

1. BASIC INFORMATION

Course	Service Models
Degree program	Masters in Big Data Analytics
School	Escuela de Arquitectura, Ingeniería y Diseño
Year	1
ECTS	6
Credit type	Compulsory
Language(s)	English
Delivery mode	Face-to-face / Online
Semester	1
Academic year	2025-2026
Coordinating professor	Carlos Jaime Pages Ogilvie

2. PRESENTATION

This course is divided into two main blocks. On one hand, it provides theoretical and practical content to teach students the day-to-day knowledge involved in data analysis processes across various sectors where Business Analytics plays a key role. Some of the sectors to be analyzed include Marketing, Finance, Human Resources, CRM, Insurance, and Telecommunications.

On the other hand, the course aims to equip students with the fundamental concepts needed to understand the importance of establishing a Data Governance structure within an organization. Students will be introduced to the concept of data governance, the standards that support the application of a methodology, and the definition of a set of rules regarding data, organizational roles, and processes designed to ensure that all members of the organization are aligned.

Organizational models will be detailed according to how master data is identified and managed. These models provide a unified and cross-functional view of the key concepts within an organization and represent the most accurate, complete, and truthful version of the data available. Ultimately, this will define the data lifecycle within the organization.

3. LEARNING OUTCOMES

Knowledge

CON03. Understand the role of data in supporting strategic decision-making within a company, considering data quality management, privacy and data security policies, and regulatory compliance frameworks.

Skills

HAB07. Apply data governance and the data lifecycle, as well as business analysis, optimizing the use of resources and time.

HAB09. Communicate both progress and results of data analysis projects effectively and in an executive manner.

Competences

CP06. Design and implement data governance strategies that ensure the quality, integrity, confidentiality, and availability of information—from its capture and storage to its deletion or archiving—while ensuring traceability and compliance with legal and regulatory requirements.

CP07. Evaluate the potential of data analysis for business development across different application sectors.

4. CONTENT

Block 1: Data Governance and Data Lifecycle

Unit 1: Data Governance

- Introduction to Data Governance
- Glossary, Data Dictionary, and Data Catalog
- Metadata Management and Technical Lineage
- Data Quality Management and Data Security

Unit 2: Governance Models

- Master Data Management (MDM) and Reference Data
- Frameworks and Standards for Data Governance
- Strategy, Roles, and Areas of Action
- Data Governance Tools

Unit 3: Data Lifecycle

- Data Lifecycle Management
- Data Value Management
- Management of Machine Learning Models in Production (MLOps)
- MLOps Operational Tools

Block 2: Business Analytics

Unit 4: Business Intelligence

- Information and Business Intelligence
- Technologies, Benefits, and Users of Business Intelligence
- Components of a Business Intelligence System

Unit 5: Marketing & CRM

- Introduction to Marketing
- Marketing Plan
- Strategy and Analytical Models
- Introduction to CRM
- CRM Technology

Unit 6: Human Resources and Financial Risk

- Introduction to Digital Transformation in the HR Area
- Data Evaluation in HR
- Introduction to Financial Risk Management and Control

- Financial Risk Modeling

5. TEACHING-LEARNING METHODOLOGIES

The following types of teaching-learning methodologies will be applied:

- MD1: Face-to-face lecture or, if applicable, through the virtual campus
- MD2: Cooperative learning
- MD3: Problem-Based Learning (PBL)
- MD4: Group research (a) and/or (b) group problem-solving
- MD6: Simulation environments and field experiences

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours
Masterclasses	20
Individual Activities	35
Integrative Activities	15
Lab activities	10
Autonomous work	68
Exams and tests	2
TOTAL	150

Virtual mode:

Learning activity	Number of hours
Masterclasses	20
Individual Activities	30
Integrative Activities	20
Lab activities	16
Autonomous work	60
Exams and tests	4

TOTAL	150
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7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

Assessment system	Weight
SE1: Exams	50%
SE2: Report writing	30%
SE3: Practical Use Cases	20%

Virtual mode:

Assessment system	Weight
SE1: Exams	60%
SE2: Report writing	25%
SE3: Practical Use Cases	15%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of 4.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

7.2. Second exam period

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 4.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

The student must deliver the activities not successfully completed in the first exam period after having received the corresponding corrections from the professor, or those that were not delivered in the first place.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Activity 1	Week 5
Activity 2	Week 7
Activity 3	Week 9
Activity 4	Week 11
Ordinary call	At the end of subject
Extraordinary call	First weekend of September

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any changes as and when appropriate.

9. BIBLIOGRAPHY

The main reference work for this subject is:

- DAMA Internacional, 2009. *DAMA – Guía de fundamentos para la gestión de datos*. Editorial Technics Publications, LLC
- Foreman, J. W. (2013.) *Data Smart Using Data Science to Transform Information into Insight*. Wiley

The recommended Bibliography is:

- MIT Sloan Management Review, 2017 - Aprovechar la oportunidad en la calidad de los datos. Massachusetts Institute of Technology.
- Grus J. (2015) *Data Science from Scratch First Principles with Python*. O'Reilly
- Kabacoff R. I. (2011) *R in action Data analysis and graphics with R*. Recuperado de: <http://keksu.ru/eos/DataMining/1379968983.pdf>
- Peña D. (2000) *Estadística, modelos y métodos* (v. 2) Alianza Editorial. Madrid

10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students' inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by mean of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunity for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the "surveys" section on virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.