

# Data analysis and visualization with Power BI

**Lecturer: Maria Chiara Debernardi**

## Language

English

## Course description and objectives

Microsoft Power BI is a business analytics service which allows the user to gather data from multiple sources and to create interactive, rich, and dynamic visualizations and dashboards with an intuitive interface. It expands the features available on Excel for creating reports without having to rely on advanced coding skills but preferring, instead, a more visual approach.

This course wants to be an introduction to data analysis and visualization using Power BI to understand how to gain insights from data using a practical and interactive approach. Students will learn how to set up a simple Business Intelligence system in order to extract insights from data, using graphs, tables, and maps. The course will also introduce the relational model and DAX queries to create custom measures and KPIs.

At the end of the course participants will be able to:

- Set up a BI model (using data from different sources) with Power BI
- Create interactive visualizations and share them with different users
- Apply complex filters and slicers on a visualization
- Choose the right visualization for the communicative purpose
- Create simple queries using DAX language

## Audience

The course is open to all Bocconi students. In particular, it is targeted at:

- those who want to learn how BI dashboards and reports work, focusing on a practical approach
- those who want to complement their data analysis expertise with the knowledge of a BI self-service tool

## Prerequisites

No prior coding experience, nor knowledge of Power BI or Power Query is assumed. A good knowledge of Microsoft Excel is advantageous. Having passed the curricular exam in Computer Science (30424), or equivalent, is highly recommended.

## Duration

16 hours

## Teaching Mode

This course will be only taught in person. Distance mode will not be provided.

## Calendar

Lecture	Date	Time	Room
1	Mon 06/11/2023	18.15 - 19.45	InfoU01
2	Thu 09/11/2023	18.15 - 19.45	InfoU01
3	Mon 13/11/2023	18.15 - 19.45	InfoU01
4	Thu 16/11/2023	18.15 - 19.45	InfoU01
5	Mon 20/11/2023	18.15 - 19.45	InfoU01
6	Thu 23/11/2023	18.15 - 19.45	InfoU01
7	Mon 27/11/2023	18.15 - 19.45	InfoU01
8	Wed 29/11/2023	18.15 - 19.45	InfoU01

## Syllabus of the course

Lecture	Topics
1	<b>Introduction to Business Intelligence</b> <ul style="list-style-type: none"> <li>- The elements of a BI system</li> <li>- How to install Microsoft Power BI</li> <li>- Overview of the tool</li> </ul>

Lecture	Topics
2	<b>Data ingestion</b> <ul style="list-style-type: none"> <li>- Import data to Power BI from various sources</li> <li>- The ETL phase</li> <li>- Data Warehouse and Data Lake (<i>hints</i>)</li> </ul>
3	<b>The data model</b> <ul style="list-style-type: none"> <li>- What is the relational model?</li> <li>- Fact vs Dimension tables</li> <li>- Merging vs appending tables</li> </ul>
4	<b>Exploring visualizations</b> <ul style="list-style-type: none"> <li>- Standard graphs and tables</li> <li>- New variables: hierarchies and groups</li> <li>- Slicers and filters 1</li> </ul>
5	<b>Building a dynamic report</b> <ul style="list-style-type: none"> <li>- Slicers and filters 2</li> <li>- Connecting pages in a report</li> <li>- Publish and share a report</li> </ul>
6	<b>Intro to DAX language</b> <ul style="list-style-type: none"> <li>- Data Analysis eXpression language</li> <li>- Calculated Column vs Measure</li> <li>- Create a Custom Measure</li> </ul>
7	<b>Improving the reports - 1</b> <ul style="list-style-type: none"> <li>- Playing with maps: geo-maps, treemaps, heatmaps</li> <li>- Using templates</li> <li>- Import themes and customize them</li> </ul>
8	<b>Improving the reports - 2</b> <ul style="list-style-type: none"> <li>- The Q&amp;A feature: ask questions with natural language</li> <li>- New visuals from AppSource Visuals</li> <li>- Using R and Python inside Power BI (<i>hints only</i>)</li> </ul>

## Software used

[Microsoft Power BI Desktop](#)



You can download it, using your Bocconi account, here: [microsoft/download](#)

## Suggested bibliography

Materials will be provided by the teacher during the course and will be available on Blackboard.

## Available seats

This activity is limited to **110** participants. Registrations cannot be carried out once this number has been reached or after closing of the registration period.

Please remember that you may unsubscribe from ITEC courses only before the registration deadline.