

Programming With Data (CM2015)

Course Notes

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Contents

Week 1	3
1.01 Welcome to the course	3
1.06 Introduction to development environments and Python	3
1.07 Getting to grips with Python	3
1.103 Jupyter code cells	4
1.105 Jupyter Notebook basics	4
1.106 Using Python as a Calculator	4

Week 1

Key Concepts

- Set up and run Jupyter Notebook on a Windows, Mac or Linux operating system.
- Write and explain simple Python programs using variables and mathematical operators.

1.01 Welcome to the course

Python was chosen for this course due to its simplicity, ease of use and collection of freely available tools.

A print statement in python is simply:

```
1 print("Welcome to Python!")
```

We can also write our code in a file ending with the extension `.py` and run it through the Python interpreter, like so:

```
1 $ python my_file.py
```

During the course we will rely heavily on Jupyter Notebooks. This will give us a nice interface to work with.

1.06 Introduction to development environments and Python

There are many Development Environments available. Only **emacs** is worth your time. Some folks will swear that *VI* is great, however, remember that *VI VI VI* is the number of the beast (trollface).

Jokes aside, a development environment is a very personal choice. One can visit World Class Text Editor section for a small list of what's available.

1.07 Getting to grips with Python

Read the following introductory reading, which will help you get to grips with Python:

McKinney, W. Python for data analysis: data wrangling with Pandas, NumPy, and IPython. (Sebastopol, CA: O'Reilly, 2017) 2nd edition, Chapter 1 Preliminaries and Chapter 2 Python Language Basics, IPython, and Jupyter Notebooks, pp.1–46.

Available [here](#).

1.103 Jupyter code cells

When we create a new Notebook in Jupyter, it comes with what are referred to as *cells*. Cells can be defined in terms of what they can do and we can change their types too.

Code cells can be used to write code. In our case using Python.

Markdown cells are used to write Markdown, which will serve as documentation of textual input.

Raw NBConvert probably won't be used and won't be discussed.

1.105 Jupyter Notebook basics

Click on the links to below to read about Jupyter Notebook basics and using markdown cells in Jupyter:

- [Jupyter Notebook basics](#) [Using markdown cells in Jupyter](#)

1.106 Using Python as a Calculator

Click on the link below to read about using Python as a calculator:

- [Using Python as a Calculator](#)