Computer Setup for E164: Introduction to Biological System Design

To get the most out of the class, you are encouraged to setup your computer so that you can run Python and interactive Python notebooks called Jupyter notebooks. If you have limited computing resources available or if you prefer to have an online working environment, you may choose to go for the cloud-based Google Colaboratory option. This document gives detailed installation steps to help you set things up.

Python Setup:

1. Make sure you have Python 3.9 installed. To do this, use the anaconda distribution so that you get easier access to various scientific computing libraries.
2. Go to the Anaconda webpage and choose your installer according to your operating system (MacOS, Linux, or Windows).
3. Run the installer by following the installation steps as detailed here.
4. Once you have installed Anaconda distribution, you can open up the Anaconda Navigator, if you prefer a GUI (graphical user interface) or the Anaconda Terminal (Anaconda Prompt in Windows OS).

Verify Installation:

5. To make sure your installation worked, you can "Launch" a Jupyter Notebook from the Anaconda Navigator or run the command `jupyter notebook` from the terminal. A new tab in your web browser will open up - this is the interactive Python shell that you can use to run Python code. Now you can say hello to Python by trying some simple code snippets.
6. To run a Jupyter notebook cell, simply press "Shift + Enter" or click on Run in the pane at the top.
7. Your basic setup is complete. Now you can simply install Python packages and run code!

(Optional) Setup a New Environment for E164:

8. It is often strongly recommended to have a new environment for each project so that the different package dependencies, versioning, etc. remain consistent and the requirements of one project does not affect a different project.
9. To setup a new environment to work in for the E164 class, in the left pane of the Anaconda Navigator, click on "Environments", then click on "Create". Enter your desired name for this environment and choose the Python version for this environment. If you are on the terminal, you can create a new environment called "e164" by running:
   `conda create --name e164 python=3.9`
10. You can now install all required packages into this environment by searching for the package name on the right pane in the Navigator or by running the appropriate commands on the terminal (pip install or conda install).

Package Installation and Test Notebook:

11. Download the week1_python_test.ipynb notebook from course webpage. Install the following packages to run this notebook successfully: numpy, scipy, matplotlib. You can either install these packages by searching for their names in the navigator under your environment or by running the command: `pip install numpy scipy` matplotlib in your terminal/anaconda prompt.

Feel free to discuss any errors you face on the course Piazza page.