

This course covers the following topics (any items marked with a \* will be covered if time allows):

## Getting started

- Installing Python
- Getting started using IDLE

## Basic coding

- Python variables
- Testing conditions
- Printing and f-strings

## Visual Studio Code

- Installing with extensions
- Configuring settings
- Useful short-cuts

## Running and debugging

- The code runner extension
- Stepping through code
- Setting breakpoints

## Ranges and loops

- WHILE loops
- Breaking out of loops
- Ranges of numbers

## Virtual environments

- Why you need a virtual environment
- The VENV command
- Activating virtual environments

## Working with modules

- Installing modules using PIP
- System modules (OS and SYS)
- Maths functions (MATH)

## Sequences

- Tuples versus lists
- Iterating over sequences
- Slicing sequences
- Joining and splitting

## Manipulating lists

- Adding/removing items
- Sorting lists
- Shallow and deep copies

## Files and folders

- Reading and writing
- Using WITH
- Looping over lines
- Looping over folders using GLOB

## Error handling

- The try clause
- Handling exceptions

## Working with data types

- Manipulating strings
- Numbers and Booleans
- The DATETIME module

## Working with sets

- Sets versus lists
- Examples of set use

## Dictionaries

- Key/value pairs
- Retrieving items

## Functions

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

## Scraping websites

- Understanding HTML
- The REQUESTS module
- Using BeautifulSoup

## Comprehensions

- List comprehensions
- Generators

## CSV and Excel

- Reading and writing CSV files
- Using OPENPYXL
- Workbooks, worksheets and cells

## Working with JSON (\*)

- The JSON module
- Loading and dumping data

## Working with databases (\*)

- The PYODBC module
- Connections and cursors

## Overview of Tkinter (\*)

- Creating windows
- Drawing forms with widgets
- Assigning events

## Overview of NUMPY

- Arrays and shapes
- Filling arrays
- Slicing arrays
- Array operations

## Overview of Pandas

- Dataframes and series
- Reading/writing dataframes
- Dataframe calculations
- A look at matplotlib

## Power BI and Python (\*)

- Getting Python data
- Python visuals using dataframes

There will be no more than 6 people on the course. We strongly recommend the use of a second monitor for this training. For more information, see [www.wiseowl.co.uk/python/online/python-programming/](http://www.wiseowl.co.uk/python/online/python-programming/).