

## 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:** Monday 30th July - Tuesday 31st July

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

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

**Instructor:** Robert Layton and/or Henry Walshaw

**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, tips and tricks
- Raising and handling exceptions
- Worked example: fetching and ranking real-time temperature data for global cities from a web API

### 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
- Time-series analysis: parsing dates, resampling
- Visualisation and statistical graphics with *Seaborn*
- Worked example: creating automated reports with *Jupyter*, *Pandas* and *nbconvert*

### 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 trainers for the course will be selected from:

**Henry Walshaw** Henry has 15 years of experience in GIS, spatial analysis and application development, particularly in the natural resource management field. Henry's core technical expertise relates to the development and analysis of large scale spatial datasets (primarily using Python), and communicating this understanding to people including subject matter experts and the general public.

Henry has worked in government at federal and state levels, at Geoscience Australia (GA), the Victorian Government Department of Sustainability and Environment (DSE), and the Environmental Protection Agency (EPA). He has also worked in the private sector as Senior Spatial Consultant with Sinclair Knight Merz (SKM) and we-do-IT. He holds a Bachelors in Computational Science.

**Robert Layton** Robert is the author of the book "Data Mining in Python", published by O'Reilly. He provides analysis, consultancy, research and development work to businesses primarily using Python. Robert has worked with government, financial and security sectors, in both a consultancy and academic role. He is also a Research Fellow at the Internet Commerce Security Laboratory, Federation University Australia.

Robert is a regular contributor to the Python-based *scikit-learn* open source project for machine learning and writes regularly on data mining for a number of outlets. He has presented regularly at a number of international conferences in Python, data analysis, and its applications. He is also the author of the website [learningtensorflow.com](http://learningtensorflow.com).

**Edward Schofield** Ed is the founder of Python Charmers in Australia and Singapore. He is well-known in the Python and scientific Python communities as the author of the *future* package and a former release manager of *SciPy*. He has consulted to or trained over 1500 people in Python for data analytics from dozens of organisations, including AGL, the Australian Federal Police, Barclays, the Bureau of Meteorology, Cisco, CSIRO, Dolby, DSTG, Macquarie Bank, Telstra, Toyota, and Verizon. 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 internationally.

Ed holds a PhD in machine learning from Imperial College London, with application to speech and image recognition technologies. 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.

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

## 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 scientists, engineers, scientists, quants, and computer scientists in the Python language. Python Charmers' delighted training clients include the ABC, Barclays, the Bureau of Meteorology, CSIRO, Dolby, EPA Victoria, Geoscience Australia, Optiver, Primary Health Care, Shell, Telstra, and Toyota.

## Contact

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