

Getting Started with Python

Python is a powerful, general purpose programming language that can be used for many applications ranging from short scripts to enterprise applications. There is a large and growing number of free, open-source libraries and tools for scientific computing. For more information about Python and its use visit python.org.

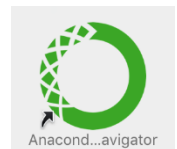
Install Python

There are many ways of using and developing with Python. However, for this course, we will be using Jupyter notebooks, an interactive, browser-based Python interface available through the [Anaconda Distribution](https://anaconda.com/distribution) which is particularly useful for scientific computing. We will be using Python 3.x in this course. While Python 2.x is still available, it is no longer actively developed and many library providers will stop supporting it or

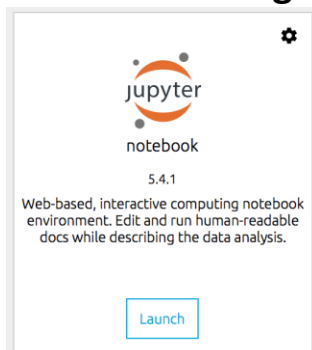
Here is what you need to do:

- Download the Anaconda installer for Python 3.6 or later from <https://www.anaconda.com/download/> for your operating system (you will be asked for your email, however this step is optional and you can proceed without providing it)
- Execute the installer
 - macOS: double-click on the *pkg* file and follow the instructions using the default settings
 - Windows: run the *exe* file and follow the instructions using default settings
 - Anaconda now includes Microsoft Visual Studio Code and you will be asked if you want to install it. This code editor is not required for the course
- Once the application is installed, you can execute *Anaconda Navigator* from the Start Menu (Windows) and the Application folder (macOS)

If you don't want to use Anaconda, you will find installation instructions for Windows 10 at the end of this document.



Anaconda Navigator – Launch Python in a Jupyter Notebook

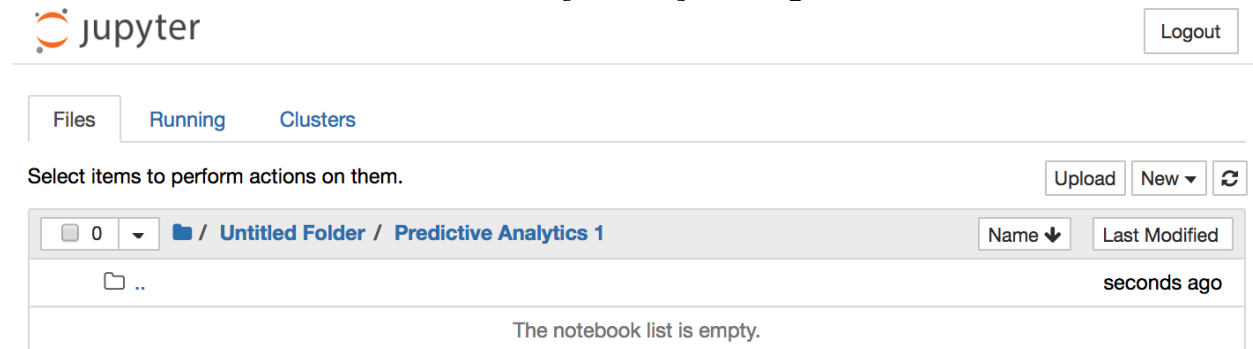


We recommend that you use Jupyter notebooks for the exercises. The Jupyter notebook is a web-based computing environment that runs on your computer and embeds Python code and output together with comments and graphics in one readable document. In the last years, this has become a popular way for interactive data analysis in the data science community.

Select the *Home* tab in the Anaconda Navigator and *Launch* Jupyter notebook. The notebook is launched inside your usual web browser. The supported browsers are *Chrome*, *Safari*, or *Firefox*. An up-to-date version of *Edge* may also work; if not, use one of the supported browsers. The Jupyter notebook application opens a file manager page which allows you to browse to your working directory. You can also create new folders [*New/Folder*] and text files [*New/Text File*] here.



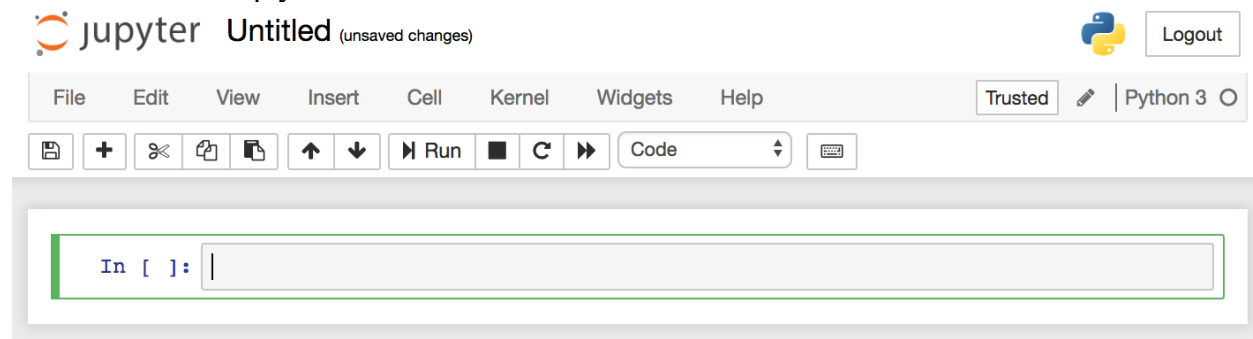
To rename a file or folder select it and use [Rename] to change the name.



