Installation and Setup Guide for Python and JupyterNotebooks/JupyterLab

CRIPT requires Python (>=3.9), and the tutorails for CRIPT are writing in JupyterNotebooks/JupyterLab.

If you already have Python (>=3.9) and JupyterNotebooks/JupyterLab, you can skip this and move directly onto the JupyterNotebook tutorials. Start with the tutorial labeled: “Part\_1\_CRIPT\_tutorial.ipynb”

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1. Novice guide (Never installed python; Not much coding experience)
2. Intermediate guide (Python already installed, or experienced coder)

**Novice guide:**

For users not experienced in coding, we suggest loading in Anaconda (<https://www.anaconda.com/>). Anaconda is software distribution for Python. What a software distribution is: is just a collection of multiple software group into one package. So, when you download Anaconda you are actually downloading several programs and not just one program. In the case of Anaconda, it includes:

* Python programing language
* R programing language
* 100+ Python "packages" (libraries)
  + Packages are extra programs that other people (usually open source) have written that extend python to be able to do new things. (For example: numpy: for matrix math; scipy: for advanced math operations like linear regression)
* Spyder (IDE/editor) and JupyterNotebooks/JupyterLab
  + IDE is short for Integrated Development Environment. It’s a software where you can write your code. Python can be written in the “terminal” on your computer without an IDE, but using an IDE provides much more tools like autoformatting, code error checking and much more that make coding way faster and easier. The tutorials for CRIPT are written using the JupyterLab as an IDE.
* conda, Anaconda's own package manager, used for updating Anaconda and packages

The benefit of this approach it is a single download, and hopefully all the files are put into the proper locations on your computer automatically (when manually downloading programs, this can be a big source of frustration). The downside is you are installing a lot of software that you may not want/need, but if you are getting into data science, you will probably use a lot of the installed programs.

## Installation of Anaconda:

To installation visit on of Anaconda guide:

* Windows: <https://docs.anaconda.com/anaconda/install/windows/>
* Mac: <https://docs.anaconda.com/anaconda/install/mac-os/>
* Linux: <https://docs.anaconda.com/anaconda/install/linux/>

## Important checks:

Double check is that you have python 3.9 or greater installed and it is select in Anaconda interface prior to launching JupyerLab.

Open JupyterLab and then open “Part\_1\_CRIPT\_tutorial.ipynb”

# Intermediate guide:

## Python already installed:

If you have python already installed, installing Anaconda (Novice guide) can break how your computer is currently configured. So you have three options:

1. Try installing Anaconda
   1. It may affect any of your prior work if you are luck, and but it may also double install programs that you have already on your computer, just in a new location.
   2. If it does break things, it should just be a matter of re-directing file locations.
2. Start fresh by uninstalling python, then following the Novice guide.
3. Just install JupyerLab.
   1. Make sure you have python 3.9 or greater installed.
   2. See JupyterLab installation guide: <https://jupyterlab.readthedocs.io/en/stable/getting_started/installation.html>
   3. You may run into issues if you did not configure your python installation in the most preferred manner. If you have any issues, Stackoverflow is always a good place to start for help.

## Experienced Coder:

If you are experienced coder in another language like C, C++, Java, etc. installing python and JupyterLab should not be a difficult process. Doing it manually (vs the Novice guide), avoids downloading lots extra stuff that you may not need and give you flexibility to configure the program to your liking. The one thing to be cognizant of is the location where you save python, and JuypterLab. The installation typically defaults to the right locations, but if you run into issues, this is likely that cause as some software look for python in the default locations.

* Python(>=3.9) : <https://www.python.org/downloads/>
* JuypterLab: <https://jupyterlab.readthedocs.io/en/stable/getting_started/installation.html>

Bonus: If you are looking for an IDE for python, we recommend PyCharm Community Edition (<https://www.jetbrains.com/pycharm/> ). Its one of the heftier IDEs for python, but those extra features do come in handy if you are doing a lot of python programing.