

Collective Logic Lab - Running Jupyter to work with data

Notes:

- Documentation is done by Diya Hamada (dhamada@asu.edu) for M2 Mac.
- The example shown is `forage_model_CLL.ipynb` for the Honey Bee Project's analysis of foraging behaviors, available in the lab's GitHub
- Last updated: Jan 29th, 2024
- Editing link to this Google Doc:
https://docs.google.com/document/d/1ZdfKKkZ9LerUyalPJk8KVDj26dshBabdMP_sWvcRy28/edit?usp=sharing

Step 1: Download relevant data and files to your computer.

For the Honey Bee Project, this is in Zenodo:

2018 data: <https://zenodo.org/records/6045860>

2019 data: <https://zenodo.org/record/7298798>

This may take a while! When it is complete, move all data into a single folder. That can go wherever you want on your computer, just be sure it is easy to find later.

This is also a good opportunity to download what you need from the Collective Logic Lab GitHub repository (ask Dr. Daniels for an invite if you do not have access already). I recommend keeping everything in the same folder.

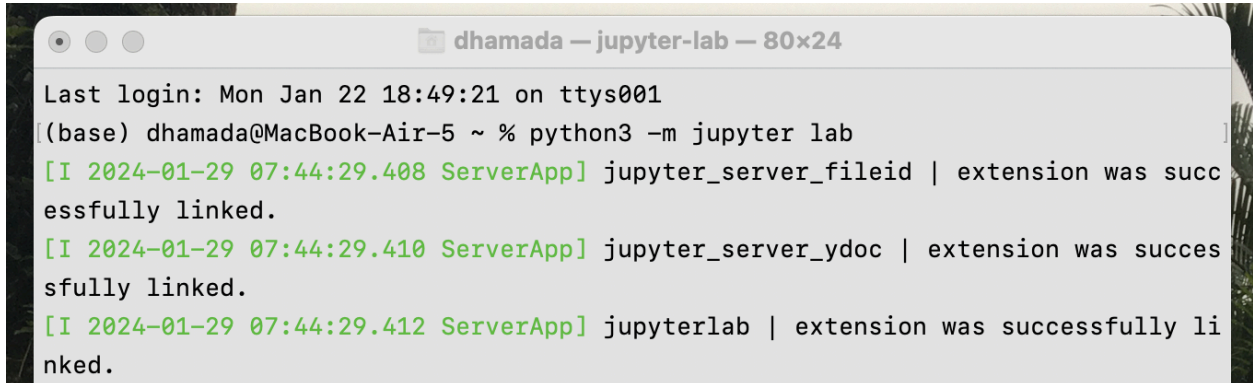
Step 2: Open Jupyter Lab

You will need to have python3 on your computer. If you need help with that, I recommend checking this link out: <https://realpython.com/installing-python/>

You will also need Jupyter Lab. Here's another helpful link:

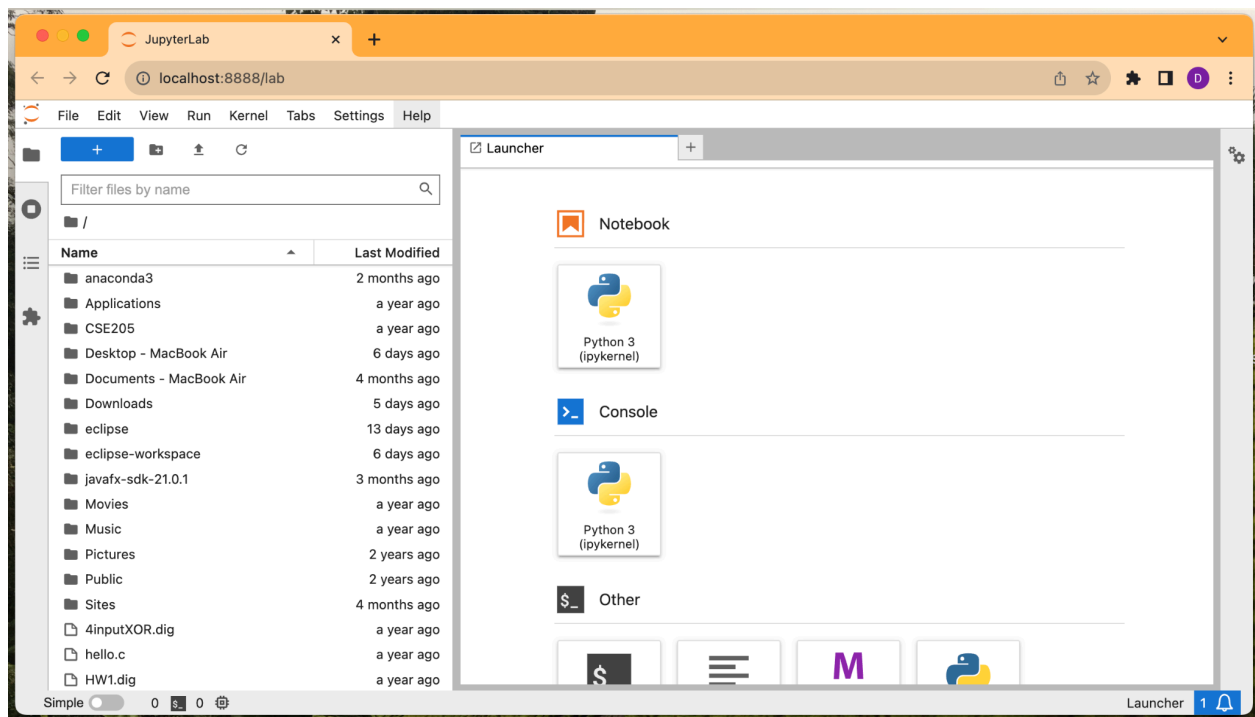
https://jupyterlab.readthedocs.io/en/stable/getting_started/installation.html

I use my Terminal to open Jupyter Lab with the command “**python3 -m jupyter lab**” as shown below.

