

Máster online 100%

Master in Big Data and Business Analytics + 60 ECTS Credits

Structuralia

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Master in Big Data and Business Analytics + 60 ECTS Credits

Modality
Online

Languages
Español

Duration
1500 hours (60 ECTS)

No Limit
AI Assistant

Does it include practices?
NO

Educational Institutions

Structuralia Engineering eLearning

UNIVERSIDAD NEBRIJA

Summary

According to the main technology consultancies, the demand for specialists in Business Intelligence and Big Data will grow exponentially in the coming years. This master's degree allows you to master data analysis techniques, advanced statistics, machine learning and visualization, transforming large volumes of information into strategic decisions. Prepare to lead projects Business Analytics and convert data into a competitive advantage for any organization.

Agenda

MODULE 1. INTRODUCTION TO BIG DATA

1. DIDACTIC UNIT 1. DATA IN COMPANIES

1. Data information
2. Knowledge wisdom
3. Data Management (I)
4. Data Management (II)
5. Corporate performance management
6. Databases

2. DIDACTIC UNIT 2. OF BUSINESS INTELLIGENCE TO BIG DATA

1. Business intelligence
2. Datawarehousing
3. big data
4. HadoopSpark

3. DIDACTIC UNIT 3. BIG DATA TECHNOLOGICAL ARCHITECTURES

1. Hadoop ecosystem (I)
2. Hadoop ecosystem (II)
3. Hadoop ecosystem (III)
4. Spark Ecosystem
5. Installation and configuration of Big Data architectures

4. DIDACTIC UNIT 4. BIG DATA ANALYTICS

1. Analytics
2. Main algorithms (I)
3. Main algorithms (II)
4. Machine Learning and Deep Learning
5. internet of things

MODULE 2. POWER BI COURSE

1. DIDACTIC UNIT 1. GETTING STARTED WITH POWER BI

1. Introduction to Power BI
2. Different types of Power BI: is it really free?
3. Let's dive into it: first simple report
4. Power Query: data source
5. Data transformation

2. DIDACTIC UNIT 2. DATA MODELING AND DAX

1. Data modeling
2. Getting started with DAX (I)
3. Getting started with DAX (II)

4. Mastering DAX (I)
5. Mastering DAX (II)

3. DIDACTIC UNIT 3. DATA VISUALIZATION

1. Table and matrix
2. Trends
3. How to filter your data properly
4. Bookmarks
5. Getting details

4. DIDACTIC UNIT 4. TAKING POWER BI TO THE NEXT LEVEL

1. Understanding Power BI Service
2. Sharing content in Power BI Service
3. Comparing Power BI Service and Power Report Service
4. Integrating Python and R in Power BI Desktop
5. Introducing Bravo for Power BI Desktop

MODULE 3. RELATIONAL DATABASES. SQL. DESIGN OF A DATAWAREHOUSE (BIG DATA)

1. DIDACTIC UNIT 1. FIRST STEPS IN SQL

1. Introduction to SQL
2. Database manipulation
3. Data types
4. Normalization
5. Creating tables in SQL

2. DIDACTIC UNIT 2. SQL COMMANDS

1. Table manipulation
2. Table query in SQL
3. Joining tables in SQL
4. Table and view combinations
5. Other commands in SQL

3. DIDACTIC UNIT 3. SQL FUNCTIONS

1. Functions for strings and numerical functions (I)
2. Numerical functions (II)
3. Date and time functions
4. Other functions
5. Loops, conditionals and triggers in SQL

4. DIDACTIC UNIT 4. DESIGN OF A DATAWAREHOUSE

1. Introduction to datawarehousing
2. Databases in a data warehouse. stage
3. Databases in a data warehouse. SDG (I)
4. Data in a data warehouse. SDG (II)
5. Databases in a data warehouse. DDS

MODULE 4. PROGRAMMING LANGUAGES. PYTHON AND R (BIG DATA)

