

Bachelor Degree in Business Administration and Management and Business Transformation

Course: Data analysis methods and techniques

Subject: Statistics

Credits: 6 ECTS

Program: Bachelor

Modality: On-Site

Year: Second

Semester: First

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2. Presentation

2.1 Description

Once the conceptual bases of statistics have been established in the subject of Fundamentals of Statistics, we enter into the development of different statistical techniques, models, methods and procedures with an eminently applied approach. Here linear models are placed as a basic and yet powerful tool within statistical methodology, with the procedures of Simple Linear Regression and Multiple Linear Regression playing a fundamental role.

2.2 Relevant professional applications

In this course we study the foundations of the theory and application of linear models, which are undoubtedly a basic and yet powerful tool within statistical methodology. The purpose is to analyze whether or not there is any relationship between certain variables, and if so, express it as accurately as possible.

The greatest utility of a model is that, once constructed and reflected (through the built-in calculations that will be performed with Excel) a behavior representative of the key business variables, we can analyze the estimated effect that certain changes in these variables can have on the ratios that have been defined as priorities. For example, if we model the business of a candy factory and define as main ratios the result, the box generated, the shareholder's profitability or any other ratio we have defined, we can study the effect on them when certain variables are modified such as: sales prices, raw material purchase prices, electricity cost, personnel, etc. This is one of the most comprehensive and powerful business risk management tools together with business decision making.

3. Learning outcome of the degree

- RAT6 - The graduate will be able to understand the different data analysis techniques used to assess the feasibility of a business project.
- RAT9 - The student will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.

- RAT10 - The student will be able to apply digital technologies (at the right time) in his/her field of expertise.
- RAT12 - The graduate will be able to develop both traditional and digital marketing and promotional projects in a business environment.
- RAT13 - The graduate will be able to analyze the economic operations of companies, which have been carried out in the financial markets.
- RAT14 - The graduate will be able to apply in an effective way the principles of quality management and continuous improvement of organizations by means of a simulation of the implementation of a quality system in a company.
- RAT16 - The graduate will be able to understand the economic-financial information of business entities and institutions in relation to their environment.
- RAT18 - The student will be able to provide innovative, creative and entrepreneurial solutions in professional situations.
- RAT19 - The student will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.
- RAT20 - The student will be able to apply the gender perspective in the professional tasks.
- RAT21 - The graduate will be able to verify the economic-financial information of business organizations and institutions with regard to their environment, by analyzing the companies' profit and loss accounts.
- RAT24 - After completing the degree, the student will be able to design projects for IT services and systems in all business fields.

4. Learning outcomes of the subjects

- RAM2 - The student will be able to correctly solve exercises and problems in which statistical methods, techniques and procedures are applied.
- RAM3 - The student will be able to properly use computer programs for solving exercises and statistical problems.
- RAM4 - The student will be able to statistically analyze business data to obtain results and conclusions.
- RAM5 - The student will be able to correctly identify a problem, its relevant data and possible causes.
- RAM6 - The student will be able to properly analyze a problem and its possible causes, by visualizing data related to relevant information.
- RAM7 - The student will be able to clearly restructure the available information according to the objectives.
- RAM8 - The student will be able to correctly solve numerical, commercial and financial, statistical and similar data.

5. Contents

The subject will address issues in the development of different statistical techniques, models, methods and procedures with an eminently applied approach. Here linear models are placed as a basic and yet powerful tool within statistical methodology, with the procedures of Simple Linear Regression and Multiple Linear Regression playing a fundamental role. In particular:

- Statistics at State and enterprise level.
- Analysis of one-dimensional data
- Multidimensional data analysis
- Regression, Statistical Inference, and Econometric Models
- Variation Rates and Indicators and Probabilities
- Time series
- Univariate and multivariate models
- Application through examples and exercises of Corporate Social Responsibility to ensure a better sustainable community and continuity in awareness of its importance.

6. Methodology

Learning outcomes developed	Teaching methodology	Training activities
Knowledge	Master class	Teacher's presentations
	Instructional sessions	Student's presentations
	Tutoring	Meetings for the resolution of doubts
	Learning based on readings	Reading and analysis of documents
Skill	Learning based on projects	Problem solving
	Learning based on audio-visual	Audiovisual analysis
	Case-based learning	Search and processing of information. Problem solving
Competence	Project-based work	Reporting Submissions of reports or papers

7. Evaluation

Evaluation system	Weight
Continuous evaluation: exercises, problems, reporting, papers, case studies	40 %
Mid-term exam	20 %
Final exam	40 %

When computing the final grade, the on-going activities (participation, in-class quizzes, seminar cases and group projects, midterm exam) will be weighted only if the final exam grade is equal to or greater than 4.0. Therefore, to obtain a passing course grade, the final exam grade must be equal to or greater than 4.0. If the final exam grade is less than 4.0, the final exam grade becomes the final course grade, irrespective of the other grades. Students must take the final exam if they want to receive a quantitative course evaluation. Students who do not sit the final exam will receive a “No Show” overall course grade.

"The maximum grade that students may obtain on the reevaluation tests [...] shall be 5,0. In addition, "the grade of the reevaluation tests will, in any case, constitute the final grade of the subject". Thus, only those students who having completed the partial exam, the final exam and have completed 100% of the activities of continuous assessment of the subject, are suspended (final grade of the subject less than 5) will be entitled to the exam."

Single Evaluation: The single assessment consists of a single examination equivalent to 100% of the grade of the subject. The exam, and therefore the subject, is passed with a grade of 5 out of 10 in this final test.

To benefit from the single assessment, it is necessary to send the teacher a written request during the first 15 working days of the course.

8. Bibliography

8.1 Basic Bibliography

- Introduction to Mathematical Statistics, Global Edition, 8th Edition, Robert V. Hogg, Joseph McKean, Allen T. Craig, Late, 2021 |Pearson

8.2 Complementary Bibliography

- Estadística para administración y economía, Stevenson, William, 17 valoraciones por Goodreads, ISBN 10: 9686034102 / ISBN 13: 9789686034103, Editorial: Editorial Reverté, 2020
- Analytics in a Big Data World: The Essential Guide to Data Science and its Applications (Wiley - Business Series) Wiley Business Series, Bart Basens, 2014
- Handbook of Marketing Decision Models (Second Edition), Springer, Berend Weirenga and Ralf van der Lans, 2018
- Business Statistics for Competitive Advantage with Excel - Basics, Model Building, Simulation and Cases, Springer, Cynthia Fraser, 2019