ASTR 596

Fall 2024

Python and Jupyter Notebook tutorial (20 points)

This assignment will be handed in on Canvas but will also involve using Github and Jupyter Notebooks. We will start this assignment in the 2076 computer lab. The assignment name in Canvas is "*Python and Jupyter Notebook Introduction*" and is in Module 1

All commands that you need to type will be given in red. Anything written like this **<text>** implies that you need to write something unique to the situation in place of the <> statement.

There are a set of python and GitHub tutorials under the Course Documents section of Canvas.

This is due on September 13th at noon.

This is really important. Read each step carefully in its entirely before attempting that step.

1. You will use this computer for the first few assignments but may move later.
2. Login with your KU credentials - Do not update Ubuntu if you are prompted.
3. Open the "Terminal" app. You can access this by searching for terminal. You can add this program to your dock by right clicking on the doc icon, which looks like a screen.
4. Type at the command line prompt
    - micromamba shell init
    - source ~/.bashrc
5. Download the file at https://github.com/spacetelescope/stenv/releases/download/2024.08.14/stenv-Linux-X64-py3.12-2024.08.14.yaml and save it to your Downloads directory
6. At the command prompt type (all on one line) micromamba create --name stenv --file ~/Downloads/stenv-Linux-X64-py3.12-2024.08.14.yaml --yes
7. Type micromamba activate stenv
8. Close your terminal window and reopen it
9. Type micromamba install --channel conda-forge astroplan astroquery speclite --yes

This whole process will take a few minutes

10. Make sure you are in your home directory with the command cd ~
11. Make a directory called ASTR596 using the commands
    - mkdir ASTR596 followed by

- cd ASTR596
- mkdir Rudnick_repositories
- cd Rudnick_repositories
- *expert tip: If you partially type a path or file, and hit the tab key, the terminal will automatically complete the name up until it stops being unique. This can save huge amounts of typing. You can try this by doing*
    - *cd ~/ASTR596*
    - *cd Rud<hit Tab key with no space>*

12. Go in your browser to the following URL https://github.com/grudnick/ASTR596_F24
13. Push the green "Code" button and copy the URL you see.
14. At your command line, type git clone <copied text> , where "copied text" is that which you copied in the previous step. This creates a clone of the ASTR596_F24 GitHub repository on your computer

Once your python has finished installing, do the following:

15. Type cd ~/ASTR596/Rudnick_repositories/ASTR596_F24 directory
16. Make a Github account at https://github.com
17. Using your account on the Github web page, make a Github repository for this assignment. You can do this by going to the "Repositories" tab on the top of the page and then hitting the green "New" button, also near the top of the page. You repository must have the name "***Python_notebook_intro***". The repository must be public. When making the repository make sure to check the "*Add a README file*" button before completing the process.
18. Clone that repository to a new location on your local computer at ~/ASTR596/ by executing the following commands. This location will be the place where you store your versions of all repositories.
    - cd ~/ASTR596
    - mkdir My_repositories
    - cd My_repositories
    - git clone <your repository address> (copied from the github web page)
19. Copy the jupyter notebook into the new repository you just made on your computer using this command, all written on one line. Line breaks are not spaces
    - cp ~/ASTR596/Rudnick_repositories/ASTR596_F24/Python_intro/ python_notebook_intro_student.ipynb ~/ASTR596/My_repositories/ Python_notebook_intro
20. cd ~/ASTR596/My_repositories/Python_notebook_intro
21. jupyter lab python_notebook_intro_student.ipynb
22. You are now editing your own copy of the notebook. Accessing your repository from github.com, you can add new files or update existing files using the "Add File" button and "Upload files" option. Upload the new notebook that you are in to your repository using the web-page interface. You now have a copy that is stored locally and on the GitHub servers.
23. Complete the exercise in the notebook. As you work your notebook should be automatically saved in the same location where it was originally stored. You can manually save by pushing the disk key in the upper left of the Jupyter window. Any time you finish

a block of work, upload your activity back to the GitHub repository using the web interface and adding a comment about what you have changed. You do this by clicking on the "*Add File"* followed by the "*Upload file"* option. Make sure to enter a comment before you upload your file.

24. When you are done with the assignment, make sure to upload it one last time. I will grade the most recent version that is on GitHub.
25. Make sure to add me as a collaborator to your GitHub repository. Use **grudnick@ku.edu** as the address when adding me.
26. Submit the GitHub repository URL to the Canvas assignment.