



TECHNICAL SHEET OF THE SUBJECT

Data of the subject	
Subject name	Business analytics
Subject code	E000013730
Mainprogram	Máster Universitario en Análisis de Negocio / Master in Business Analytics por la Universidad de Deusto y la Universidad Pontificia Comillas
Involved programs	Máster Universitario en Análisis de Negocio / Master in Business Analytics [First year]
Level	Postgrado Oficial Master
Quarter	Semestral
Credits	3,0 ECTS
Type	Obligatoria
Department	Departamento de Métodos Cuantitativos
Coordinator	Jose Luis Arroyo Barrigüete
Schedule	It will be communicated during the first days of class
Office hours	By appointment
Course overview	This course introduces the tools and techniques required to analyze data and make informed decisions in the business environment. It provides an overview of the key concepts, techniques, and tools of Business Analytics.

Teacher Information	
Teacher	
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SPECIFIC DATA OF THE SUBJECT

Contextualization of the subject
Contribution to the professional profile of the degree
This course provides an overview of the key concepts, techniques, and tools of Business Analytics. As such, it will help students develop a mental map of all the contents of the master's program, understanding how the different subjects fit into a general framework. The course combines theory and practical applications to prepare students to face real-world challenges in the field of business analytics.
Prerequisites
Fundamentals of Statistical Data Analysis



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Competencies - Objectives

Competences

Conocimientos o contenidos

CO3	Conocer los conceptos y el lenguaje de las técnicas y métodos de Business Analytics, desde los descriptivos a los principales algoritmos y modelos de machine learning, tanto supervisados como no supervisados, pasando por las técnicas de visualización.
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Habilidades o destrezas

HB01	Utilizar la técnica o técnicas de Business Analytics más apropiadas a cada problema real y al tipo de datos disponible, conociendo los requisitos y las limitaciones de su correcta aplicación.
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THEMATIC BLOCKS AND CONTENTS

Contents - Thematic Blocks

Topic 0: Brief Review of Descriptive Statistics

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Introduction to Business Intelligence

General Concepts

Development of Indicators and KPIs

Balanced Scorecard

Introduction to Business Analytics

Terminology and General Concepts: AI, Machine Learning, Deep Learning, etc.

Ethical Issues in Business Analytics

Business Analytics Project Lifecycle

Problem and Objective Definition

Data Acquisition and Preparation

Data Exploration and Visualization: Exploratory Data Analysis (EDA)

Model Building, Evaluation, Implementation, and Maintenance

Conceptual Map of Business Analytics and Case Studies

Supervised Learning: Concept and Techniques

Unsupervised Learning: Concept and Techniques



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Reinforcement Learning

Unstructured Data Analysis

Deep learning

Case Studies

TEACHING METHODOLOGY

General methodological aspects of the subject

The use of ChatGPT or any other Generative Artificial Intelligence tool in any assessment activity not explicitly authorized by the instructor will be considered a serious offence in accordance with the University's General Regulations, Article 168.2.e: "any actions aimed at falsifying or undermining the systems of academic performance assessment."

The consequences of such conduct include "temporary suspension of up to three months or a ban on sitting examinations in the next scheduled session following the imposition of the sanction, in one or more subjects in which the student is enrolled, [...] in addition to receiving a failing grade (0) in the corresponding subject."

In other words, the use of ChatGPT or any other Generative Artificial Intelligence tool is strictly prohibited in any evaluative activity unless the instructor has explicitly authorized its use.

In-class Methodology: Activities

Presentation of the Main Theoretical Concepts

Development of Simple Examples and Applied Case Studies

Public Presentation of Student Projects

Assessment Activities

Non-Presential Methodology: Activities

Individual Study

Case and/or Problem Solving

Group Project

Individual Project

SUMMARY STUDENT WORKING HOURS

CLASSROOM HOURS

AF10. Lecciones de carácter expositivo síncronas (virtual). Sesiones síncronas en las que los docentes exponen contenidos

AF12. Ejercicios y resolución de casos y de problemas (virtual). Sesiones síncronas en las que los docentes realizan de manera individual o junto

AF13. Otras actividades, seminarios, talleres, simulaciones, dinámicas de grupo, etc (virtual). Actividades síncronas



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concretos, que pueden estar apoyados o no por recursos tecnológicos, en la que existirán periodos de explicación a cuestiones o dudas planteadas por los estudiantes	con los estudiantes problemas, casos o cualquier tipo de ejercicio pertinente vinculado con la actualidad de la materia y/o con empresas u organizaciones reales, para la adquisición de competencias de las asignaturas.	tales como conferencias de profesionales relacionadas con el contenido de las asignaturas o materias, y cualquier otra actividad no incluida en el resto de las presentadas.
14.00	11.00	5.00
NON-PRESENTIAL HOURS		
AF7. Estudio y lectura organizada. Tiempo de estudio por parte del estudiante dedicado a preparar, profundizar y analizar en los contenidos de las asignaturas o materias, así como realizar ejercicios prácticos.	AF12. Ejercicios y resolución de casos y de problemas (virtual). Sesiones síncronas en las que los docentes realizan de manera individual o junto con los estudiantes problemas, casos o cualquier tipo de ejercicio pertinente vinculado con la actualidad de la materia y/o con empresas u organizaciones reales, para la adquisición de competencias de las asignaturas.	AF13. Otras actividades, seminarios, talleres, simulaciones, dinámicas de grupo, etc (virtual). Actividades síncronas tales como conferencias de profesionales relacionadas con el contenido de las asignaturas o materias, y cualquier otra actividad no incluida en el resto de las presentadas.
14.00	11.00	20.00
ECTS CREDITS: 3,0 (75,00 hours)		

EVALUATION AND CRITERIA

The use of AI to produce full assignments or substantial parts thereof, without proper citation of the source or tool used, or without explicit permission in the assignment instructions, will be considered plagiarism and therefore subject to the University's General Regulations.

Evaluation activities	Evaluation criteria	Weight
Final Exam	Numerical grade from 0 to 10 A minimum grade of 5 in the final exam is required to pass the course in any of the official examination sessions.	50 %
Practical Group Project Using Generative AI (ChatGPT): Solving a Business Case	Numerical grade from 0 to 10. Includes the oral presentation and defense of the project. – The project must be developed with the support of ChatGPT. – All team members must participate in the oral presentation. – The ChatGPT prompt used (only one per team) must be submitted and will account for 50% of the final grade (based on quality, depth, critical discussion, etc.). The remaining 50% will correspond to the quality of the oral presentation.	10 %



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Individual Practical Application Project	Numerical grade from 0 to 10	15 %
Midterm exam	Numerical grade from 0 to 10	20 %
Active participation	Active participation during classes	5 %

WORK PLAN AND SCHEDULE

Activities	Date of realization	Delivery date
Individual project	At the midpoint of the course	
Group project	At the midpoint of the course	
Midterm Exam	At the midpoint of the course	
Final exam	At the end of the course	

BIBLIOGRAPHY AND RESOURCES

Basic Bibliography

Moodle Materials (lecture notes and case studies created by the course instructor)

For certain modules, YouTube channel on Machine Learning: <https://www.youtube.com/@catedraAfE/playlists>

Complementary Bibliography

HBR (2018). HBR Guide to Data Analytics Basics for Managers (HBR Guide Series). Harvard Business Review Press

Asplen-Taylor, S. (2022). Data and Analytics Strategy for Business: Unlock Data Assets and Increase Innovation with a Results-Driven Data Strategy. Kogan Page