

# Jupyter Notebooks Overview for Project 3

November 23, 2022

# Administrative Notes

# Jupyter

Project 3 is completely different from the first two projects. You will use a free tool called Jupyter Notebooks to essentially prepare a research report with live Python code running to perform data analysis and provide graphics showing your results

This is most definitely NOT something the majors' sections are doing.

So why do we do it in this section?

- It shows how to incorporate the computer science skills you have picked up in this course into any research you do in many different fields

# Jupyter Notebooks

See <https://jupyter.org/>

A tool that incorporates Python cells and Markdown cells to create a unified presentation.

*Note: “Jupyter” is an amalgam of “Julia, Python and R” You can run Jupyter Notebooks in any of those three languages. We’ll only be using Python, of course*

*Note: Jupyter Notebooks presume you have a high-quality graphical user interface (GUI) to present results. gl.umbc.edu does not have such a user interface. So you will need to run Jupyter on your own laptop, and submit it when you’re done. If you do not have access to a laptop that can run Jupyter, let me know immediately.*

# Let's get started

Go to <https://jupyter.org>

Scroll about a third of the way down the page, until you see

Jupyter Notebook: The Classic Notebook Interface

For simplicity, click “try it in your browser” first. Note for the demos in this lecture I’m using Chrome, but it’s very similar in Firefox, Edge or Safari.

# A demo of Jupyter in a browser

Things to pay attention to:

- Creating a new Notebook
- Adding cells
- Code cells vs. Markdown cells
- Running selected cells
- How output is handled
- Running all cells in a notebook

# Markdown

“Markdown” is a pun based on “markup”

- which is what you do to a draft document
  - you mark it up with editor’s notes indicating changes you want made
- Here you “markdown” a notebook
  - You insert text and graphics that describe what your code is doing
- Markdown is not unique to Jupyter; it is used with many other tools

A good “cheat sheet” showing common Markdown instructions:

<https://www.markdownguide.org/cheat-sheet/>

# Now, installing Jupyter on your system

Go back to <https://jupyter.org>

Scroll down to “Jupyter Notebook”

Click “Install the Notebook”

- Follow the instructions for Jupyter Notebook, NOT Jupyter Lab
  - Jupyter Lab is a different tool that contains WAY more than we need for this class