

## Statistical Inference and Data Analysis

UGRA\_005017

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Departments	Department of Operations, Innovation, and Data Sciences
Language	English, Spanish, Catalan
ECTS	6
Lead faculty	Roche Valles, David - david.roche@esade.edu Sierra Olivera, Vicenta - vicenta.sierra@esade.edu

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### Course objectives

Upon successfully completing this subject, students will be able to:

- Use statistical reasoning for its practical application.
- Make decisions in uncertain contexts.
- Connect this subject matter with other content they've studied and with their future professional careers.
- Make inferences regarding unknown population parameters.
- Identify the most appropriate statistical technique whether to make estimates or forecasts, segment or find clusters.
- Test hypotheses based on population parameters or distributions.
- Understand the limits of the different techniques in whatever context they are applied.
- Use statistical software to make data-driven decisions.

### Prior knowledge

Descriptive Statistics and Probability

### Prerequisites

Descriptive Statistics and Probability

### Recommended courses

Descriptive Statistics and Probability

### Description

### Course contribution to the program

Statistics is a fundamental tool for decision-making in settings in which the quantity of data available and/or the degree of uncertainty do not permit extracting the information they contain directly. This subject familiarizes students with some of the theoretical and practical principles which represent a foundation to be able to make forecasts, carry out estimations, and test hypotheses, all to transform information and data into valuable knowledge and insights. In addition to the most common uni- and bivariate inferential techniques, this subject also serves to examine some useful multivariate techniques to solve substantial problems in other contexts, such as marketing and human resources.

### Bibliography

Newbold, P.; Carlson, W. L.; Thorne, B. *Estadística para administración y economía*. Pearson - Prentice Hall (book)

Hair, J.F.; Anderson, R.E.; Tatham, R.L; Black, W.C. *Análisis multivariante*. Pearson - Prentice Hall (book)

## Activities

Online educational activities

Keeping up with micro-learnings designed on the Snackson platform

Analytical exercises

Problem-solving exercises

Practical exercises with professional software

Decision-making exercises

## Content

#	Module
1	SAMPLE DISTRIBUTIONS
2	ESTIMATIONS
3	FOUNDATIONS OF HYPOTHESIS TESTING
4	NON-PARAMETRIC TESTS
5	STATISTICAL DEPENDENCE
6	STATISTICAL INTERDEPENDENCE

## Assessment

Tool	Assessment method	Category	%
Tests	Ongoing assessment	Ordinary round and retake	20.00 %
Written and/or oral exams	Exam on Statistical Inference content	Ordinary round	40.00 %
Written and/or oral exams	Exam on Multivariate content	Ordinary round	40.00 %
Written and/or oral exams	Retake exam	Retake	80.00 %

## PROGRAMS

BBA20-Bachelor of Business Administration (BBA) (Undergraduates: Business)  
BBA20 Year 2 (mandatory)

BBA23-Bachelor of Business Administration (BBA) (Undergraduates: Business)  
BBA23 Year 2 (mandatory)

BBE20-Bachelor of Business Administration (BBA) (Undergraduates: Business)  
BBE20 Year 1 (elective)  
BBE20 Year 2 (elective)

DBAI21-Double Degree in Business Administration and Artificial Intelligence for Business (Undergraduates: Business)  
DBAI21 Year 2 (mandatory)

DBAI23-Double Degree in Business Administration and Artificial Intelligence for Business (Undergraduates: Business)  
DBAI23 Year 2 (mandatory)

GBD20-Double Degree in Business Administration and Law (Undergraduates: Law)  
GBD20 Year 2 (mandatory)

GBD23-Double Degree in Business Administration and Law (Undergraduates: Law)  
GBD23 Year 2 (mandatory)