A terminal window titled "dhamada — jupyter-lab — 80x24". The output shows the last login time and the execution of the command. Three green status messages indicate that the extensions 'jupyter_server_fileid', 'jupyter_server_ydoc', and 'jupyterlab' were successfully linked.

```
Last login: Mon Jan 22 18:49:21 on ttys001
(base) dhamada@MacBook-Air-5 ~ % python3 -m jupyter lab
[I 2024-01-29 07:44:29.408 ServerApp] jupyter_server_fileid | extension was successfully linked.
[I 2024-01-29 07:44:29.410 ServerApp] jupyter_server_ydoc | extension was successfully linked.
[I 2024-01-29 07:44:29.412 ServerApp] jupyterlab | extension was successfully linked.
```

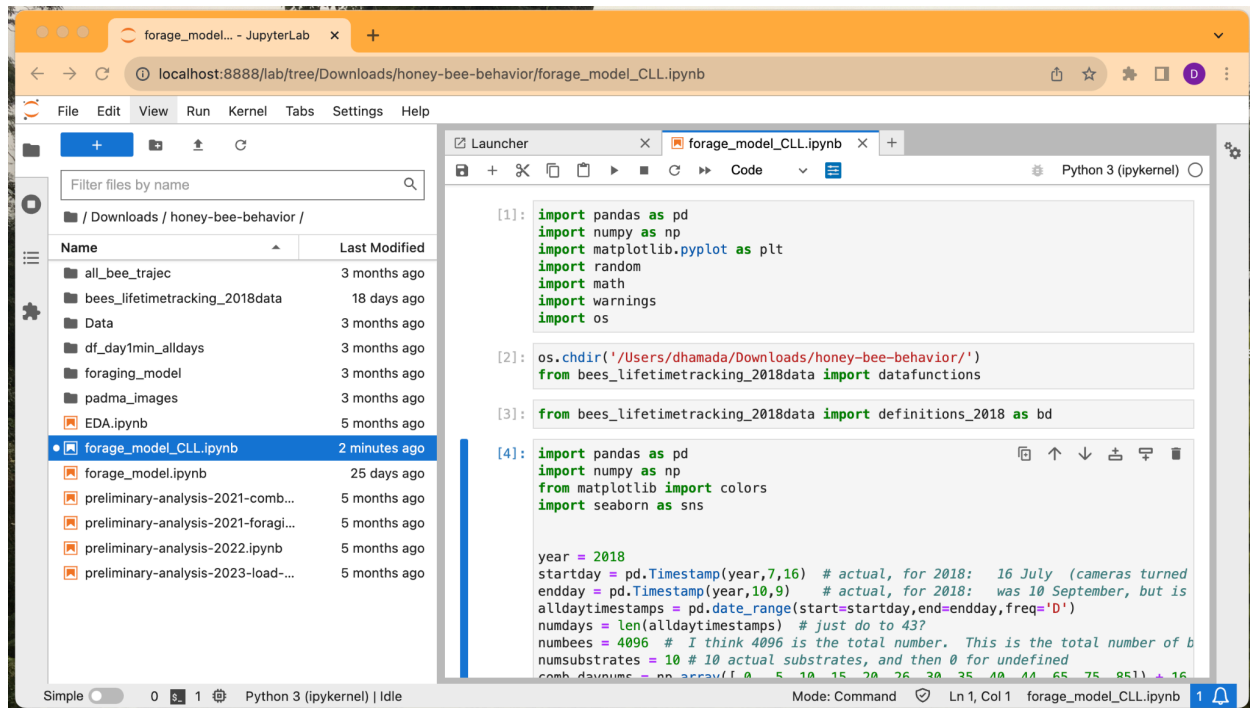
After running the command, many lines of text should run across your Terminal, and then this tab should pop up in your browser:



Step 3: Open a Notebook and import data

If you already have a Notebook you would like to run, navigate to it in the bar on the left. Otherwise, use the tabs at the top of the screen and go to File > New > Notebook.

Here is my Notebook, forage_model_CLL.ipynb. For those working on the Honey Bee Project, I highly recommend keeping the data, Notebooks, and other files from GitHub in the same folder for convenience, as shown on the left.



To import data or functions, start with “import os” and then use `os.chdir('FILEPATH')` to navigate to the folder with your project files as shown in lines 1 and 2 of my Notebook. For Mac users, FILEPATH can be found or checked by locating the folder in Finder, clicking once to highlight it in blue, and holding the “option” key.

Finally, use the keywords “from” and “import” as shown in lines 2 and 3 for each file to be imported (datafunctions and definitions_2018 are both .py files but note that I have dropped their file types).

“as” can be added (line 3) if the file has an excessively long name and you’d like to call it something nice and short while you work.

If there are no errors when you run an “import” command, it’s worked!

More Notes:

An easy alternative to Jupyter Lab would be Google Colab. No setup or downloads are required, and files on your computer can be easily uploaded and read—extremely similar UI to Jupyter Notebook.