MacOS setup sequence to run EOSC211 Jupyter notebooks.

Follow the steps in column 1 exactly as written. This sequence assumes you are running a laptop or computer that uses a Mac OS. NOTE: Commands must be typed EXACTLY as written: copy and pasting doesn't work.

Table 1: One-time setup instructions

	Do this …	**… which will accomplish this.**
0	Find out what model your Mac cpu is, by tapping on the apple icon in the upper left hand corner of the screen and selecting "About This Mac". Under "processor" you should see either "Core Intel …" (for older macs) or "Apple M1 or M2" (for Macs built after November, 2020 with the ARM cpu)	
1	- Download miniconda from https://docs.conda.io/en/latest/miniconda.html; choose the `Miniconda3 MacOSX 64-bit.pkg` version if you are Intel, or the `Miniconda3 macOS Apple M1 64-bit pkg` if you're ARM/M1 - Run the downloaded executable file by opening it, agreeing to the licenses and accepting all defaults. - You should install for "just me".	Install "miniconda", software that both manages packages you will fetch later, and includes basic components of Python.
2	- Open Spotlight search with the icon on your menu bar (it looks like a magnifying glass) OR by holding command-space, then type "terminal" to open a terminal. - at the terminal prompt, type `zsh` - verify that python is installed by typing `which python` You should see something like `/Users/phil/opt/miniconda3/bin/python`	Run the MacOS terminal
3	You should already have an eosc211 folder, in which you are keeping all your eosc211 work. find it and drag it into your terminal window. Then type `pwd` This should show your eosc 211 folder as your current working folder. In my case my eosc211 folder is called eosc211_2022 and is in another folder called "repos" in what is called my "home" folder or directory (/Users/catherine/) so when I type `pwd` I get the following: `/Users/catherine/repos/eosc211_2022` This is called a "path", copy and paste it into whatever you use for keeping notes as you will use it anytime you want to use jupyter notebook in future. In Table 2: step 2 we refer to this as "eosc211_path"	Use a few basic command line instructions, see where you are (which folder), what's there.
5	Log into canvas and go to "Files" then to "lockfiles". Download the file named `conda-osx-64.lock` if you're Intel or `conda-osx-arm64.lock` if you're ARM Type `open .` (the word open followed by a period) to start Finder in this folder. Use finder to move your `conda-osx-(arm)64.lock` file from your Downloads folder to your eosc211 folder. You should see the filename listed when you type `ls` at the command prompt	Download the specifications for your conda environment. For more info: see the explanation of "why environments" in Resources below.

	Do this …	… which will accomplish this.
6	In the folder `~/eosc211` -Type `conda activate base` -Type: -- For Intel: `conda create --name eosc211 --file conda-osx-64.lock` -- For ARM: `conda create --name eosc211 --file conda-osx-arm64.lock` - conda will begin downloading and installing packages. - Type `conda env list` You should see a list of two environments: "base" and "eosc211"	From the "base" environment, build the environment required for running Python and Jupyter notebooks for this course.

Table 2: To use jupyter notebook any time

1.	Open Spotlight search with the icon on your menu bar (it looks like a magnifying glass) OR by holding command-space, then type "terminal" to open a terminal.	
2.	Change into your eosc folder by either a) Finding your eosc211 folder and dragging it into your terminal window (as in step 3 earlier), or b) In the terminal window type: `cd "eosc211_path"` where "eosc211_path" the path you copy and pasted somewhere safe in step 3 above. E.g. for me I would type: `cd /Users/catherine/repos/eosc211_2022` cd means "change directory" or "change folder".	
3.	- Type `conda activate eosc211`	Makes the packages specified by the "eosc211" environment available to Jupyter.
4.	- Type: `jupyter notebook`. - You should see your browser open a new window with the Jupyter Notebook interface. If not, get help from the instructor / TA.	Test Jupyter Notebooks.
5.	You're ready to begin working as you would on the jupyter hub. You should see your lab and class folders listed, be able to make new ones etc.	

Resources

Using the command line and "shells" :

- https://eoas-ubc.github.io/commandline.html .

Explanation of "why environments":

- https://www.freecodecamp.org/news/why-you-need-python-environments-and-how-to-manage-them-with-conda-85f155f4353c/ .

Jupyter Notebook documentation:

- https://jupyter-notebook.readthedocs.io/en/stable/ui_components.html
- https://nbviewer.jupyter.org/github/jupyter/notebook/blob/master/docs/source/examples/Notebook/Notebook%20Basics.ipynb
- https://nbviewer.jupyter.org/github/jupyter/notebook/blob/master/docs/source/examples/Notebook/Running%20Code.ipynb