

Introduction to Python for scientists

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Python is a versatile and accessible language. It's used in industry and in the tech world, is free, and has libraries to do powerful scientific stuff with a few lines of code.

In the [Crash Course guide](#), we'll work through some of the basics of using python for scientific applications - specifically, we are thinking about plotting and analyzing data in an experimental setting.

This guide is for helping to download and install a python interactive development environment (IDE), which is a space for you to write code and see the results. There are multiple IDEs such as python(x,y) or anaconda. We recommend anaconda as you will automatically have all libraries installed with your distribution. Jupyter notebooks (formerly known as ipython notebooks) are a great way to communicate code and so we will work through our crash course in a jupyter notebook.

The current notebook can be found here:

https://github.com/r31415smith/intro_python

In this link, right click on the latest version of *.ipynb, save link as... and save to the directory where you will be storing your notebooks. Download all files in this folder to a directory where you will be working.

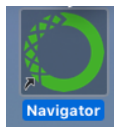
You can also view the notebook online, but not interactively:

https://github.com/r31415smith/intro_python/blob/master/Crash%20Course%20v0.62.ipynb

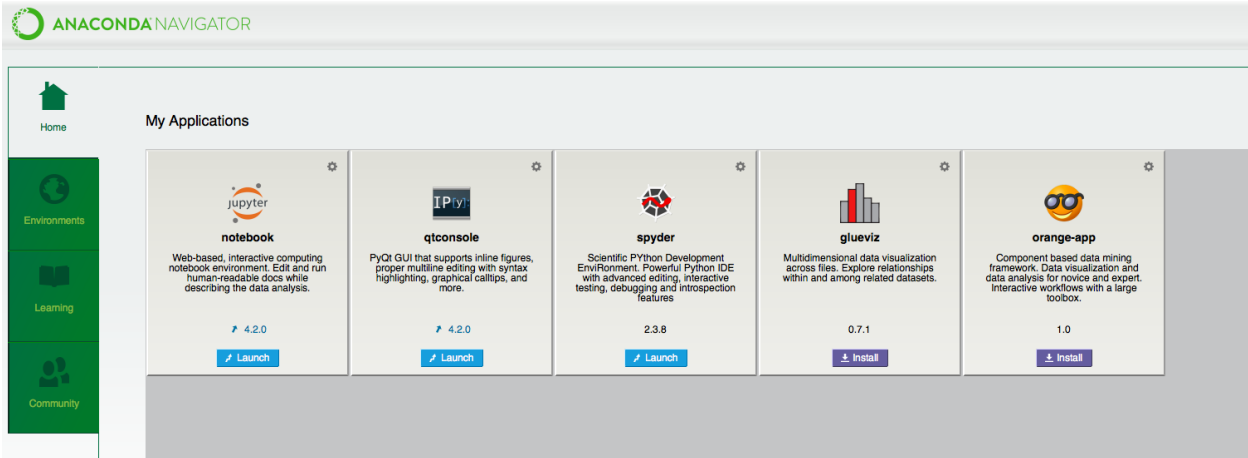
Here's a link to download anaconda (we will use python 3):

<https://www.continuum.io/downloads> (versions for Windows, Mac OS X, or linux)

1. Install Python 3.

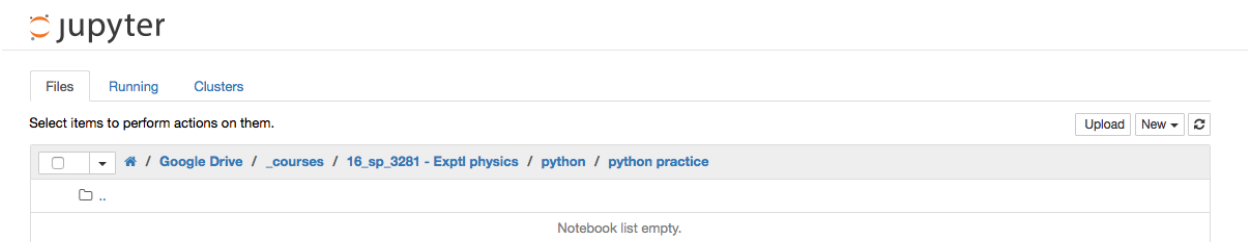


2. Open Navigator



3. Select jupyter notebook. You may need to wait a moment, especially if this is the first time you are opening jupyter. Your default web browser will be launched. All of our coding will happen through a web browser.

4. Once jupyter has opened, you should see a file browser interface like this:



5. Navigate to a folder where you will be storing your jupyter notebooks. Click "New" in the upper right corner, and begin a new notebook.

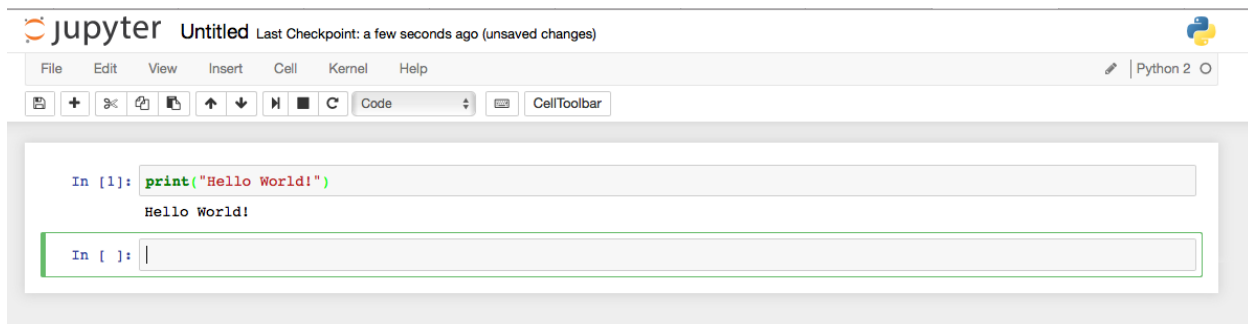
6. Test it out briefly:

In the input box that comes up, type into the command prompt

```
In [1]: print("Hello World!")
```

then hold **shift** and hit enter.

The result look something like the following window:



Notice how it did *exactly* what you asked it to do - print some text to the screen. Also, try typing:

```
In [2]: a=5
```

then **shift + enter**.

Then try

```
In [3]: a+a
```

and it should return 10.

You are now ready to open the [Crash Course notebook](#). **Don't open it by double-clicking the file** - use the file browser interface like in step 4 to navigate to where the notebook is stored locally.

Convenience:

If you would like to open jupyter directly without going through the anaconda interface, you should make a batch file (windows - alias file in mac) and place it on your desktop. The file should have this as its text at be saved as a *.bat:

```
[path of jupyter-notebook.exe file]/jupyter-notebook.exe --notebook-dir "[directory that you want to open to]"
```

for example:

```
C:/Anaconda3/Scripts/jupyter-notebook.exe --notebook-dir  
"C:\Users\OWNER\Google Drive\_courses\16_sp_3281 - Expt1  
physics\python\jupyter notebooks"
```

(where the pathname in quotes is the root directory where I have my *.ipynb files stored - note that this will be a 'root', so it won't be easy to navigate into parent directories if you set this as your root)