COURSE DATA

DATA SUBJECT

Code: 44480
Name: Data analysis for decision-making
Cycle: Master's Degree
ECTS Credits: 3
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2212 - Master's Degree in Business Management. MBA	Facultat d'Economia	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2212 - Master's Degree in Business Management. MBA	Quantitative methods for decision-making	COMPULSORY

COORDINATION

SUMMARY

The objective is to provide students with a set of analytical tools that constitute a basic support, so that they can check any hypotheses or assumptions. The aim of this module is for students to learn statistical techniques and how to choose the most appropriate technique for each problem. Classes will follow the following scheme:

· Approach to the problem studied.

· Collection of information and treatment of data.

· Application of the most appropriate technique to solve the problem posed, using the most appropriate program.

· Interpretation of the results.

Presentation of the information.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Students who come from degrees without quantitative subjects, or whose professional experience does not touch on these questions, must prepare themselves in quantitative techniques.
If necessary, students will be guided in this self-study with tutorials led by lecturers in data analysis for decision making.

COMPETENCES / LEARNING OUTCOMES

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Act in the company's decision-making within the framework of human rights, democratic principles, the principles of equality between women and men, solidarity, environmental protection, universal accessibility and design for all, and the promotion of a culture of peace.

Analyse, synthesise and evaluate information, in a rigorous and critical manner, and be able to identify assumptions, assess evidence, detect false logic or reasoning, identify implicit values, and generalise adequately about problems and situations related to the business world.

Analyse and assess the functional areas of the company with the aim of understanding its current and potential strengths and weaknesses as a support for decision making.

Analyse different quantitative methods to solve problems in situations of uncertainty and specify the strategies to improve the companys overall performance and get ahead of competitors.

Integrate the different functional areas of the company (marketing, finance, human resources, operations) in a synergistic way.

Seek, select and assess information from the different actors in the environment, both through traditional methods and information and communication technologies, to use it effectively in the face of problems and situations related to business activity.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

DESCRIPTION OF CONTENTS

1. Data analytics

1. Statistical formulation of business problems.
2. Exploratory data analysis.
3. Data visualization.
4. Presentation, communication of results and preparation of reports based on business information.

2. Hypothesis Testing for Decision-Making

In-depth study of the statistical inference techniques necessary to analyze the results of population subgroups.

3. Segmentation techniques

3.1. Descriptive techniques
3.2. Predictive techniques

4.

Introduction to classification techniques in data analysis

Description the process of using classification analysis techniques for decision making.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	6,00
Computer classroom practice	24,00
Total hours	**30,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00

Individual or group project	10,00
Independent study and work	0,00
Preparation of lessons	25,00
Preparation for assessment activities	5,00
Resolution of case studies	5,00
Total hours	**45,00**

TEACHING METHODOLOGY

The teaching methodology consists of face-to-face classes in which the lecturer explains the characteristics of each of the models and their statistical properties. A practical case is used to explain how this model is implemented in the program, how the results are interpreted, and which decisions should be taken.

After the explanation of each model, several practical cases are solved with the help of the lecturer, others are solved at home by the student, or in a subsequent class. Finally, more complex cases are proposed to be solved by the students in groups.

EVALUATION

The evaluation process will take into account the active participation of the students in the classes, their interventions in the practical sessions and the work presented both individually and in groups. This part of the evaluation will be at least 30% of the final score. If an objective test (written exam) is required, the grade of this test cannot exceed 70% of the final score. In order to pass the course it will be necessary to have a mark equal to or higher than 5 in each of the parts. The mark of the continuous assessment will also be taken into account in the second exam. The student has the right to pass the course in the second call by taking an exam in which he or she will be evaluated on all the continuous assessment activities that can be recovered and to maintain the score of those that cannot be recovered.

REFERENCES

- Casas, J.M. (2011). Estadística II: Inferencia Estadística. Editorial Universitaria Ramón Areces. Madrid. Lévy, J.P.; Varela, J. (2003). Análisis multivariable para las ciencias sociales. Pearson-Prentice Hall. Madrid. Hair, J.F.; Anderson, R.; Tatham, R.L.; Black, W.C. (1999). Análisis Multivariante. Prentice Hall. Madrid. Hair, J.F., Ortinau, D.J. y Harrison, D.E. (2021). Principios de Investigación de Mercados (quinta edición),McGraw-Hill, Mexico. Rosendo Rios, V. (2018). Investigación de Mercados. Aplicación al marketing estratégico y empresarial. Esic. Madrid-Uriel, E.; Aldás, J. (2005). Análisis multivariante aplicado: aplicaciones al marketing, investigación de mercados, economía, dirección de empresas y Turismo. Thomson. Madrid