COURSE DATA

DATA SUBJECT

Code: 35819
Name: Introduction to statistical inference
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1313 - Degree in Business Management and Administration	Facultat d'Economia	2	Sin determinar, First quarter
1330 - Degree in Business Management and Administration (Ontinyent)	Facultat d'Economia	2	Sin determinar, First quarter
1921 - Double Degree Program BMA and Law	Facultat d'Economia	2	Sin determinar, First quarter
1926 - Double Degree Program Tourism and BMA	Facultat d'Economia	2	Sin determinar, First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1313 - Degree in Business Management and Administration	Expansion of statistics	COMPULSORY
1330 - Degree in Business Management and Administration (Ontinyent)	Ampliación de Estadística	COMPULSORY
1921 - Double Degree Program BMA and Law	Year 2 compulsory subjects	COMPULSORY
1926 - Double Degree Program Tourism and BMA	Asignaturas de segundo curso	COMPULSORY

COORDINATION

ESPINOSA ADAMEZ PRISCILA

SUMMARY

Introduction to Statistical Inference is compulsory subject ascribed to the area of Quantitative Methods for Business and Economics. It is taught in the first term of the second year of the degree in Business Administration and Management (ADE) with a total study load of 6 ECTS.

It is a necessary subject for analysis and decision making in a degree that aims at academically training future business managers and entrepreneurs who will contribute to the economic and social development.

The subject is markedly instrumental. Contents are basic for other subjects such as Econometrics and support other courses such as Analysis of Financial Statements, Foundations f Market Research, Quality and Environmental Management, Methods for the Analysis of Business Information and Decision Making, Prospective Techniques, Survey Methodology or Quantitative Techniques in Finance.

The subject starts with a short review of probability models in business and economics. Next the key concepts for Inferential Statistics are introduced, followed by basic notions of sampling. Then estimation of population parameters and hypothesis tests, both parametric and non-parametric, are introduced.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

It is recommended to have completed and passed the following first year couses: Mathematics and Basic Statistics.

COMPETENCES / LEARNING OUTCOMES

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Be able to analyse and search for information from different sources.

Be able to analyse the economic situation and understand its implications.

Be able to apply analytical and mathematical methods for the analysis of economic and business problems.

Be able to carry out strategic diagnoses in complex and uncertain environments using the appropriate methodologies to resolve them.

Be able to express oneself in formal, graphic and symbolic languages.

Be able to make decisions.

Be able to make decisions under certainty and uncertainty environments.

Be able to negotiate and reconcile interests effectively.

Be able to plan, organise, control and evaluate the implementation of business strategies.

Be able to solve problems.

Be able to transmit and communicate complex ideas and approaches to both specialised and lay audiences.

Be able to understand and use the different quantitative and qualitative methods to reason analytically, evaluate results and predict economic and financial parameters.

Be able to use English in a professional environment.

Be able to use ICTs in the field of study.

Be able to work in a team.

Demonstrate capacity for analysis and synthesis.

Demonstrate oral and written communication skills in the native language.

Develop critical capacity on Spanish and international economic current affairs.

Have critical and self-critical capacity.

Have organisation and planning skills.

Manage time effectively.

DESCRIPTION OF CONTENTS

1. PROBABILITY MODELS AND STOCHASTIC CONVERGENCE

1. Random variables and probability models
2. Stochastic convergence
3. Central Limit Theorem.
4. Distributions associated with normally distributed samples

2. INTRODUCTION TO STATISTICAL INFERENCE

1. Introduction: universe, population and sample. Objectives of inferential statistics
2. Sampling methods. Simple random sampling
3. Sampling distributions

3. ESTIMATION

1. Point estimation. Properties of estimators.
2. Methods for obtaining estimators.
3. Interval estimation.
4. Sample size determinatios.

4. PARAMETRIC HYPOTHESIS TESTS

1. Introduction.
2. Two tails hypothesis tests.
3. One tail hypothesis tests.

5. NONPARAMETRIC HYPOTHESIS TESTS

1. Tests of goodness of fit.
2. Tets of independence.
3. Other nonparametric tests.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Classroom practices	30,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	10,00
Independent study and work	20,00
Preparation of lessons	30,00
Preparation for assessment activities	30,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

Course time is split equally between lectures and computer lab work. Lectures cover the fundamentals of inferential statistics and all the related theory with special emphasis in developing the link to socio-economic and business applications. While the teaching method of lectures is "chalk and talk", students' participation and in-class discussion is encouraged.

Computer labs focus on presenting the students with practical examples and finding solutions to problems based on the application of (previously introduced) theoretical concepts. These sessions are based on two main teaching methods:

- *Statistics-lab learning and problem solving*. Students will be conducting some inferential statistical procedures involving calculations, graph/table drawing, and writing short answers to problems or case studies in order to apply theoretical concepts to data using MS-Excel. In most cases students will have to turn in a report of the output and write brief interpretations of it..
- Quizzes and review questions: to check your understanding of assignments and lectures, I will give quizzes and review questions in some classes.

A mix of a collaborative environment and individual work will be used in the computer lab.

EVALUATION

Grades are a weighted average of the results from a final exam and all computer lab assignments

1. The weight of the final exam is 70% of the course grade. It will include practical problems to assess students¿ proficiency in the application of the core tools and concepts of the subject.
2. The remainder 30% of the final grade is the assessment of in-class projects, problems and quizzes.
3. By its very nature, ongoing evaluation activities, **these can not be retaken.**

IMPORTANT:

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.

The student who does not participate in the continuous evaluation or in-class assignments assessment may take the final exam. In the case of having 0 points in the continuous evaluation, at least 7.15 points out of 10 in the exam is needed to pass the course, so that once transferred to 70% (weight of the exam in the final grade), it will be a 5 Passed in the final grade of the course.

REFERENCES

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