

Business Intelligence tools

Lecturer: M. Chiara Debernardi

Language

English

Course description and objectives

To manage a company of any size, it is necessary to make decisions based on reliable information. Often in the company the data is badly organized, the data sources are heterogeneous and it is difficult to extract useful information for the decision-making process. Business Intelligence aims to organize company data in a Data Warehouse (through the integration of heterogeneous sources and data cleaning processes), to analyze them and subsequently share the insights in an automated way.

The course aims both to provide an overview of the different approaches used to introduce and manage a Business Intelligence system, and to teach how to share the information it produces inside the company, with a focus on data visualization.

Upon successful completion of this course, students will be able to:

- understand the global architecture of a Business Intelligence system
- use a BI Self Service tool nowadays widely used in companies
- understand the logics and be able to produce meaningful BI reports for top and middle management

Audience

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

- those who want to know the fundamental aspects of Business Intelligence in a practical way
- those who wish to learn how to use a BI Self Service tool for data analysis and reporting

Prerequisites

Good knowledge of Microsoft Excel.

It is required that course participants have already successfully passed at least a course in introductory statistics (30001 Statistics or equivalent) and one in computer

science (30068 Informatica per l'economia / Computer skills for economics, 30330 Computer Skills, 30424 Computer Science or equivalent).

Duration

20 hours

Teaching mode

It will be possible to join the course in presence and/or in distance, by connecting remotely and following the streaming of the lesson held in the classroom.

Calendar

Lecture	Date	Time	Room	Lesson in person with groups by student ID number
1	Thu 11/02/2021	18.40 – 20.10	AS05	Even
2	Fri 12/02/2021	15.00 – 16.30	AS05	Even
3	Fri 12/02/2021	16.50 – 18.20	AS05	Even
4	Thu 18/02/2021	18.40 – 20.10	AS05	Odd
5	Fri 19/02/2021	15.00 – 16.30	AS05	Odd
6	Fri 19/02/2021	16.50 – 18.20	AS05	Odd
7	Thu 25/02/2021	18.40 – 20.10	AS05	Even
8	Fri 26/02/2021	15.00 – 16.30	AS05	Even
9	Fri 26/02/2021	16.50 – 18.20	AS05	Even
10	Thu 04/03/2021	18.40 – 20.10	AS05	Odd

Syllabus of the course

Lecture	Topics	Book reference
1	Introduction to BI <ul style="list-style-type: none"> - What it is and why we need it - The elements of a BI system - How to install Microsoft Power BI - Overview of the tool 	§ Ch. 1
<i>Exercises</i>		
2	The Data Warehouse <ul style="list-style-type: none"> - What it is - The main theories (Kimball and Inmon) - From the DWH to the Data Lake - Getting data inside Power BI: import from different sources - The ETL phase - Keeping the dataset updated 	§ Ch. 3
<i>Exercises</i>		
3	The data model <ul style="list-style-type: none"> - Build the Power BI data model - The relationships between the tables - Facts table and dimensions tables - Create new variables: measures, quick measures and calculated columns 	§ Ch. 3
<i>Exercises</i>		
4	Building a dynamic report <ul style="list-style-type: none"> - Data visualization: standard graphs and tables - Filtering data (<i> slicer </i>) - Using templates 	§ Ch. 7
<i>Exercises</i>		
5	Introduction to DAX language <ul style="list-style-type: none"> - DAX = Data Analysis Expression - Create new formulas - Look for already written scripts 	DAX Whitepaper
<i>Exercises</i>		

Lecture	Topics	Book reference
6	Expanding Power BI capabilities <ul style="list-style-type: none"> - Advanced use of DAX - Working with time formulas - Using R and Python inside Power BI (<i>only hints</i>) 	DAX Whitepaper
	<i>Exercises</i>	
7	Improving the reports <ul style="list-style-type: none"> - New visuals from internet - Playing with maps - The Q&A feature: ask questions with natural language 	Power BI docs
	<i>Exercises</i>	
8	The future of BI reports <ul style="list-style-type: none"> - Dashboards and their sharing - Integration between various Power BI versions - Evolutionary trends in the sector - Other BI tools (the vendors in BI market) 	Power BI docs + web suggestions
	<i>Exercises</i>	
9	Wrap-up session <ul style="list-style-type: none"> - Doubts, questions, clarifications - Full recap exercise 	-
	<i>Exercises</i>	
10	Final test	-

§ Vercellis, *Business Intelligence: Data Mining and Optimization for Decision Making*
The book is available in both Italian and English.

Software used

Microsoft Power BI Desktop: <https://powerbi.microsoft.com/en-us/desktop/>
You can download it from:
<https://www.microsoft.com/en-us/download/details.aspx?id=58494>

It was decided to use this Personal BI application because it allows unlimited and free use, unlike other BI software.

Please, note that **Power BI Desktop does not exist for Mac!** If you want to install it on your Mac, there are ways to install Windows applications on Mac machines, but this is a topic that will not be covered in this course.

Suggested bibliography

The reference web bibliography will be communicated during the course.

Additional traditional bibliography:

- Carlo Vercellis, *Business Intelligence: Data Mining and Optimization for Decision Making*, John Wiley & Sons, 2009
- Alessandro Rezzani, *Business intelligence. Processi, metodi, utilizzo in azienda*, Apogeo, 2012
- DAX in the BI Tabular Model Whitepaper and Samples:
<https://www.microsoft.com/en-us/download/details.aspx?id=28572>

Available seats

This activity is limited to **60** participants and reserved to **students of the Master of Science Programs**. Registrations cannot be carried out once this number has been reached or after closing of the registration period.