1. DIDACTIC UNIT 1. INTRODUCTION TO PYTHON, INSTALLATION AND CONFIGURATION OF DEVELOPMENT ENVIRONMENT

1. Introduction to Python
2. Features and applications
3. Python installation
4. Setting up a development environment

2. DIDACTIC UNIT 2. DATA TYPES, VARIABLES, OPERATORS AND EXPRESSIONS

1. Basic Python Syntax
2. Variables and data types
3. Operators and expressions
4. Using comments

3. DIDACTIC UNIT 3. FLOW CONTROL: LOOPS AND CONDITIONALS

1. Introduction to flow control
2. Conditional structures (if, elif, else)
3. Loops (for and while)
4. Loop control (break and continue)

4. DIDACTIC UNIT 4. LIBRARIES FOR DATA ANALYSIS: NUMPY, PANDAS AND MATPLOTLIB

1. Data analysis with NumPy
2. pandas
3. Matplotlib

5. DIDACTIC UNIT 5. FILTERING AND DATA EXTRACTION

1. How to use loc in Pandas
2. How to delete a column in Pandas

6. DIDACTIC UNIT 6. PIVOT TABLES

1. Pivot tables in pandas

7. DIDACTIC UNIT 7. GROUPBY AND AGGREGATION FUNCTIONS

1. The group of pandas

8. DIDACTIC UNIT 8. DATAFRAME MERGER

1. Python Pandas merging data frames

9. DIDACTIC UNIT 9. DATA VISUALIZATION WITH MATPLOTLIB AND SEABORN

1. Matplotlib
2. seaborn

10. DIDACTIC UNIT 10. R AS A TOOL FOR BIG DATA

1. Introduction to R
2. What do you need?
3. Data types
4. Descriptive and Predictive Statistics with R
5. Integrating R into Hadoop

11. DIDACTIC UNIT 11. PRE-PROCESSING & DATA PROCESSING

1. Obtaining and cleaning data (ETL)
2. Statistical inference
3. Regression models
4. Hypothesis testing

12. DIDACTIC UNIT 12. DATA ANALYSIS

1. Business Analytical Intelligence
2. Graph theory and social network analysis
3. Presentation of results

MODULE 5. NOSQL DATABASES (BIG DATA)

1. DIDACTIC UNIT 1. INTRODUCTION TO NOSQL DATABASES

1. Concept of NoSQL Databases
2. Advantages and disadvantages of NoSQL Databases
3. Main characteristics of NoSQL Databases

2. DIDACTIC UNIT 2. TYPES OF NOSQL DATABASES

1. Documentary Databases
2. Column Databases
3. Key-Value Databases
4. Database in graphs

3. DIDACTIC UNIT 3. MONGODB: A DOCUMENTARY DATABASE

1. Introduction to MongoDB
2. MongoDB Features and Architecture
3. Data modeling in MongoDB
4. Queries and operations in MongoDB
5. Scalability and performance in MongoDB

4. DIDACTIC UNIT 4. OTHER NOSQL DBMS

1. Apache Cassandra
2. CouchDB
3. Redis
4. Amazon DynamoDB
5. NeoJS

5. DIDACTIC UNIT 5. INSTALLATION, CONFIGURATION AND USE OF MONGODB

1. Data structure design
2. Development environment configuration
3. MongoDB installation and configuration
4. Creating and manipulating collections in MongoDB
5. Import and export data in MongoDB

6. DIDACTIC UNIT 6. ADVANCED QUERIES AND OPERATIONS IN MONGODB

1. Indexes and query optimization in MongoDB
2. Data Aggregation in MongoDB
3. Transactions in MongoDB
4. Replication and high availability in MongoDB
5. Backup and recovery in MongoDB

7. DIDACTIC UNIT 7. USE CASES OF NOSQL DATABASES

1. Web and mobile applications
2. Big Data and data analysis
3. Internet of Things (IoT)
4. Recommendation systems
5. Social media and social networks

8. DIDACTIC UNIT 8. INTEGRATION OF NOSQL DATABASES WITH EXTERNAL TECHNOLOGIES

1. Introduction to data integration
2. Integration with programming languages (Python, Java, etc.)
3. Integration with tools Business Intelligence (BI)
4. Integration with cloud storage systems

9. DIDACTIC UNIT 9. SECURITY AND PRIVACY IN NOSQL DATABASES

1. Security Concepts in NoSQL Databases
2. Authentication and authorization in MongoDB
3. Data encryption in NoSQL Databases
4. Auditing and access control in NoSQL Databases

MODULE 6. SELF-SERVICE DATA PREPARATION

1. DIDACTIC UNIT 1. DATA PREPARATION

1. Introduction
2. Data Literacy
3. Work with data
4. Solutions and techniques for data processing
5. Data quality management

2. DIDACTIC UNIT 2. DATA PREPARATION WITH EXCEL

1. Work with data in Excel
2. Dataset (DATASET)
3. Data Cleasing with Excel
4. Data Wrangling with Excel

5. Data Blending in Excel

3. DIDACTIC UNIT 3. DATA PREPARATION WITH TALEND

1. Installing Talend Data Preparation Desktop
2. Working with data in Talend
3. Data Cleasing with Talend
4. Data Wrangling with Talend
5. Data Blending with Talend

4. DIDACTIC UNIT 4. DATA PREPARATION WITH DATAPREP BY TRIFACTA

1. Registration in dataprep by Trifacta
2. Working with data with Dataprep by Trifacta
3. Data Cleasing with Trifacta
4. Data Wrangling with Dataprep by Trifacta
5. Data Blending with Dataprep by Trifacta

MODULE 7. DATA MINING, MACHINE LEARNING AND DEEP LEARNING (BIG DATA)

1. DIDACTIC UNIT 1. SUPERVISED LEARNING (I)

1. Introduction
2. Linear, multiple and logistic regression (I)
3. Linear, multiple and logistic regression (II)
4. Support Vector Machine (SVM)
5. Decision trees

2. DIDACTIC UNIT 2. SUPERVISED LEARNING (II)

1. KNN (K-Nearest Neighbors)
2. naïve bayes
3. Evaluation of supervised models
4. Example exercise
5. Proposed exercise

3. DIDACTIC UNIT 3. UNSUPERVISED LEARNING

1. Introduction to clustering. purpose and metrics
2. K-means clustering
3. Hierarchical clustering, other techniques and examples
4. Principal Component Analysis (PCA)
5. PCA Example Exercise

4. DIDACTIC UNIT 4. DEEP LEARNING

1. Artificial Neural Networks (ANN) (I)
2. Artificial Neural Networks (ANN) (II)
3. Artificial neural networks (ANN) (III)
4. Example exercise
5. Proposed exercise

MODULE 8. ADVANCED DEEP LEARNING

1. DIDACTIC UNIT 1. INTRODUCTION TO MACHINE LEARNING

1. Introduction
2. Machine learning algorithm classification
3. Machine Learning Examples
4. Differences between machine learning and deep learning
5. Types of machine learning algorithms
6. The future of machine learning

2. DIDACTIC UNIT 2. DATA STRUCTURE EXTRACTION: CLUSTERING

1. Introduction
2. Algorithms

3. DIDACTIC UNIT 3. RECOMMENDATION SYSTEMS

1. Introduction
2. Collaborative filtering
3. Clustering
4. Hybrid recommender systems

4. DIDACTIC UNIT 4. CLASSIFICATION

1. Classifiers
2. Algorithms

5. DIDACTIC UNIT 5. NEURAL NETWORKS AND DEEP LEARNING

1. Components
2. Learning

6. DIDACTIC UNIT 6. ELECTION SYSTEMS

1. Introduction
2. The process of moving from DSS to IDSS
3. Application cases

7. DIDACTIC UNIT 7. DEEP LEARNING WITH PYTHON, KERAS AND TENSORFLOW

1. Deep learning
2. Deep Learning Environment with Python
3. Machine and deep learning

8. DIDACTIC UNIT 8. NEURAL SYSTEMS

1. Neural networks
2. Deep networks and shallow networks

9. DIDACTIC UNIT 9. SINGLE LAYER NETWORKS

1. Single-layer and multi-layer perceptron
2. Perceptron example

10. DIDACTIC UNIT 10. MULTILAYER NETWORKS

1. Types of deep networks

11. DIDACTIC UNIT 11. LEARNING STRATEGIES

1. Data input and output
2. Train a neural network
3. Computational graphics
4. Deploying a deep network
5. The forward propagation algorithm
6. Multilayer deep neural networks

