Software Installation

We will be using the Conda environment management system for this course. Research-oriented workflows can often involve multiple Python packages and is not uncommon that a single researcher to work on multiple projects. As a result, managing disparate package versions and combinations becomes a necessity. Conda is a widely used tool that helps to manage such different Python package combinations.

The following steps should guide you through the installation process:

1. (You may skip this step if you already have Anaconda installed) Install Miniconda by choosing the appropriate **Python 3.9** installer from this link: https://conda.io/miniconda.html Windows, Mac, and Linux installers are provided, and we have tested all three 64-bit versions. Note that if you aren't sure whether you need 64- or 32-bit functionality, you almost certainly want the 64-bit version. Once you've run the installation script, proceed to step 2.

2. Now that you have Conda installed, open a terminal window (in Windows, select "Anaconda Prompt" from the start menu). Execute the following commands:

    1. conda update conda [answer "yes"]

    2. conda config --add channels conda-forge

    3. conda create -n pyclass21 jupyterlab numpy matplotlib **python=3** [answer "yes"]

    Note that "pyclass21" is a nickname for this Python/package combo. You are free to use anything you wish in lieu of "pyclass21."

3. Once the installation is complete, you should see a message indicating that you can access your python installation by typing "conda activate pyclass21." If the installation appears to hang after several minutes, but the last file appears to be 100% downloaded, try hitting "enter." That seems to wrap things up. The last step is to test your installation. To do so, type the following commands:

    1. conda activate pyclass21

    2. python

        You will be taken to an interactive Python prompt, and you should see a message indicating Python 3.x.y. NOTE: if you see Python 2.x.y, you have installed the wrong version of python. Rerun the above command and make sure to say "python=3."

    3. import numpy

        Entering this at the Python prompt will import the NumPy module.

4. print(numpy.pi)

   Entering this at the Python prompt should display the value of pi (3.14159). If you see this, your installation is working!

5. exit()

   This is how we exit the Python interpreter.

6. conda deactivate

Note that activation/deactivation is how we switch between different python installations in Conda. When we installed Conda, we also installed Python, but not the latest version of Python. After you have deactivated "pyclass21," try typing "python" again. You will probably see a different version number and distribution name. Running "conda activate pyclass21" will point your environment back to the latest version of Python (or whatever Python environment is associated with the nickname "pyclass21").