Instructions for AICHE 2022 Python Workshop

This document will go through the steps required to Install Anaconda, which will give you a local installation of Python and Jupyter on your computer. An Anaconda installation will also include all of the packages you'll ever need for engineering or data analysis. I generally recommend installing Anaconda so that you can work locally on your machine whether or not you have internet access, but be aware that Anaconda is a large installation (~ 2GB). If you do not wish to install Anaconda/Jupyter locally on your computer (or you are unable to for whatever reason), you can still participate in the workshop using an online Python kernel such as Google Colab.

There are many reasons why you may choose not to install Anaconda. Maybe you're just interested in trying Python and Jupyter out during the workshop; maybe you don't have space on your machine for a full Anaconda installation; or maybe your IT staff will not allow you to install software on your work machine. These are scenarios where it might be preferable to use a web-based Python/Jupyter environment. I usually use Google Colab for this.

Caveat: to use Colab, you need a Google account, but I assume everyone has one of those at this point (?)

Note: If you are a more experience Python user, you might point out that you *can* install Python and Jupyter without installing the full bulk of Anaconda, but I am not going to provide instructions for this. It is significantly more involved and requires manual installation of Jupyter and all packages using pip—there is a good chance an oversight on my part will leave you without all of the packages you'll need for the workshop, so I am only recommending Anaconda installation. If you do not have sufficient storage space to install Anaconda fully, please just use Google Colab. It will give you access to all of the packages you'll need without any additional hassle.

If you choose to not install Anaconda and use Colab instead, please skip **Step 1** and start with **Step 2**.

1. Installing Anaconda

To install Anaconda, navigate to the link below. Choose the distribution that is appropriate for your operating system (Windows, Linux, MacOS).

https://www.anaconda.com/products/distribution

Download the installer and run it. Follow the instruction prompts and choose the default options—you should not need to modify the installation in any way. That's pretty much it. Once you've installed Anaconda, you should be able to Launch Jupyter. We are going to use Jupyter Notebooks, not Jupyter Lab. The easiest ways to launch the Jupyter Notebook environment are:

- Jupyter Notebook should have a shortcut by default (at least on Windows it does); if so:
    - Type "Jupyter Notebook" into your search bar
    - Press enter or click the Jupyter Notebook (anaconda 3) App
    - This should launch what looks like a file system navigator in your web browser

- Run Anaconda Navigator from your start menu
    - Find the icon for Jupyter Notebook
    - Click “Launch”
    - This should launch what looks like a file system navigator in your web browser

2. Download and Run Test Notebook

I prepared a test notebook that briefly introduces Markdown and Code Cells; I am going to assume that not everyone is a GitHub user, so I am providing access to all necessary files using my Google Drive account. If you can run all of the cells in that Notebook, you have everything you need for the workshop. To run it:

- Download it from the link below and save it to your preferred folder on your computer. The file is named AICHE2022_Test_Notebook.ipynb
    - Test Notebook for AICHE
- Use the file system navigator (Jupyter Notebook) in your web browser to navigate to the folder where you have saved the file that you downloaded above. Once you find it in Jupyter, you should be able to just click it, and it will open the Notebook in Jupyter.
- Once you have it opened in Jupyter, follow the instructions in each of the cells. If you can run all of the cells in the Notebook without generating error messages, you have everything you need installed for the workshop.

3. Instructions using Colab

Navigate to Google Colab: https://colab.research.google.com/

From here, you should be able to use the **File** tab to open the test notebook downloaded in 2.). There are lots of ways to do this, one of which is to just upload the notebook to Colab. My preference when I am using Colab is to just upload all of my Notebooks into a Colab folder on Google Drive; Colab will have access to the Drive account, and it makes it easy to navigate to and open the Notebooks directly from Drive rather than uploading individual notebooks to Colab.

Once you have the Notebook opened, you should be able to follow the instructions in the Notebook to execute each of the cells. If they all run correctly, then you’ve correctly loaded the Notebook into Colab, and you should be all set for the workshop as long as you follow the same steps with any additional workshop notebooks.