercises. Intro to SPSS.	4	Review theory and work on exercises	4
3	23/09/2024 1.3. Measures of central tendency, measures of dispersion and grouped data	Theoretical class and practical exercises.	4	Review theory and work on exercises	4
4	30/09/2024 1.3. Measures of central tendency, measures of dispersion and grouped data	Theoretical class and practical exercises.	4	Review theory and work on exercises	4
5	07/10/2024 1.4. Describing data: Displaying and exploring data	Theoretical class and practical exercises. Group assignment by using SPSS.	4	Review theory and work on exercises	4
6	14/10/2024 1. Descriptive statistics	Exercises using SPSS. Review unit 1. Written test 1.	4	Review theory and work on exercises Group assignment by using SPSS	6
7	21/10/2024 2.1. Probability concepts	Theoretical class and practical exercises.	4	Review theory and work on exercises	4
8	28/10/2024 2.1. Probability concepts 2.2. Discrete probability distributions	Theoretical class and practical exercises.	4	Review theory and work on exercises Group assignment by using SPSS	4
9	04/11/2024 2.2. Discrete probability distributions 2.3. Continuous probability distributions	Theoretical class and practical exercises.	4	Review theory and work on exercises	4
10	11/11/2024 2.3. Continuous probability distributions	Theoretical class and practical exercises. Review unit 2.	4	Review theory and work on exercises Group assignment by using SPSS	4
11	18/11/2024 2. Probability	Written test 2 Theoretical class and practical exercises.	4	Review theory and work on exercises Group assignment through SPSS	6

12	25/11/2024	3.1.Estimation and confidence intervals	Theoretical class and practical exercises.	4	Review theory and work on exercises	4
13	02/12/2024	3.1.Estimation and confidence intervals	Theoretical class and practical exercises.	4	Review theory and work on exercises Group assignment by using SPSS	4
14	09/12/2024	3.2.Hypothesis testing	Theoretical class and practical exercises.	4	Review theory and work on exercises Group assignment by using SPSS	6
15	16/12/2024	3.2.Hypothesis testing	Theoretical class and practical exercises. Presenting the group assignment carried out by SPSS.	4	Review theory and work on exercises	4
16	23/12/2024		Christmas break	0	Review theory and practical exercises	4
17	30/12/2024		Christmas break	0	Review theory and practical exercises	5
18	06/01/2025	3.Inferential statistics	Review unit 3. Written test 3.	2	Review theory and work on exercises	5
19	13/01/2025	1.Descriptive statistics 2.Probability 3.Inferential statistics	Course review. Students will retake failed parts.	2	Review theory and practical exercises	5
20	20/01/2025	1.Descriptive statistics 2.Probability 3.Inferential statistics	Students will retake failed parts.	1	Review theory and work on exercises	2
HORAS TOTALES PRESENCIALES:				65	HORAS TOTALES T. AUTÓNOMO:	85

Observaciones para alumnos exentos a la asistencia obligatoria por circunstancias justificadas:

Those students who are unable to attend 80 % of classes during the semester due to *justified reasons (previously communicated to the Degree Programme Coordinator)* will have to get in contact with the lecturer by September 26. Those students are required to keep up with the subject by completing the readings, assignments, and written tests specified in the PDU. Failure to achieve a minimum score of 5 out of 10 on all tests will require to retake the failed parts during the first or second call.

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 on the abovementioned date (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*.

METODOLOGÍAS Y ACTIVIDADES DE ENSEÑANZA Y APRENDIZAJE:

Metodologías de enseñanza-aprendizaje a desarrollar:

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 conduct a follow-up of 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 classes:** Main concepts of the subject are presented. Besides, there might slides with questions and/or problems which are solved during the class discussions.
- **Practical exercises:** Those exercises aim to reinforce the knowledge. Active participation of students is encouraged.
- **Group assignment:** Students carry out group assignment using SPSS for statistical analysis. Late submissions of assignments will not be accepted

- **Written tests:** To ensure understanding of key statistical concepts, written tests are conducted on each topic (descriptive statistics, probability, and inferential statistics).

- **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.

Integración de lengua inglesa en la materia:

The subject will be taught in English. The material provided and the lectures will also be in English.

Internationalization is one of the main objectives of CESUGA. The teaching staff will be gradually introducing materials, texts, audio-visual 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.

All activities in this subject will be carried out in English. These activities can be seen in the provisional activity plan and are marked: basically, practical exercises, use of sources in English, etc.

Volumen de trabajo del alumno:

Modalidad organizativa	Métodos de enseñanza	Horas estimadas
Actividades Presenciales	Clase magistral	43
	Casos prácticos	6
	Resolución de prácticas, problemas, ejercicios etc.	8
	Exposiciones de trabajos de los alumnos	2
	Actividades de evaluación	6
Trabajo Autónomo	Asistencia a tutorías	8
	Estudio individual	47
	Preparación de trabajos individuales	10
	Preparación de trabajos en equipo	8
	Tareas de investigación y búsqueda de información	4
	Lectura libre	2
	Otras actividades de trabajo autónomo	6
Horas totales:		150

SISTEMA DE EVALUACIÓN:

Obtención de la nota final:

Otros (Otros (pruebas escritas 70%, trabajos individuales 10% y trabajos en equipo 20%):	100	%
TOTAL	100	%

Observaciones específicas sobre el sistema de evaluación:

- **Three written tests**, one on each topic (20, 30 and 20 % each).
- **Group assignment** through SPSS (20 %). Late submissions of assignments will not be accepted.
- **Individual coursework** (10 %) will involve tasks and exercises carried out in class.

Students must pass all written tests with a minimum of 5 as a mark. Not obtaining this mark in a part of the assessment will force the student to retake the test in January (first call). Students who are retaking the exams in July will have to retake all failed parts.

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.

The evaluation system on second call will be identical to that of first call, with the same percentages. All those students, therefore, who do not pass the subject in the first call will be either because they did not pass the written tests and/ or assignments. The marks of the written tests and the individual assignments will be kept if they have been passed, keeping the same percentages on the final mark. You must retake the one or those indicated by the lecturer and resubmit them in the second call. The applied percentages will be the same as those indicated in the first call. Therefore, the student must attend the exam revision of the first call to know exactly what to submit on the second call. It is the student's responsibility to contact the lecturer for this purpose.

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](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.

Métodos de evaluación:

Instrumento de evaluación	Resultados de Aprendizaje evaluados	Criterios de evaluación	%
Written tests	R02 R03 R04 R05	Tests on the three main topics: descriptive statistics, probability and inferential statistics.	70
Group coursework	R01	Develop data analysis through SPSS	20
Individual coursework	R01 R02 R03 R04 R05	Individual tasks carried out in class	10
Peso total:			100

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BIBLIOGRAFÍA Y DOCUMENTACIÓN:

Bibliografía básica:

Álvarez Sainz, María. Estadística. Deusto. 1994.

MOORE, David S. The Basic Practice of Statistics. 5th Edition. W.H. Freeman and Company. 2010

PEÑA, Daniel. Fundamentos de estadística. Editorial: Alianza, 2008

Bibliografía recomendada:

CAMPBELL, Michael. Statistics at square one. Editorial: Wiley, 2009

DEVORE, Jay. Probabilidad y estadística para ingeniería y ciencias. Editorial: Paraninfo, 2009.
ESTEBAN, Jesús. Inferencia estadística. Editorial: Garceta, 2010
EVANS, Michael. Probabilidad y estadística. Editorial: Reverté, 2005
FERNANDEZ, M ^a José. 225 problemas de estadística aplicada a las ciencias sociales. Ejercicios prácticos para alumnos. Editorial: Síntesis, 1996
FREEDMAN, David. Estadística. Editorial: Antoni Bosch, 1993
HAIR, J., et al. Multivariate Data Analysis. Pearson. 2007
LIND, D., et al. Statistical Techniques in Business and Economics. Pearson. 2018
LIPSCHUTZ, Seymour. Introducción a la probabilidad y estadística. Editorial: Mc Graw Hill, 2000
MONTERO, José María. Estadística descriptiva. Editorial: Paraninfo, 2007
PEREZ, César. Econometría básica : aplicaciones con EViews, STATA, SAS y SPSS. Editorial: Ibergaceta, 2012
PEREZ, César. Estadística aplicada a través del Excel. Editorial: Pearson, 2011
ROSS, Sheldon. Introducción a la estadística. Editorial: Reverté, 2007
SOLANAS, Antonio. Estadística descriptiva en ciencias del comportamiento. Editorial: Thomson, 2005
SPIEGEL, Murray. Probabilidad y estadística. McGraw Hill, 2010.
URIEL, Ezequiel. Introducción al análisis de series temporales. Editorial: AC, 2005

Páginas web recomendadas:

Eurostat (statistical office of the European Union)	epp.eurostat.ec.europa.eu
Instituto Aragonés de Estadística	www.aragon.es/DepartamentosOrganismosPublicos/Organismos/InstitutoAragonesEstadistica
Instituto Galego de Estatística	www.ige.eu
Instituto Nacional de Estadística	www.ine.es
International Monetary Fund	www.imf.org/external/index.htm
Ministerio de Industria Comercio y Turismo	www.minetur.gob.es/
Organization for Economic Cooperation and Development (OECD)	https://www.oecd.org/en/data.html
UCLA (for SPSS Tutorials)	https://stats.oarc.ucla.edu/other/mult-pkg/seminars/#SPSS
World Trade Organisation	www.wto.org/indexsp.htm

OBSERVACIONES: