

PYTHON CRASH COURSE, OCTOBER 2025

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Course website: <https://courses.maths.ox.ac.uk/course/view.php?id=6271>

Objectives

The objective of this course is to give an introduction to Python and the essentials of Python programming. 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, and no such thing as a stupid question.

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 6TH 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 7TH OCTOBER	
11:30 – 13:00	Practical 2
14:00 – 15:00	Theory 3: Plotting & Visualisation Practical 3
15:30 – 17:00	Practical 3 (cont.)