

# Advanced Python programming

## 3 day training course



## Course contents

This course will cover the following topics. Those marked with (\*) will be covered if time allows.

### Working with sets

- Sets versus lists
- Examples of set use

### Dictionaries

- Key/value pairs
- Retrieving items
- Looping over items

### Functions

- Defining functions
- Passing arguments
- Optional arguments
- Modular programming

### Comprehensions

- List comprehensions
- Generators

### Scraping websites

- Understanding HTML
- The REQUESTS module
- Using BeautifulSoup

### Working with CSV files

- Reading and writing CSV files
- Dictionaries using the CSV module

### Working with Excel

- Using OPENPYXL
- Workbooks, worksheets and cells
- Python for Excel or VBA?

### Working with JSON

- The JSON module
- Loading and dumping data

### Working with databases

- The PYODBC module
- Connections and cursors

### Pandas

- Dataframes and series
- Reading/writing dataframes
- Filtering, sorting and renaming
- Dataframe calculations

### NUMPY (\*)

- Shapes, ranks and data types
- Slicing arrays
- Array operations

### Matplotlib

- Getting data for charting
- Implicit vs explicit references
- Figures, axes and subplots
- Formatting matplotlib charts

### Power BI and Python (\*)

- Getting Python data
- Python visuals using dataframes

### Introduction to classes

- An example class
- Designing properties / attributes
- Designing methods

### Coding classes

- Simple classes
- Instantiating objects

### Attributes

- Instance attributes
- Setting attributes on the fly
- Class attributes

### Methods

- Instance methods
- Different ways to instantiate
- Class methods

### Read/write properties

- Getting and setting values
- Private underscored variables
- Action properties

### Inheritance (\*)

- Designing for inheritance
- Inheriting classes
- Overloading
- Using "super"

### Dunder methods

- Doc strings
- String representations of objects

### Understanding existing classes

- Viewing definitions
- Everything is a class

### A case study (\*)

- Aim of the program
- Choosing the objects
- Properties or methods?
- Implementing your classes

## Pre-requisites for Advanced Python programming course

You must already know how to program in Python to attend this course (an ideal preparation would be to attend our two-day Introduction to Python course).

## Prices

Venue	Address	Price per place
<a href="#">London</a>	Landmark, 99 Bishopsgate, London EC2M 3XD	£1,995 per person + VAT
<a href="#">Manchester</a>	Holiday Inn, 25 Aytoun Street, Manchester M1 3AE	£1,695 per person + VAT
<a href="#">Online</a>	Your home or office!	£1,350 per person + VAT

## Scheduled Dates

We don't currently have any dates scheduled for this course, but it's always worth contacting us to see if we'll add some. Alternatively, ask us about organizing a customized course at your office (we'll provide and set up the computers, or an online course tailored to your needs).