

Coding for Life Sciences

Python

Alex Payne



What is Python?

- Programming language
- Free and open source
- Monty Python's Flying Circus
- Works on Windows, Mac and Linux computers



Why use Python?

- Easy to learn
- Emphasises readability
- General data types

Why use Python?

Automation

- Counting occurrence of a word in a file
- Renaming lots of files
- Cropping all the images in a folder

```
1 gene_count = dict()
2 with open('genes.txt') as file:
3     for gene in file:
4         gene = gene.strip()
5         gene_count[gene] = gene_count.get(gene, 0) + 1
6 print(gene_count)
```

Why use Python?

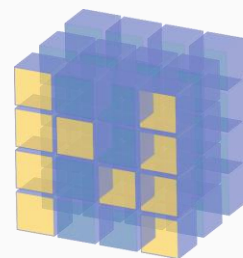
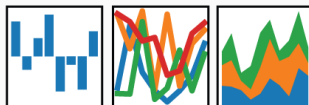
Reproducibility

- Jupyter
- NumPy
- Pandas
- SciPy



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



NumPy



SciPy

Where to find out more?

- Python tutorial: <https://docs.python.org/3/tutorial>
- Anaconda: <https://www.anaconda.com>
- Code Review: <https://codereview.stackexchange.com>
- Python For Data Analysis, Wes McKinney: [nusearch](#)
- MIT OpenCourseWare: [youtube](#)