

Data Analysis using Python in Excel

Lecturer: Gianluigi Pertusi

Language

English

Course description and objectives

This course introduces the use of Python within Microsoft Excel for data preparation, analysis, and visualization. Participants will learn how to write Python formulas directly in Excel, transfer data between worksheets and Python, and use the main Python libraries for data analysis.

By the end of the course, participants will be able to:

- Write and manage Python formulas within Excel
- Work with pandas Series and DataFrames
- Inspect, clean, filter, and transform datasets
- Aggregate data and create pivot-style summaries
- Perform a descriptive data analysis
- Create charts using Matplotlib and seaborn
- Return Python results and visualizations to Excel
- Diagnose common Python errors

Audience

The course is open to all Bocconi students. It is particularly suitable for students who need to analyze, transform, and visualize data for academic or professional purposes and who wish to extend the analytical capabilities of Microsoft Excel through Python.

The course may be especially relevant to students in economics, management, finance, marketing, and the social sciences who regularly work with structured datasets and reports.

Prerequisites

A working knowledge of Microsoft Excel, including tables, formulas, sorting, and filtering, is recommended. A previous knowledge of Python is useful but not necessary: programming concepts required for the exercises will be introduced during the course.

Guidelines

Registration:

You can sign up for the course only through the yoU@B student Diary, in the "**sign-up for various activities**" box (please note that the box appears only when registrations open. Before then it will not be visible).

You can only cancel your registration by diary **no later** than the registration deadline for the course itself. No other ways of cancellation are allowed. Registration will be confirmed a few days before the start of the course through a message posted in the yoU@B student Diary.

Attendance:

- Attendance of **75% or more** of class hours: obtainment of the **Open Badge**
- Attendance of **less than 25%** of class hours: **Exclusion List**

Duration

16 hours

Teaching mode

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

Calendar

Lecture	Date	Time	Room
1	Sat 07/11/2026	09.30 – 11.00	2 (Sarfatti)
2	Sat 07/11/2026	11.15 – 12.45	2 (Sarfatti)
3	Sat 14/11/2026	09.30 – 11.00	2 (Sarfatti)
4	Sat 14/11/2026	11.15 – 12.45	2 (Sarfatti)

5	Sat 21/11/2026	09.30 – 11.00	2 (Sarfatti)
6	Sat 21/11/2026	11.15 – 12.45	2 (Sarfatti)
7	Sat 28/11/2026	09.30 – 11.00	203 (Sarfatti)
8	Sat 28/11/2026	11.15 – 12.45	203 (Sarfatti)

Syllabus of the course

Lecture	Topics	Book References
1	Introduction to Python in Excel - Capabilities and limitations - Python cells and code editor - Referencing Excel data with xl() - Python objects and Excel values Exercises	Microsoft documentation
2	Python and pandas Fundamentals - Variables and data types - Lists, dictionaries, and functions - Series and DataFrames - Inspecting datasets Exercises	Microsoft documentation
3	Selecting and Transforming Data - Selecting rows and columns - Sorting and filtering - Creating and renaming columns - Converting data types Exercises	Microsoft documentation
4	Data Cleaning - Missing values - Duplicate observations - Text and numeric data - Dates, times, and outliers Exercises	Microsoft documentation
5	Aggregating and Combining Data - Grouping and aggregation - Pivot tables and cross-tabulations - Appending and merging datasets - Rankings and percentages Exercises	Microsoft documentation

Lecture	Topics	Book References
6	Exploratory Data Analysis - Descriptive statistics - Distributions and group comparisons - Outlier analysis - Correlation and linear regression Exercises	Microsoft documentation
7	Data Visualization - Matplotlib and seaborn - Bar, line, and distribution charts - Box plots and scatter plots - Pair plots and correlation heatmaps Exercises	Microsoft documentation
8	Integrated Data Analysis Workflow - Integrating Excel, Power Query, and Python - Returning tables and charts to Excel - Error handling and diagnostics - End-to-end data analysis case study Final exercise	Microsoft documentation

Software used

Microsoft Excel for the web with Python in Excel enabled.

No local Python installation is required.

Suggested bibliography

Slides, Microsoft documentation.

Available seats

50 – 2nd/3rd-year Undergraduate students

60 – all the other students

Registrations cannot be carried out once this number has been reached or after the registration period ends.

Please note that you can withdraw from ITEC courses only before the registration deadline.

Spreadsheet paths

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