Create a folder to keep your work for the course and navigate into the folder. Next use [*New/Python 3*] to create a new notebook which opens in a separate tab or window.

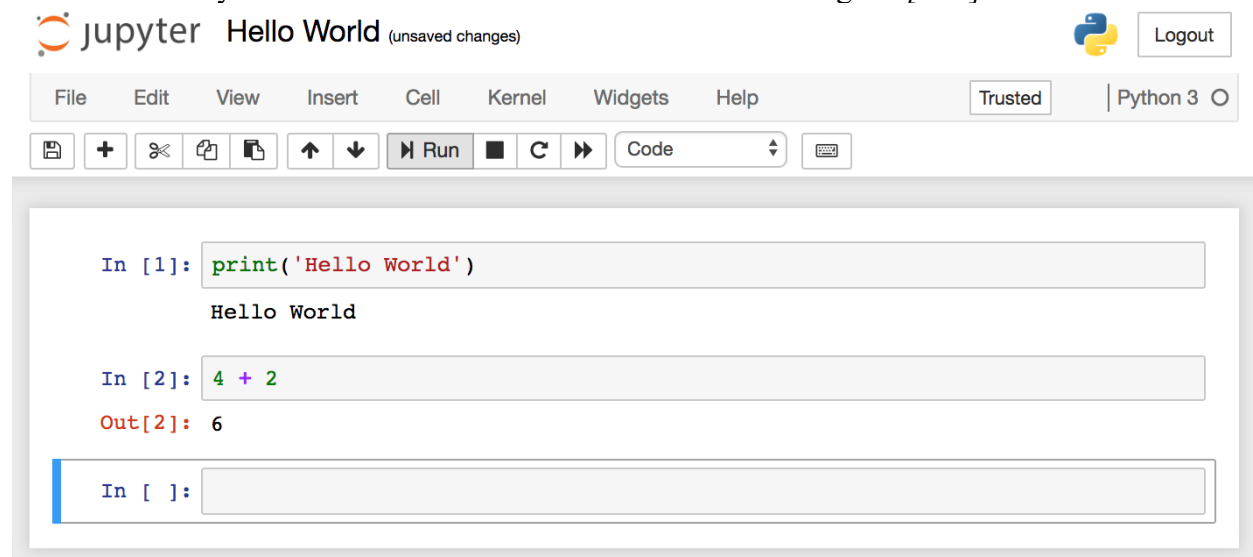
Jupyter notebook

This is what an empty notebook looks like.



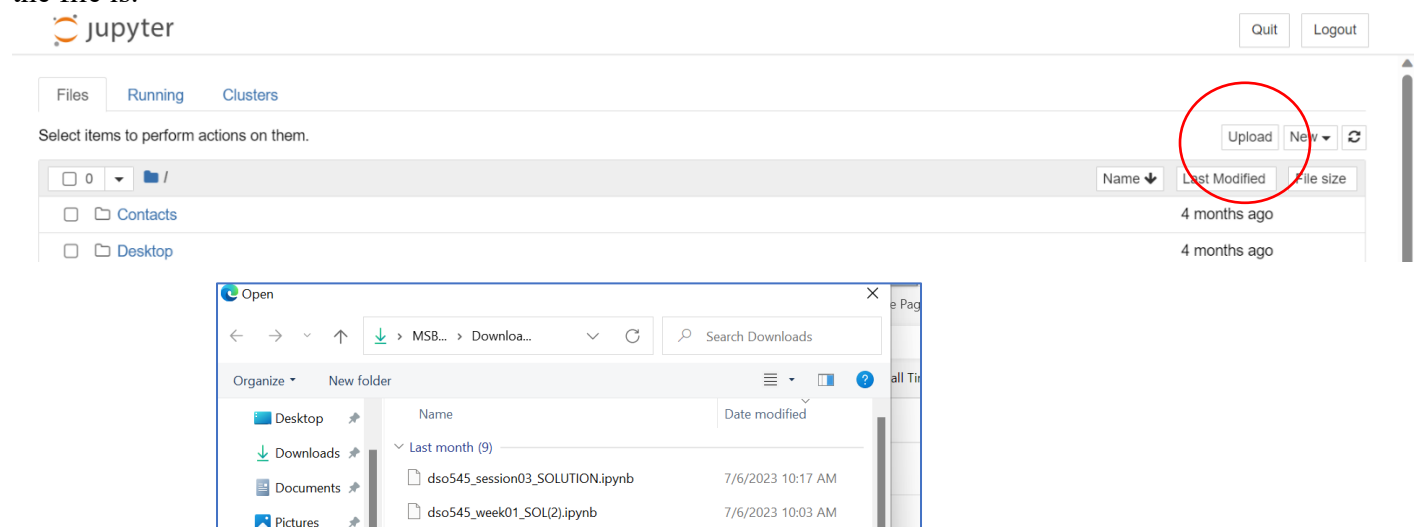
Click on *Untitled* and replace it with as more meaningful title.

You can enter Python code in the code boxes and execute it using the *[Run]* button.



The output and result of the last statement in each code box is printed underneath each block. Jupyter notebooks regularly saves your work automatically. If you want to trigger the save manually, use the *[Save]* button, the *[File|Save and Checkpoint]* menu or the *[Ctrl/Cmd-S]* key. If you find an error in your code, you can modify it and rerun the code. From time to time, you may want to rerun the whole code in your notebook; use the menu *[Kernel|Restart & Run All]* for this.

Uploading a file to Jupyter Notebook, click on the upload button and select the location where the file is.



For example, to upload a file from Blackboard, download the file your laptop first then upload to Jupyter notebook.