

## Introduction to Python

### An introductory course in Melbourne



**Audience:** This is a course for staff from various backgrounds with little prior experience in programming. The focus is on automating day-to-day data analysis tasks.

**Outcome:** By the end of the course, you will have all the knowledge you need to start using Python competently for a variety of tasks. You will have had experience with using Python for various scripting, data-manipulation and visualisation tasks with data in a variety of formats, including CSV, Excel spreadsheets, and SQL databases. You will understand the elegance and power of the Python language and the breadth of its amazing ecosystem of powerful packages, and you will be well-placed to continue learning more as you use it day-to-day.

**Duration:** 2 days

**Dates:** 4-5 December 2017

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

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

**Instructor:** Dr Edward Schofield, Dr Robert Layton, and/or Dr Juan Nunez-Iglesias

**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? What's possible?
- Setting up your Python development environment (IDE, *Jupyter*)
- The Jupyter notebook and shell for rapid prototyping
- Modules and packages
- Python concepts: an introduction through examples
- Essential data types: strings, tuples, lists, dicts, sets
- Worked example: fetching and ranking real-time temperature data for global cities
- Raising and handling exceptions
- Handling CSV data: introduction to *Pandas*

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

The *Pandas* package is an amazingly productive tool for working with different kinds of data in Python. Day 2 gives a comprehensive introduction to reading and writing the most important data formats and how to analyse and visualise data easily.

- Reading and writing essential data formats: CSV, Excel, SQL databases, JSON, time-series
- Indexing and selecting data in *Pandas*
- Data fusion: joining & merging datasets
- Summarisation with “group by” operations; pivot tables
- Publication-quality 2D plotting with *Seaborn* and *Matplotlib*
- Interactive visualisation with *Plotly*
- Worked example: creating automated reports with *Jupyter*, *Pandas*, and *nbconvert*

We encourage you to bring your own data sets to the course where relevant.

### Supplemental materials

We will supply you with printed course notes, cheat sheets, and a USB stick containing kitchen-sink Python installers for multiple platforms, 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:

## 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, Lumascape, 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 an 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. We encourage you to have your own data sets ready to use if this is relevant.

**Certificate of completion:** We will provide you a certificate if you complete the course and successfully answer the majority of the exercise questions.

**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/introduction-to-python/>

## Testimonials

Testimonials from past participants of similar courses are available at [pythoncharmners.com/testimonials](http://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 data analysts, scientists, engineers, quants, and computer scientists in the Python language. Python Charmers' delighted training clients include Cisco, CSIRO, Defence Science and Technology Group, Dolby, Geoscience Australia, Macquarie Bank, Optiver, Optus, Primary Health Care, Suncorp, Toyota Technical Centre, and Woolworths.

Python Charmers staff have deep roots in the open source community as contributors to well-known Python packages, including *NumPy*, *SciPy*, *Scikit-Learn*, and *Python-Future*.

## Contact

**Phone:** +61 1300 963 160  
**Email:** [info@pythoncharmners.com](mailto:info@pythoncharmners.com)  
**Web:** [pythoncharmners.com](http://pythoncharmners.com)

