



Universitat de Lleida

DEGREE CURRICULUM

ADVANCED STATISTICS

Coordination: GOMEZ ADILLON, MARIA JESUS

Academic year 2023-24

Subject's general information

Subject name	ADVANCED STATISTICS			
Code	101314			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Business Administration and Management	2	COMPULSORY	Attendance-based
	Double bachelor's degree: Degree in Business Administration and Management and Degree in Tourism	3	COMPULSORY	Attendance-based
	Double bachelor's degree: Degree in Computer Engineering and Degree in Business Administration and Management	3	COMPULSORY	Attendance-based
	Double bachelor's degree: Degree in Law and Degree in Business Administration and Management	3	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRAULA		TEORIA
	Number of credits	2.4		3.6
	Number of groups	2		2
Coordination	GOMEZ ADILLON, MARIA JESUS			
Department	ECONOMICS AND BUSINESS			
Important information on data processing	Consult this link for more information.			
Language	Català 95.0 Anglès 2.5 Castellà 2.5			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GOMEZ ADILLON, MARIA JESUS	mjesus.gomez@udl.cat	12	

Subject's extra information

It is advisable to have passed the Basic Statistics subject.

ADVANCED STATISTICS is a continuation of BASIC STATISTICS and completes the set of knowledge that a graduate must have about Statistics.

ADVANCED STATISTICS is necessary to be able to adequately follow ECONOMETRICS.

Learning objectives

See Competences

Competences

University of Lleida strategic competences

- Correctness in oral and written language.
 - To use the right statistical terminology in doing the activities.
- Master Information and Communication Technologies.
 - To use basic ICT resources to study the subject.
 - To use different computer programs effectively for descriptive statistical data processing.

Degree-specific competences

- Apply instrumental techniques to the analysis and solution of business problems and to the taking of decisions.
 - To know the difference between types of sampling.
 - To understand the concepts of point estimation and interval estimation.
 - To know how to apply confidence intervals for some population parameters.
 - To recognise the different types of statistical hypothesis.
 - To know how to make parametric and non-parametric comparisons of hypotheses.
 - To know how to apply multivariate analysis techniques.
- Elaborate, interpret and audit the economical-financial information of entities and individuals, and provide them with assessment.

Degree-transversal competences

- Ability to criticise and be self-critical.
- Ability to organise and plan.
 - To know how to carry out statistical sampling processes by inference and multivariate analysis.
- Ability to analyse and synthesise.
 - To properly interpret statistical inference processes and assess the risks and errors that may be made.
 - Act in accordance with rigour, personal compromise and in a quality orientated way.

Subject contents

Topic 1. Statistical sampling

1.1. Introduction to sampling and point estimation.

- 1.2.Sampling methods.
- 1.3.Generic sample. Concept of estimator.
- 1.4.Distributions of some statistics.
- 1.5.Distributions deduced from the normal distribution.
- 1.6.Properties of estimators.

Topic 2. Interval estimation

- 2.1.Notion of confidence interval.
- 2.2 Confidence interval for the mean and operations with means.
- 2.3 Confidence interval for the variance and operations with variances.
- 2.4.Confidence interval for the proportion and operations with proportions.
- 2.5.Determining the size of a sample.

Topic 3. Parametric comparison of hypotheses

- 3.1.Hypothesis comparison tools.
- 3.2.Types of error, level of significance and power of the comparison.
- 3.3.Comparison using the mean and operations with means.
- 3.4.Comparison using the variance and operations with variances.
- 3.5.Comparison by proportion and operations with proportions.
- 3.6. Analysis of varianc

Topic 4. Non-parametric comparison of hypotheses

- 4.1.Introduction
- 4.2.Theoretical distribution fit test
- 4.3.Independence test
- 4.4.Runs test
- 4.5.Signs test
- 4.6Wilcoxon's test
- 4.7Mann-Whitney's U test

Topic 5. Extensions

- 5.1. Multivariate analysis
- 5.2. Simple linear regression analysis

Methodology

In-person activities:

Lectures of the topics' content with explanation of theory, examples and exercises.

