

Syllabus

Course title	Introduction to Data Visualization
Instructor	Bence Arató
Email	aratob@ceu.edu
Office	by appointment
Credits	1 US credits (2 ECTS credits)
Term	Fall 2023-2024
Course level	Master's
Prerequisites	Pre-Session
Course drop	Course can be dropped free of charge 24 hours after the first session. After this date drop is possible until the course is halfway over (late drop fee applies). No changes are allowed past that date.

1. COURSE DESCRIPTION

Content

This course will introduce the main concepts of visual analytics with hands-on demonstrations using Power BI, a leading self-service data visualization tool.

Relevance

Data Visualization is a core component of the Business Analytics skillset. Learning about how to create effective charts and interactive dashboards will provide the student a very useful skill applicable in many business scenarios.

2. LEARNING OUTCOMES

By the end of the course, students will be able to

- Understand and describe the main concepts of data visualization
- Understand the main chart types and their recommended usage
- Understand the most important visual best practices
- Create charts and dashboards using Power BI

3. READING LIST

All course materials will be distributed electronically on the [CeuLearning website](#).

Recommended additional books from the CEU library:

- Alberto Cairo - The functional art: an introduction to information graphics and visualization
- Alberto Cairo - How charts lie: getting smarter about visual information

4. TEACHING METHOD AND LEARNING ACTIVITIES

Each session is comprised of lectures on data visualization best practices and hands-on Power BI exercises. Further reading materials may be assigned to be studied between the sessions.

5. TECHNICAL REQUIREMENTS

The students need to bring their laptop to the sessions. Please note that Power BI Desktop is only supported on Windows, so students using laptops with other operating systems (e.g., Mac or Linux) should install a Windows virtual machine or use the CEU Virtual lab environment.

The latest version of Power BI Desktop should be downloaded and installed from the Microsoft Store (<https://www.microsoft.com/store/productid/9NTXR16HNW1T>) or from here: <https://www.microsoft.com/en-us/download/details.aspx?id=58494>

6. TOPIC OUTLINE AND SCHEDULE

Session	Topics
Session 1	<ul style="list-style-type: none">• Course introduction• Intro to data visualization (lecture)• First steps in Power BI
Session 2	<ul style="list-style-type: none">• Core chart types (lecture)• Creating core chart visuals in Power BI
Session 3	<ul style="list-style-type: none">• Visual best practices (lecture)• Filtering and sorting data in Power BI• Formatting charts and visuals in Power BI
Session 4	<ul style="list-style-type: none">• Interactive data visualizations (lecture)• Adding interactivity to Power BI charts• Working with multiple charts in a dashboard
Session 5	<ul style="list-style-type: none">• Advanced chart types (lecture)• Creating additional chart types in Power BI• Working with geospatial data and maps
Session 6	<ul style="list-style-type: none">• Intro to data storytelling (lecture)• Creating data stories in Power BI• <i>Personal project assignment and discussion</i>

7. ASSESSMENT

After the last session, every student must create and submit a personal visual data analysis project on a chosen dataset. The submitted project should include:

- A Power BI dashboard
- Documentation describing the creation process and the resulting visualizations

Grading will be based on the total score out of 100, in line with CEU's standard grading guidelines.

Grade	Name	Poins (0-100)
A	Outstanding	100-96
A-	Excellent	95-88
B+	Good	87-80
B	Fair	79-71
B-	Satisfactory	70-63
C+	Minimum Pass	62-58
F	Fail	57-0

8. SHORT BIO OF THE INSTRUCTOR

Bence Arato has been working in the BI and Data industry for more than 2 decades. During this time, he consulted for dozens of client companies in Hungary and abroad, started several data-focused companies and delivered many lectures and trainings on data warehousing, BI, and data visualization. He is currently the executive director of BI Consulting Hungary and the main organizer of the Budapest BI Forum, Budapest Data Forum and Budapest ML Forum conference series.

<https://www.linkedin.com/in/bencearato>