What you’ll learn and how you can apply it

**By the end of this live online course, you’ll understand:**

* When to use Excel for data analysis and reporting and when to use Python
* How Python can automate common data preparation and manipulation tasks often done in spreadsheets
* Where Python differs from Excel in how it stores and operates on data

**And you’ll be able to:**

* Navigate and execute code in Jupyter notebooks
* Load, view, and write workbooks to and from Python
* Add custom formats, protections, and metadata to workbooks using Python
* Navigate and execute code in Jupyter notebooks
* Create Excel charts and graphs using Python

This course is for you because…

* You're an analyst responsible for collecting, analyzing, and interpreting data for business insights.
* You’d like to speed up, automate, and validate your reporting and analysis using open source software.
* You’re a spreadsheet user interested in learning more about data science or software development.

Prerequisites

* A working knowledge of basic tasks and functions in Excel, including sorting and filtering, IF statements, conditional aggregates like SUMIF() and COUNTIF(), and PivotTables and VLOOKUP()
* Familiarity with programming concepts like variables, arrays, functions, methods, and iterators (in any language, not necessarily Python)
* Must have a desktop copy of Excel
* Download Visual Studio code
* The last section of class is Windows only.

**Recommended preparation:**

* Read “[Preliminaries](https://learning.oreilly.com/library/view/python-for-data/9781491957653/ch01.html#intro)” and “[Python Language Basics, IPython, and Jupyter Notebooks](https://learning.oreilly.com/library/view/python-for-data/9781491957653/ch02.html#intro-python-environment)” (chapters 1 and 2 in Python for Data Analysis, second edition)

**Recommended follow-up:**

* Download an Anaconda distribution of Python on your computer ([instructions](https://www.anaconda.com/products/individual))
* Read [Automate the Boring Stuff with Python](https://learning.oreilly.com/library/view/automate-the-boring/9781098122584/), second edition (book)
* Read [Python for Data Analysis](https://learning.oreilly.com/library/view/python-for-data/9781491957653/), second edition (book)

Schedule

The timeframes are only estimates and may vary according to how the class is progressing.

**Up and running with Python in Excel (55 minutes)**

* Presentation: Reading in data from Excel—working with Jupyter notebooks, assigning Python objects to imported Excel data, setting column names and attributes, working with multiple worksheets; beginning the workbook do-over—adding rows, columns, and formulas to a workbook from Python, customizing workbook settings (changing fonts and sizes, adding borders, freezing panes, etc.)
* Jupyter Notebook exercise: Read Excel data into Python and customize the workbook
* Q&A

Break (5 minutes)

**Managing workbooks (55 minutes)**

* Presentation: Customizing cells and ranges—defining names and ranges, adding cell comments, setting conditional formatting; customizing worksheets—adding data validation and worksheet protection, hiding and grouping rows, columns, and worksheets
* Jupyter Notebook exercise: Customize ranges and worksheets from Python
* Q&A

Break (5 minutes)

**Python for data analysis (60 minutes)**

* Presentation: Using pandas with Excel—exploring and summarizing Excel data in Python, operating on tabular data in Python with pandas; data visualization—adding Excel sparklines and charts from Python, inserting Python visualizations into Excel
* Jupyter Notebook exercise: Analyze and visualize Excel data from Python
* Q&A