Practical classes: planning and solving activities using different softwares.

Tutoring: review of contents and resolution of doubts, defense or discussion of cases.

Not in-person activities:

Study of the theory, solving examples, exercises and activities, both manually and with computer support, and preparation of the assessment tests.

Development plan

Dates (Weeks)	Block	In-person Activity
1-17	Block 1	A1: First assessment activity: Activities to be developed throughout the semester (20%)
1-8	Block 2	Subjects 1, 2 and 3: theory explanation and problem solving
9		A2: Second assessment activity (40%)
10- 15	Block 3	Subjects 4 and 5: theory explanation and problem solving
16-17		A3: Third assessment activity (40%)
19		A4: Fourth assessment activity (re-evaluation)

Evaluation

Block	Assessment Activity Criteria	%	Dates
Block 1	1st Activity (A1): Activities to deliver	20	Throughout the semester
Block 2	2nd Activity (A2): Written assessment of subjects 1-3	40	Week 9: https://grauade.udl.cat/export/sites/Ade/ca/.galleries/Examens/Examens_GADE_1C_2023-24_s9_CE20230711.pdf
Block 3	3rd. Activity (A3): Written assessment of subjects 4-5	40	Week 16 or 17: https://grauade.udl.cat/export/sites/Ade/ca/.galleries/Examens/Examens_GADE_1C_2023-24_s16-17_CE20230711.pdf

Block	Assessment Activity Criteria	%	Dates
	4th. Activity (A4): Assessment activity (re-evaluation)		Week 19: https://grauade.udl.cat/export/sites/Ade/ca/.galleries/Examens/Examens_GADE_1C_2023-24_s19_CE20230711.pdf

Assessment criteria

The activities (A1 A2 and A3) are part of the continuous evaluation and have the weight indicated in the final grade. Those students who equal or exceed a final weighted average score of 5 out of 10 will have passed the course by continuous assessment and do not have to do activity 4 (A4) which is a re-evaluation. Activity A4 the re-evaluation and is intended for students who have not passed the continuous assessment. They will have to take the examination of the content of activity 2 and/or activity 3, in which they have not reached the rating of 5 out of 10.

Alternative/Single assessment

In the event that a student documents his/her inability to attend the activities scheduled within the continuous assessment (due to paid work, second or subsequent enrollment in the subject, reconciliation of work and family life and mobility stays) may opt for a single test to validate skills and knowledge that will be carried out on the day and at the time established in the Degree assessment calendar for activity 3 of the continuous assessment (weeks 16 or 17). The request for this evaluation modality must be made before October 20, 2023 with documentary evidence and, once made, it cannot be modified. In this case, the re-evaluation will also take place on week 19 (according to the exam calendar published on the website of the Degree in ADE).

On the website of the Faculty there is the document that the students must fill out and give to the teacher responsible for the subject. <http://www.fdet.udl.cat/export/sites/Fdet/ca/.galleries/Documents/Secretaria-documents/Sollicitud-davaluacio-alternativa.pdf>

Carrying out the exams

You must come to the tests with an official document that proves the student's identity (DNI, Passport,...) and it is not possible to bring unauthorized electronic devices to the tests (mobile phones, programmable calculators,...).

Plagiarism

Article 9 of the Assessment Regulations states that the student cannot use unauthorized means or fraudulent mechanisms during the assessment activities. The student who uses any fraudulent means related to the test and/or carries unauthorized electronic devices, will be subject to the consequences provided for in these regulations or in any internal regulations of the UdL.

Article 43 of the UdL Coexistence Regulations describes the applicable sanctions, which include, among others and depending on the seriousness of the fault, the loss of the right to be assessed for the subject, the loss of registration of one semester or one year or expulsion for up to three years.

Bibliography

BIBLIOGRAPHY AND OTHER SOURCES OF INFORMATION

- Baró Llinàs, J., *Inferència Estadística*, Ed. Parramón. Barcelona, 1993
- Newbold, Paul, i altres. *Estadística para administración y economía*, Ed. Prentice Hall, 2008
- Material en Web de l'assignatura