MODULE 9. ARTIFICIAL INTELLIGENCE

1. DIDACTIC UNIT 1. INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1. State of the art of artificial intelligence
2. Philosophy of artificial intelligence
3. Future of artificial intelligence
4. Project development processes with artificial intelligence
5. Data, your greatest asset

2. DIDACTIC UNIT 2. TYPES OF ARTIFICIAL INTELLIGENCE

1. Machine learning
2. Deep learning
3. Transformers
4. Synthetic data generation
5. Hyperparameters in artificial intelligence models

3. DIDACTIC UNIT 3. INTRODUCTION TO MACHINE LEARNING ALGORITHMS

1. Linear regression
2. Nonlinear Regression and Support Vector Machine (SVM)
3. Decision trees and random forests
4. Fuzzy logic and gradient descent
5. Recommendation systems

4. DIDACTIC UNIT 4. TURNKEY PROJECT WITH ARTIFICIAL INTELLIGENCE

1. Preparation of the work environment. Anaconda, Visual Studio Code and Python
2. Data entry and data processing dataset
3. TensorHub, TensorFlow and Keras
4. Image processing
5. Generation of artificial intelligence models

MODULE 10. TFM. MASTER IN BIG DATA AND BUSINESS ANALYTICS

Qualification

University Degree in Master of Lifelong Training in Big Data and Business Analytics issued by the Antonio de Nebrija University with 60 ECTS University Credits. Teachings not leading to obtaining an official qualification

Objectives

- Differentiate the concepts of Big Data, Business Intelligence and Analytics, avoiding confusion in a world where everything is labeled as "Big Data".
- Acquire a global vision of the Big Data & Analytics ecosystem, including technologies, tools and professional profiles.
- Identify strategies and business opportunities based on data, managing projects and teams effectively.
- Understand the legal and ethical aspects of data management, as well as the associated technical and scientific complexity.
- Develop the capacity for dialogue and leadership in Big Data environments, knowing the most relevant tools on the market.

What does it prepare you for?

The program prepares you to understand how Big Data is integrated into current and future business needs, applying practical solutions to complex problems through the analysis of data from social networks, the Internet, industry, cities and other diverse sources. In addition, it enables you to process massive and heterogeneous volumes of information in record time, transforming them into strategic knowledge that supports decision making and the design of effective business strategies.

Who is it addressed to?

This master's degree is aimed at professionals and managers who manage large volumes of data in their companies, as well as recent graduates seeking to specialize in data analysis and make their way in the technology sector and in the field of Business Analytics.

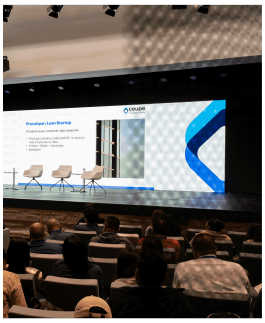
Official Character

This training is not included within the scope of official regulated training (Early Childhood Education, Primary Education, Secondary Education, Official Vocational Training FP, Baccalaureate, University Degree, Master University Officer and Doctorate). It is therefore a complementary and/or specialization training, aimed at the acquisition of certain competencies, skills or aptitudes of a professional nature, which can be assessed as merit in job boards and/or competitive examinations, always within the section of Complementary Training and/or Continuous Training. It is always essential to review the specific grading requirements of the specific public job boards to which we wish to apply.

Professional Outings

- Graduates will be able to work as Big Data Architect, Big Data Engineer, Data Scientist, Big Data Developer, Machine Learning Engineer, Chief Data Officer, Big Data Consultant or Data Analyst, leading data analysis projects and transforming information into strategic decisions.







Live Madrid

Live the International Week

As an additional complement to your training, you can be part of the SIM: Week International in Madrid. A unique meeting that brings together students from all over the world. For seven days you can live an academic and cultural experience in the heart of Europe, culminating with the graduation ceremony in Madrid.

- Conferences and workshops with international experts
- Visits to companies and reference organizations
- Networking with students from different countries
- Cultural activities and discovery of Madrid
- graduation ceremony

Structural

Structuralia is a leading educational institution in postgraduate and highly specialized online training, focused on the fields of engineering, architecture, construction, energy, technology and digital transformation.

Founded in 2001 with a strong industrial DNA, the result of collaboration between large companies in the sector and the Universitat Politècnica de Catalunya (UPC), for more than 25 years we have accompanied technical professionals in their academic and professional development through practical, flexible training aligned with the reality of the labor market.

