Python Crash Course, October 2026

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Course website: https://courses.maths.ox.ac.uk/course/view.php?id=6782

Objectives

The objective of this course is to give an introduction to Python with an emphasis on the essentials of Python programming for mathematics. This course will last about eight hours and will consist of a mixture of lectures and practicals. **The best way to learn the software is by using it**. There will be no grades, so ask for as much help as you need from the demonstrators, the person sitting next to you, the internet, ..., but please don't get AI to do it all for you.

Useful references

Core Scientific Python:

- J. VanderPlas, *Python Data Science Handbook*, O'Reilly, 2016
  https://jakevdp.github.io/PythonDataScienceHandbook/
- W. McKinney, *Python for Data Analysis*, O'Reilly, 2022
  https://wesmckinney.com/book/
- Scipy Lecture Notes: Community-written tutorials on the scientific ecosystem
  https://scipy-lectures.org/

General Python Learning:

- A. Sweigart, *Automate the Boring Stuff with Python*, No Starch Press, 2019
  https://automatetheboringstuff.com/
- The official Python documentation
  https://docs.python.org/3/tutorial/

Online Coding Practice:

- Project Euler: Mathematically-focused programming challenges
  https://projecteuler.net/
- Codewars: https://www.codewars.com/
- Leetcode: https://leetcode.com/

Installation instructions

Python is free, open-source software. We strongly recommend installing the **Anaconda Distribution**, which bundles Python with all the essential scientific libraries (like NumPy, Matplotlib, etc.) and useful tools like Jupyter Notebooks. You can download it for your operating system from the Anaconda website: https://www.anaconda.com/download.

Tentative timetable:

	Monday 5th October
11:00 – 12:30	Introduction Theory 0: Basic operations with the command window Practical 0
13:30 – 15:00	Theory 1: Jupyter Notebooks, Logic, Control Structures & Lambda Functions Practical 1
15:30 – 17:00	Practical 1 (cont.) Theory 2: Scripts & Functions
	Tuesday 6th October
11:30 – 13:00	Practical 2
14:00 – 15:00	Theory 3: Plotting & Visualisation Practical 3
15:30 – 17:00	Practical 3 (cont.)