

## Python for Finance

A specialist course



**Audience:** This is a course for traders, analysts, fund managers, quants, and engineers who work with time-series data.

**Outcome:** By the end of the course, you will have all the knowledge you need to start using Python competently for processing, analysing, modelling, and visualising financial data, with a focus on time series. You will have had experience with using Python for various scripting, data-manipulation and visualisation tasks with data in a variety of formats, including SQL databases, CSV, Excel spreadsheets, JSON, and API endpoints. You will know how to slice, dice, merge, aggregate, pivot, clean, munge, resample, and plot financial time-series data with ease. You will understand the elegance and power of the Python language and its powerful ecosystem of packages for finance and data analytics, and you will be well-placed to continue learning more as you use it day-to-day.

**Duration:** 3 days

**Dates:** 20-22 August 2018

**Venue:** Training Choice, Ground Floor, 50 Queen Street, Melbourne CBD

**Format:** Each topic is a mixture of hands-on exercises and expert instruction.

**Instructor:** Dr Edward Schofield and/or Dr Robert Layton. (Their bios are below.)

**Prerequisites:** Some familiarity with programming concepts (in any language) will be beneficial, but prior programming experience is not required.

## Course Outline

### Day 1: Python basics

Day 1 covers how to use Python for basic scripting and automation tasks, including tips and tricks for making this easy. The syllabus is as follows:

- Why use Python for finance? What's possible? Python versus other languages ...
- How to install a complete Python development environment (with plotting etc.)
- The Jupyter notebook for rapid prototyping
- Python syntax and concepts: an introduction through examples
- Essential data types, tips and tricks
- Modules and packages
- Tour of the standard library
- Example: fetching real-time quotes via a web API (Quandl)

### Day 2: Handling, Analyzing, and Presenting Data in Python

Day 2 gives a comprehensive introduction to reading and writing the most important financial data formats and how to analyze and visualize data easily. The syllabus is:

- Working with essential financial data formats: CSV, Excel, SQL, HDF5, JSON, XML
- Indexing and selecting data in Pandas
- Data fusion: joining & merging datasets
- Pivot tables
- Summarization with "group by" operations
- Visualization and statistical graphics with Seaborn
- Creating automated reports from Jupyter notebooks with nbconvert

### Day 3: Working with financial time-series in Python

Day 3 teaches you in-depth about working with financial time-series data in Python. The syllabus is:

- Time-series analysis: parsing dates, resampling, handling time-zones
- Secret weapons for Pandas: searchsorted, hierarchical indices, unstack, styles; qgrid
- Handling missing data and outliers
- Visualizing time-series interactively
- Monte Carlo simulations with Python for risk analysis
- Interfacing Python with Excel

We also encourage you to bring your own data sets to discuss with the instructor if relevant.

## Supplemental materials

We will supply you with printed course notes and a USB stick containing kitchen-sink Python installers for multiple platforms, electronic versions of the course notes, solutions to the programming exercises, several written tutorials, and reference documentation on Python and the third-party packages covered in the course.

## Instructor bio

Your trainer for the course will be selected from:

### Edward Schofield

Ed is well-known in the Python community in Australia and internationally. Ed is the co-chair of the Python for Data Science miniconf for PyCon AU, co-organises the Python user group in Melbourne, and regularly presents at conferences related to Python and Data Analytics in Australia and Singapore. He has consulted to or trained dozens of organisations in Python, including AGL, the Australian Federal Police, Barclays, the BoM, Cisco, CSIRO, Dolby, GDF Energie, IMC, Optus, Shell, Suncorp, Toyota Technical Centre, and A\*STAR. He is a former release manager of *SciPy* and the author of the widely used *future* package.

Ed holds a PhD in machine learning from Imperial College London. He also holds BA and MA (Hons) degrees in maths and computer science from Cambridge University. He has 20+ years of experience in programming, teaching, and public speaking.

### Robert Layton

Robert is a contributor to the *scikit-learn* project, the author of the book *Learning Data Mining with Python* published by O'Reilly Press in 2015, and the author of the website *Leaning TensorFlow* ([learningtensorflow.com](http://learningtensorflow.com)). Robert is a data scientist working across several industries: finance, information security, and transport. He writes regularly on data mining, in a private capacity, consultancy capacity and a research capacity, and has five years of experience giving training courses to companies including IMC, Lumascope, Optus, Sportsbet, and the Australian Crime Commission. He has presented at the last four PyCon AU conferences, at multiple international research conferences.

Robert holds a PhD in machine learning from the Internet Commerce Security Laboratory at Federation University Australia, where he was the inaugural Young Alumnus of the Year in 2014 and is currently an Honorary Research Fellow.

## Other information

**Computer:** A computer will be provided for you during the course.

**Exercises:** There will be practical programming exercises throughout the course. These will be challenging and fun, and the solutions will be discussed after each exercise and provided as source code on the USB sticks. During the exercises, the trainer will offer individual help and suggestions.

**Timing:** The course will run from 9:00 to roughly 17:00 each day, with breaks of 1 hour for lunch and 15 minutes each for morning and afternoon tea.

**Personal help:** Your trainer(s) will be available after the course each day for you to ask any one-on-one questions you like — whether about the course material and exercises or about specific problems you face in your work and how to use Python to solve them.

**Food and drink:** We will provide lunch, morning and afternoon tea, and drinks.

## Price

\$825 per day per person, including GST.

## Booking

To book places on the course, please contact us, or visit:

<https://pythoncharmners.com/training/python-for-finance>

## Testimonials

Testimonials from participants of similar courses are available at [pythoncharmners.com/testimonials](https://pythoncharmners.com/testimonials).

## Questions?

You are welcome to contact us if you have any questions before the course. You can reach us at [info@pythoncharmners.com](mailto:info@pythoncharmners.com).

## About Python Charmers

Python Charmers is the leading provider of Python training in the Asia-Pacific region, based in Australia and Singapore. Python Charmers specialises in teaching programming to scientists, engineers, quants, data analysts, and computer scientists in the Python language. Python Charmers' delighted training clients include the ABC, Barclays, Cisco, CSIRO, Dolby, Geoscience Australia, IMC, Macquarie Bank, Primary Health Care, Shell, Suncorp, and Toyota Technical Centre.

## Contact

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