Our training proposal connects advanced technical knowledge, real employability and international projection, acting as key support in the professional evolution of those seeking to specialize, grow professionally and generate impact in their sector, with a firm commitment to the democratization of access to technical excellence.



+350.000

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+20 years

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5 stars

QS ranking in online education

EDUCA EDTECH
Group

Educa Edtech GROUP

When you enroll in a course or master's degree, you will get a free subscription to MyLXP while your training lasts. You will have access to more than 400 key courses (soft skills, languages, digital skills, etc.) and other surprises. Sign up and see how MyLXP improves your learning.

EDUCA LXP Methodology

The comprehensive tailored online education experience

EDUCA LXP is more than a methodology, it is a completely educational experience personalized thanks to all the possibilities offered by artificial intelligence. Now the content adapts to you, your needs and preferences, while offering you access to updated and practical content that really makes a difference in the labor market.

Flexibility

100% online learning adapted to your schedule: study from any device wherever, whenever and however you want.

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Discover PHIA, your learning assistant that will help you every step of the way.

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Didactic approach oriented to work by competencies, which favors practical and meaningful learning.

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Meet PHIA, your personalized learning assistant

Use all the possibilities of artificial intelligence to get the most out of it match to your training

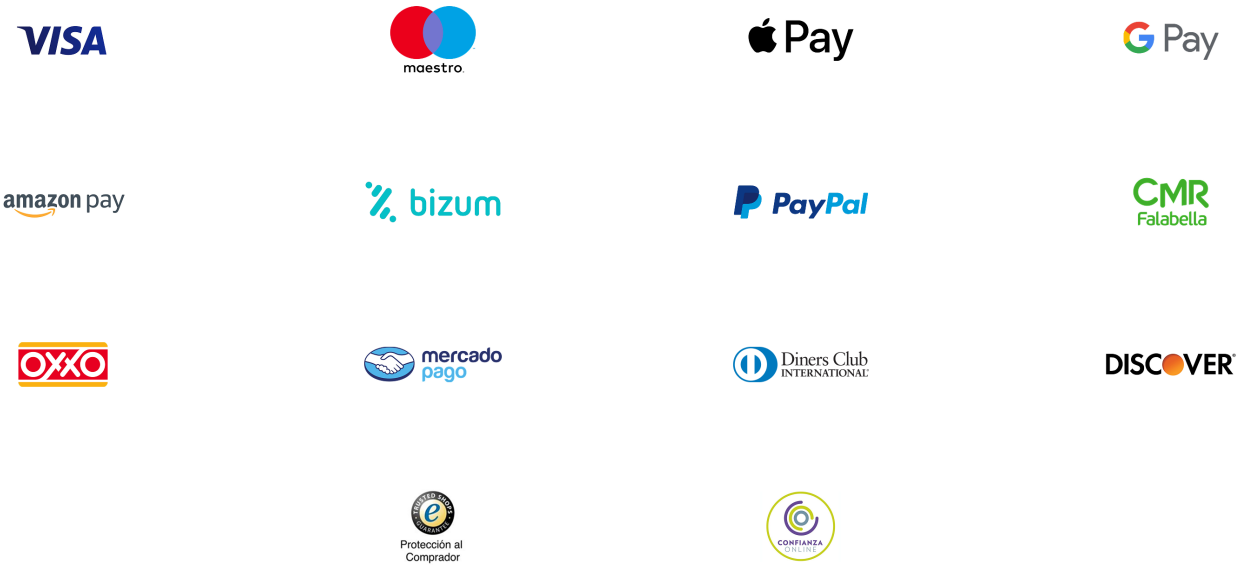
EDUCA EDTECH Group leads the digital revolution in education, promoting the continuous learning and technological transformation. The group is made up of recognized training institutions and its mission is to democratize access to education, promote the transfer of knowledge, technological development and research.

With the experience accumulated over more than 20 years, we have perfected our learning platform EDUCA LXP (Learning Experience Platform), the basis of our educational methodology, which provides students with online training practical and meaningful.



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Finance your course or master's degree and enjoy the available scholarships. Contact our expert team to know which one best suits your profile.

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