

UoS Coding Platform



The [Jupyter Notebook](#) is an open-source web application that allows you to create and share documents that contain live computer code, equations, visualisations and narrative text.

If you are new to Jupyter Notebooks, don't be scared! You can learn about them and try them out on the [Jupyter website](#). I also have prepared a tutorial for you in this lecture.

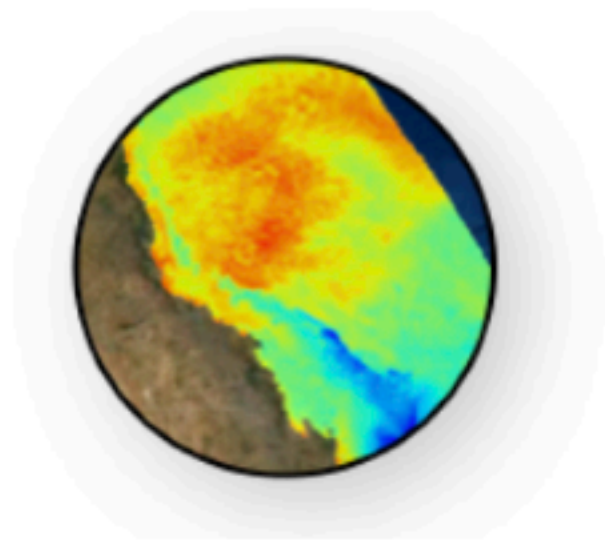
The screenshot displays the Jupyter Notebook web interface. On the left, a file browser sidebar is visible, showing a directory structure under '/ book /'. The files listed are: '_bibliogra...', '_static', 'docs', 'img', 'week_01', '_config.yml', '_toc.yml', 'qe-logo-la...', and 'welcome.i...'. The 'welcome.i...' file is selected. The main area on the right shows the 'welcome.ipynb' notebook. The notebook has a title 'Welcome' and contains the following text: 'Lecture notes of the master lecture [ENVI5809 - Environmental Simulation Modelling](#), taught to 2nd semester students at the University of Sydney. This lecture is tailored for a 12 weeks-long class, but these notes might also be of interest to other (geo-)scientists wanting to learn how to query, analyse and visualise dataset from webserver. **Welcome to you all!**' Below this text is a code cell containing the following code:

```
----  
figclass: margin  
name: margin_figure  
----
```

 The notebook also has a section titled 'What we will use and why we care' which contains the following text: 'This unit of study introduces approaches to simulation modelling in understanding and predicting behaviour of natural systems. It covers fundamental concepts, logic, and techniques (including sensitivity analysis), and develops skills in application to environmental problems such as catchment management and population dynamics.' Below this text is a code cell containing the following code:

```
:::{note} Today, numerical modelling and ocean data query techniques are routinely applied by governmental agencies, companies and research organisations to tackle complex coastal problems. It is based on advanced physical models and engineering approaches designed to describe and observe the connections between ocean dynamics and coastal evolution. :::
```

Jupyter Notebooks / Python fundamentals



Environmental Simulation Modelling

🔍 Search this book...

GET STARTED

Interactive notebooks

Managing environments

Jupyter notebook

Python Fundamentals

Python Functions and Classes



Jupyter notebook

This material is adapted from the [OGGM-Edu's educational notebooks](#).

Welcome to this introduction to [Jupyter Notebooks](#)! The advantage of notebooks is that they can include explanatory text, code, and plots in the same document.

This makes of notebooks an ideal playground for explaining and learning new things without having to jump between several documents. Thanks to binder, you can run them in your web browser without requiring to install anything!

This document itself is a notebook. It is a simple text file with a `.ipynb` file path ending. If you opened this notebook via an Binder link, it is opened in a platform which is called [JupyterLab](#). “JupyterLab” is the development environment allowing you to navigate between notebooks (navigation bar on the left), (re-)start them, and much more. Here, we will focus on the notebooks themselves.

First steps

At first sight the notebook looks like a text editor. Below this line, you can see a **cell**. The default purpose of a cell is to write code:

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First steps

More cell editing

Writing and executing code

Restart or interrupt the kernel

Errors in a cell

Displaying plots with matplotlib

Interactive plots with Bokeh

Formatting your notebook with text, titles and formulas

Download a notebook

Take home points