Installation Instructions for DSO 570

Please complete the following steps before the first week of class.

1. Installing Python 3 using Anaconda

Follow the instructions at https://docs.anaconda.com/anaconda/install/ to install Anaconda for the latest version of Python 3. All you have to do is to download the installer and click a few buttons. Anaconda is a software to help you install Python as well as the packages you need while minimizing IT issues.

It is highly recommended that you use Anaconda, instead of alternative ways of installing Python, such as pip or Homebrew. If you already have Python installed, but not using Anaconda, you should still install Python again using Anaconda, as that would allow you to install packages (Step 2) using Anaconda commands. Anaconda is not compatible with other installation commands such as pip, so you should exclusively using Anaconda commands and avoid all instructions that involve pip. Otherwise, you may have to uninstall everything and reinstall Anaconda from scratch.

One concern you may have about installing Anaconda is the amount of disk space needed. If you want a lite version of Anaconda, you can install Miniconda here: https://docs.conda.io/en/latest/miniconda.html This is essentially the same as Anaconda, except that it installs fewer packages upfront. However, you can always install whatever packages you need later using Step 2 below.

2. Installing Packages

A Python package is a piece of software that adds functionality to the Python language. There are countless packages, and you only need to install the ones that you will use. This step ensures that all the Python packages that we will use for this course are correctly installed.

After completing Step 1, launch the **Anaconda Prompt** if you are using Windows, or open a new **terminal** if you are using Mac or linux, and type the following:

```
conda install numpy scipy matplotlib pandas jupyter ipython spyder xlrd xlsxwriter
```

Then type "y" for yes to install. It is likely that these packages are already installed by Anaconda, but you should type the above just in case.

Note that Anaconda Prompt on Windows is different from the Command Prompt. It looks like the Command Prompt but it specifies certain settings called environment variables that allow it to find the Python packages on your computer. Anaconda Prompt is installed in Step 1 above.

If you encounter an error message, check that you typed the above exactly. If you still get the error message, then copy and paste the error message into a search engine (such as Google or Baidu) to find the solution. (One important skill this class encourages you to build is to be able to debug IT issues on your own, because you are bound to face similar challenges in the work place as technology often has hiccups.)

3. Launching Jupyter Notebook

To check if installation was successful, type the following command (into the Anaconda Prompt if you are using Windows, or into a terminal if you are using Mac or Linux) to launch Jupyter notebook.

```
jupyter notebook
```

This should start a web browser with a directory structure, where the base directory is the one where you typed the above command. In order to change the base directory where Jupyter notebook starts, you need to change the directory in Anaconda Prompt or terminal, before typing `jupyter notebook`. To do this, you can type the command

```
cd ..
```

to go up a diretory and

```
cd XXX
```

to enter the directory named "XXX". To see what is your current directory in the command line, you can type `pwd` in Mac and `cd` in Windows.

Jupyter notebook provides a browser-based interactive interface to Python. It makes it easy to write, run and shar code segments. We will be using this tool extensively in this class, so it is a good idea to familarize yourself by following this short tutorial: https://medium.com/codingthesmartway-com-blog/getting-started-with-jupyter-notebook-for-python-4e7082bd5d46

4. Testing Your Installation

Download the "test.ipynb" Jupyter notebook file attached on Blackboard where you downloaded this file. Save the file in a folder of your choice on your computer and navigate to that folder using Jupyter notebook following the intsructions in the video. Open the file and run the code cell twice, and make sure you see a graph like in the video. Please reach out to the instructor if you do not see the graph after running the notebook twice.