TEACHING GUIDE - 2026-2027

Descriptive Statistics & Probability

UGRA_003360

Departments	Data, Analytics, Technology and Artificial Intelligence (DATA), Dept. of Operations, Innovation & Data Sciences
Teaching Languages	English, Spanish, Catalan
ECTS	6
Teacher responsible	Jordi Montserrat Adell - jordi.montserrat4@esade.edu

Course Goals

Upon completing this course, students should be able to:

- Apply statistical reasoning to practical situations.
- Understand various branches of Statistics, along with their concepts and techniques, to use them appropriately.
- Connect this subject to other courses and their future professional careers.
- Summarize data using descriptive, univariate, and bivariate statistical techniques.
- Use probability calculations and models for decision-making.
- Prepare descriptive statistical reports using Excel.
- Ethically apply the studied techniques.

Previous knowledge

- The concepts of Real functions, Continuity, Differentiability, Definite integral, and Matrix calculus.
- The applications of the previous concepts to a wide range of situations.

Prerequisits

A solid understanding of mathematics, including calculus and algebra, will be necessary. In particular, knowledge of matrices, functions, probabilities, and set theory will be necessary to follow the course and complete the different tasks.

Teaching methodology

To achieve the objectives of this course, the methodology combines independent study, group work, and class sessions. The independent study component helps students develop competencies such as self-management. Group work involves preparing exercises and participating in team-oriented assessments, which are highly valued in today's working environment. Class sessions will be divided into lectures and participatory sessions where

students will work individually or in small groups. Excel will be used throughout the course to analyze data and summarize information.

Description

Course contribution to program

This course makes a significant contribution to the program by equipping future managers with the analytical tools and techniques necessary for effective decision-making, risk assessment, performance measurement, and strategic planning, all of which are essential in today's data-driven world. Additionally, the course enhances students' ability to interpret and communicate solutions to data analysis problems clearly and effectively, fostering better understanding and collaboration among team members.

Short description

This course provides a comprehensive introduction to statistics, focusing on the fundamental concepts of descriptive statistics and probability. Students will learn to analyze and interpret data, understand the role of random variables in statistical modeling, and apply these concepts to practical business scenarios. By mastering these skills, future managers will be well-equipped to make informed decisions and effectively communicate data-driven insights

Bibliography

Paul Newbold, Statistics for business and economics global edition, LONGMAN, 9781292436845 (Book)
Jim Freeman, Statistics for Business and Economics, EMEA, 9781473768451 (Book)

Activities

Analytical exercises
Exercises are solved individually at home. These exercises will be discussed, and any doubts will be addressed in class.

To help students in the comprehension of each topic they solve and analyse in groups more advanced problems.

Written and/or oral exams
A final exams will take place at the end of the course to assess each student's knowledge about the topics covered in the course.

Other
Lecture sessions where professors will introduce the framework and contend of each topic .

Quizzes/tests
At the end of each Unit each student will answer and submit an individual assessment

Practical exercises with professional software
Excel will be used as the main course tool. Two practice sessions will be devoted to introducing Excel.

Case study resolution
Participatory sessions where real case examples will be introduced. Students work in groups. Each group will solve and submit the case resolution.

Content

#	Topic
1	Descriptive statistics: Unidimensional descriptive statistics (summary tables and graphs). Unidimensional descriptive statistics (central tendency and variability measures). Bidimensional descriptive statistics.
2	Probability Introduction to probability. Conditional probability and decision-making analysis
3	Discrete Random Variable Discrete random variables concept. Discrete models.
4	Continuous random variables Continuous random variables concept. Continuous models. Central limit theorem.

Assessment

Tool	Assessment tool	Category	Weight %
Other	Continuous Evaluation (Class paricipation, software evaluation, individual assessment,...)	Ordinary round	50.00%
Written and/or oral exams	Final Exam	Ordinary round	50.00%
Written and/or oral exams	Retake Exam	Retake	50.00%
Other	Continuous Evaluation (Class paricipation, software evaluation, individual assessment,...)	Retake	50.00%

PROGRAMS

BBA20-Bachelor of Business Administration (BBA) (Undergraduates: Business)
BBA20 Year 1 (Basic)

BBA23-Bachelor of Business Administration (BBA) (Undergraduates: Business)
BBA23 Year 1 (Basic)

BBA25-Bachelor of Business Administration (BBA) (Undergraduates: Business)
BBA25 Year 1 (Basic)

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

DBAI23 Year 2 (Basic)

GBD23-Double Degree in Business Administration and Law (Undergraduates: Law)
GBD23 Year 1 (Basic)

GBD25-Double Degree in Business Administration and Law (Undergraduates: Law)
GBD25 Year 1 (Basic)

GBL24-Double Degree in Business Administration and Global Governance, Economics and Legal Order (Undergraduates: Business)

GBL24 Year 1 (Basic)

GBL25-Double Degree in Business Administration and Global Governance, Economics and Legal Order (Undergraduates: Business)

GBL25 Year 1 (Basic)