VNIVERSITAT ĎĎ VALÈNCIA

COURSE DATA

Data Subject	
Code	44480
Name	Data analysis for decision-making
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2022 - 2023

Study (s)			
Degree	**Center**	**Acad. year**	**Period**
2212 - M.U. en Dirección de Empresas. MBA 15-V.2	Faculty of Economics	1	First term

Subject-matter		
Degree	**Subject-matter**	**Character**
2212 - M.U. en Dirección de Empresas. MBA 15-V.2	3 - Quantitative methods for decision-making	Obligatory

Coordination	
Name	**Department**
BLASCO BLASCO, OLGA	110 - Applied Economics

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.

OUTCOMES

2212 - M.U. en Dirección de Empresas. MBA 15-V.2

-   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.

-   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.

-   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.

-   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 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.

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

- 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.

LEARNING OUTCOMES

To pass this subject, students must be able to:

- Model economic and business situations that fit the mathematical structures studied.

- Choose the most appropriate analytical tool to solve a problem that involves management decision making.

- Interpret the results obtained from the solved models.

- Define, express, and solve complex economic problems in a systematic way.

DESCRIPTION OF CONTENTS

0. Basic concepts of statistics applied to social sciences.

1.1.   Introduction.
1.2.   Statistical formulation of problems.
1.3.   Data analysis and information extraction.
1.4.   Presentation and communication of results.

1. Statistical research

1.1.   Introduction.
1.2.   Statistical formulation of problems.
1.3.   Data analysis and information extraction.
1.4.   Presentation and communication of results.

2. Sampling and hypothesis tests

2.1.   Introduction.
2.2.   Basic concepts.
2.3.   Sampling methods.
2.4.   Confidence interval estimation.
2.5.   Hypothesis tests.

3. Multiple linear regression mode

3.1.   Introduction.
3.2.   The multiple linear regression model and its estimation by least squares.
3.3.   Basic statistical hypotheses of the model.
3.4.   The explanatory power of a linear regression equation

4.

4.1. Introduction.
4.2. Measures of similarity.
4.3. Hierarchical analysis of conglomerates.
4.4. Non-hierarchical cluster analysis.

5. Principal component analysis

5.1. Introduction.
5.2. Principal components of two variables.
5.3. Obtaining the principal components in the general case and their properties.
5.4. Interpretation.

WORKLOAD

ACTIVITY	Hours	% To be attended
Computer classroom practice	24,00	100
Tutorials	6,00	100
Development of group work	5,00	0
Development of individual work	5,00	0
Preparation of evaluation activities	5,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	15,00	0
Resolution of case studies	5,00	0
TOTAL	**75,00**	

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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

Basic

- 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.

  Uriel, E.; Aldás, J. (2005). Análisis multivariante aplicado: aplicaciones al marketing, investigación de mercados, economía, dirección de empresas y Turismo. Thomson. Madrid