Business Intelligence tools

Lecturer: Maria Chiara Debernardi

Language

English

Course description and objectives

In modern organizations, managerial decisions are only as effective as the data that inform them. However, corporate data are often fragmented across heterogeneous systems and difficult to transform into meaningful insights. Business Intelligence (BI) provides a framework to integrate, clean, and organize this data into a coherent architecture — typically centered on a data warehouse — and to deliver timely and reliable information to business users.

This course introduces Business Intelligence from both a managerial and a technical perspective, with a strong focus on Microsoft Power BI as a widely adopted self-service BI platform. Students will follow the full BI reporting lifecycle: from sourcing and transforming data, to designing a robust data model, to building interactive reports and dashboards that support data-driven decision-making.

The course aims both to provide a conceptual understanding of Business Intelligence architectures and their role in organizations, and to develop practical skills in using Microsoft Power BI to design, build, and publish BI reports. Emphasis is placed on linking business questions to appropriate data models, measures, and visualizations.

Upon successful completion of this course, the students will be able to:
- explain the main architectural components of a BI system and their role within an organization
- design a basic star-schema data model in Power BI, identifying appropriate fact and dimension tables
- import, clean, and integrate data from heterogeneous sources using Power Query
- create interactive reports and dashboards in Power BI Desktop, using appropriate visuals, filters, and navigation elements
- develop and apply fundamental DAX measures (e.g., aggregations, time intelligence) to answer business questions
- publish and share reports using Power BI Service, understanding basic options for collaboration and access control

Audience

The course is reserved for students enrolled in the Master of Science programs at Bocconi University and is offered as part of the *Enhancing Experience – Curricular Integrative Activities*.

The course is designed for students with little or no prior experience in Business Intelligence, who are interested in developing practical skills in data analysis and reporting using Microsoft Power BI Desktop.

Upon successful completion of the course - requiring **attendance of at least 75%** of the scheduled lessons and **passing the final exam** - students will be awarded **2 credits** and an Open Badge, sharable across the web (LinkedIn) or personal CV.

Prerequisites

No prior coding experience or prior knowledge of Power BI/Power Query is required. A good working knowledge of Microsoft Excel (i.e., pivot tables, conditional formatting, basic formulas such as IF) is recommended.

Duration

20 hours

Teaching mode

This course will be held exclusively in **synchronous**, **in-person sessions** in an IT classroom. Neither online mode, nor video recordings will be provided.

NB: the **final test** of the course will take place on the **last day of class**. It will not be possible to take it remotely.

Calendar

Lecture	Date	Time	Room
1	Mon 09/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
2	Tue 10/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
3	Mon 16/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
4	Tue 17/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
5	Mon 23/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
6	Tue 24/02/2026	18.15 - 19.45	InfoAS05 (Röntgen)
7	Mon 02/03/2026	18.15 - 19.45	InfoAS05 (Röntgen)

8	Tue 03/03/2026	18.15 - 19.45	InfoAS05 (Röntgen)
9	Mon 09/03/2026	18.15 - 19.45	InfoAS05 (Röntgen)
10	Tue 10/03/2026	18.15 - 19.45	InfoAS05 (Röntgen)

Syllabus of the course

Lecture	Topics

1 Introduction to BI
- What it is and why we need it
- The elements of a BI system
- Overview of Power BI Desktop

Exercise

2 The Data Warehouse
- What it is
- From the DWH to the Data Lake
- The ETL phase: introduction to Power Query
- Getting data from diverse sources

Exercise

3 The data model
- Fact table and dimension tables
- The relationships between the tables (cardinality)
- PBI data model
- Advanced transformations with Power Query (merging, appending)

Exercise

4 Building a dynamic report
- Data visualization: standard graphs and tables
- New variables: hierarchies and groups
- Slicers and filters
- Best practices for data storytelling

Exercise

5 Introduction to DAX language
- Data Analysis eXpressions: how different is it from Excel?
- New variables: calculated columns and measures
- Row context *vs* filter context

Exercise

Lecture	Topics
6	**Expanding Power BI capabilities**
	- Time intelligence
	- New visuals from AppSource
	- Looking for written scripts and quick measures
	- The Q&A feature: ask questions with natural language
	Exercise
7	**Enhancing reports**
	- Map visuals: geo-maps, treemaps, heatmaps
	- Conditional formatting
	- Sparklines
	- Connecting pages: buttons and drill through
	Exercise
8	**BI reports and more**
	- Using themes and templates
	- Optimizing reports for mobile consumption
	- Publishing and sharing results with BI Service
	- Microsoft BI ecosystem for personal BI
	Exercise
9	**The BI tools landscape and professional resources**
	- Is there anything else than MS Power BI?
	- The vendors in the BI tools market
	- Evolutionary trends in the sector
	- Finding help and assistance
	Exercise
10	**Review and final test**
	- Recap exercise
	- Last doubts and clarifications
	- **Exam**

Software used

Microsoft Power BI Desktop
It is available free of charge with the Bocconi student account. You can download it here: microsoft/download
Please note that **PBI Desktop is not available for macOS.** To practice at home, Bocconi will provide a Windows Virtual Machine with Power BI installed to Mac users (instructions will be shared on Blackboard).

Università
Bocconi
MILANO

Suggested bibliography

The reference bibliography for the exam is based only on slides and commented exercises provided by the Lecturer.

Additional recommended resources (e.g., official Microsoft Learn documentation) will be indicated during the course.

Available seats

This activity is limited to **110 participants** and reserved for **students enrolled in the Master of Science Programs**. Registrations cannot be conducted once this number has been reached or after the registration period ends.

Spreadsheet paths

This course can be intended as part of a wider path: