COURSE DATA

Data Subject

Code	36787
Name	Statistics I
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1933 - D.D. in Law-Economics 2022	Doubles Studies Faculty of Law - Faculty of Economics	2	First term

Subject-matter

Degree	Subject-matter	Character
1933 - D.D. in Law-Economics 2022	2 - Asignaturas de segundo curso	Obligatory

Coordination

Name	Department
MENDEZ MARTINEZ, SALVADOR	110 - Applied Economics

SUMMARY

Statistics I is a basic training subject that belongs to the area of Quantitative Methods for Business and Economics. It is taught in the first semester of the second year of the Double Degree in Law + Economics and it is a 6 ECTS credits subject.

One of the main objectives of the Double Degree in Law + Economics is to academically train future professionals, who will be able to contribute to the economic and social development. Therefore, Statistics I is an essential subject for numerical data analysis used in economic and business decision making.

The purpose of the subject is to introduce the basic concepts of descriptive statistics and probability, which will be the immediate base for the study of inferential or inductive statistics, contents that will be seen in the subject of Statistics II. But it is also the base for Econometrics subjects, as well as the elective subject of Data Analysis (in the itinerary of Economía Industrial y de la Empresa) and other subjects of quantitative profile that the student can enroll in.

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The subject is divided in two main parts, descriptive statistics and probability. The former includes descriptive analysis of variables and statistics datasets, either unidimensional or multidimensional ones. Regression techniques are explained and some topics of special interest in economics are developed, such as inequality measures, economic indicators and time series. The latter includes topics related to the general probability theory, with the aim of providing the tools that allow working in an uncertain environment. It is focused on probability theory concepts and probability models, either unidimensional or multidimensional models.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

No prior knowledge is required.
It is assumed that to succeed in this subject the student has a basic level of mathematics (associated to first and second courses of secondary school in the area of social sciences).

OUTCOMES

LEARNING OUTCOMES

The learning outcomes of this subject are the following:

-Search and assess appropriate information from statistical sources. Work with statistical data and databases for the study of economics. - Information abstraction and processing for their use afterwards with software packages.

- Identify, classify, argue and interpret the relationships between economic variables.

- Ability to recognize an economic problem from the observation of the economic reality.

- Increasing in the ability to apply logic/strategic reasoning to face real situations of the economic world.

- Use of basic quantitative tools and their application to the economic environment.

- Ability to choose a theoretical framework to analyze reality.

- Ability to extract useful information from data and quantitative models.

- Summarize, get abstractions, give conclusions or economic implications from the analysis conducted.

DESCRIPTION OF CONTENTS

1. UNIVARIATE DATA ANALYSIS

1. Introduction
2. Univariate data: measures of central position, dispersion and shape
3. Measures of concentration

2. MULTIVARIATE DATA ANALYSIS

1. Multivariate data: joint and marginal frequency distributions
2. Mean vector and variance-covariance matrix
3. Relationship between variables

3. REGRESSION

1. Introduction
2. Least squares regression
3. Goodness of fit

4. TIME SERIES MODELS

1. Introduction
2. Economic indices
3. Time series

5. UNIVARIATE PROBABILITY MODELS

1. Introduction to probability theory
2. Random variable and probability distribution
3. Discrete and continuous random variables

6. SPECIFIC UNIVARIATE PROBABUILITY MODELS

1. Discrete models
2. Continuous models

7. MULTIVARIATE PROBABILITY MODELS

1. Introduction
2. Joint probability distributions, marginal probability distributions and conditional probability distributions
3. Mean vector and variance-covariance matrix
4. Independence. Correlation coefficient
5. Specific multivariate probability models

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	60,00	100
Development of individual work	10,00	0
Study and independent work	20,00	0
Preparation of evaluation activities	20,00	0
Preparing lectures	15,00	0
Preparation of practical classes and problem	15,00	0
Resolution of online questionnaires	10,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

The development of the subject is structured mainly around lectures and computer lab work. The methodology used will depend on the type of session (lecture or computer lab work).

Lectures will be 2 hours long, and will consist in the fundamentals of each topic of the subject, introducing the important concepts with the focus on relating them to socio-economic and business environments. While the teaching method of lectures is mainly "chalk and talk", students' participation and in-class discussion is encouraged. This methodology allows to lead groups of many students in an organized way, offering the advantages of a lecture without limiting the participation of students and the lecturer-student interaction.

Computer lab work sessions are also 2 hours long. The lecturer will propose the students problems to solve applying the previously introduced theoretical concepts. These sessions will be developed following different strategies depending on the contents:

- *Project-based learning*. At the beginning of the subject some activities can be proposed to cover the topics of Descriptive Statistics. The intention is that the student will acquire the competencies included in this syllabus.

- *Problem solving*. Its objective is to complement the concepts studied in the lecture applying them to the solving of practical cases studies.

- *Quizzes*. To check their understanding of assignments and lectures, students will take quizzes and review questions in some classes.

The structure of these activities and the deadlines of associated reports will be stablished by each lecturer and they will be announced to students properly.

EVALUATION

Students' learning assessment in this subject will be a weighted average of the results from a final exam and all assignments:

1. Exam (70% of the course final grade). It will include theoretical and practical problems to assess students' ability in the application of the essential tools and concepts of the subject.

2. Assignments (30% of the course final grade). They include statistics projects and active participation in class. These cannot be retaken.

No student will get a positive assessment of the course (5 points or more) without passing the final exam. Students who fail the final exam will get a maximum final grade of 4.5 points. A student might opt out of in-class assignments assessment. In this case his/her final grade will be totally based on the final exam, with a maximum value of 7 points out of 10.

REFERENCES

Basic

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Additional

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