"gpgLabs" is a Python-based package that provides interactive apps for learning applied geophysics. For students in EOSC 350, there are two ways to setup your Python environment and run the apps.

Option 1 (local installation, recommended for people with Python and programming experience and people doing more advanced tasks)

- Download Python using Anaconda or other distributions.
- You can "pip install gpgLabs" or "git clone https://github.com/geoscixyz/gpgLabs.git" to have a local copy of the gpgLabs repo.
- Open a command line or terminal; "jupyter notebook" to start the notebook in your web browser.
- Navigate to the gpgLabs package folder and find the Python jupyter notebooks in a subfolder called "Notebooks"
- Load the notebooks you would like to run for the labs.
- "Shift+Enter" to run the sections in the notebooks.
- Throughout the term, some notebooks may be changed. You may want to do "git pull" every time you are doing a new lab to ensure you are up-to-date.

Option 2 (web-based, no need of local installation, recommended for general and occasional practice)

- Open "https://github.com/geoscixyz/gpgLabs" in your browser.
- Click the green button "clone or download"; then "Download ZIP"; a zip package called "gpgLabs-master.zip" will be saved to your computer.
- Unzip the package and all the lab apps are located in a subfolder called "Notebooks" as Python jupyter notebook. Save those .ipynb files for later use.
- Open a cloud-based Python environment "https://ubc.syzygy.ca"; click "Log in" (the red house); log in using your UBC CWL.
- On the next page, click "Start My Server" to land on your home page.
- By default, your home page should be empty. Click "New" on the top-right and then "Python 3". You will have a new untitled notebook open.
- Edit the first code section by entering the following lines (without indentation); then "Shift+Enter" to let it run (only run these commands the first time you log in the UBC syzygy platform)

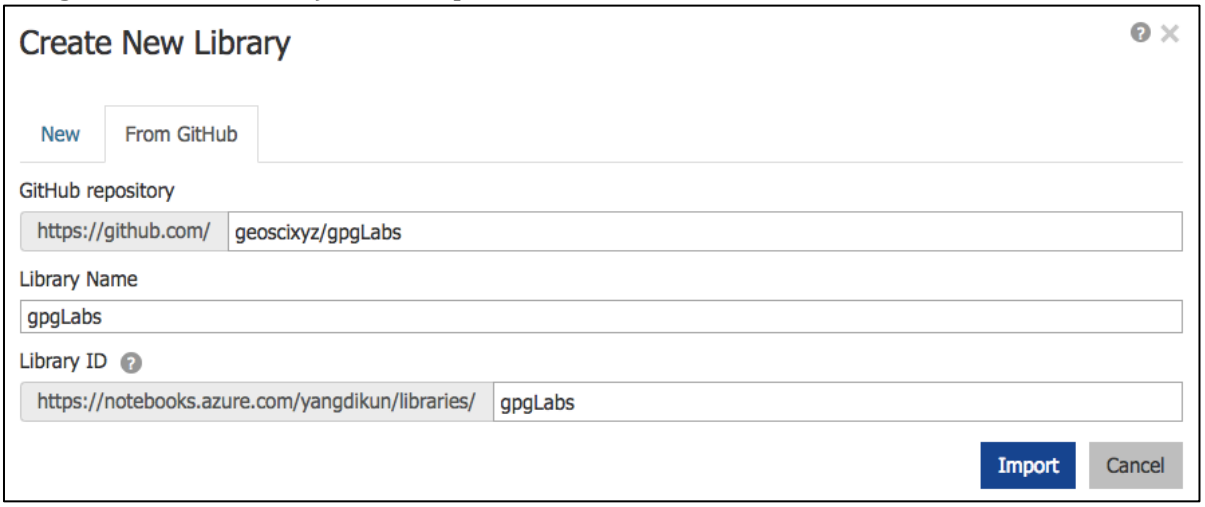
  ```
  !pip install em_examples --user
  !pip install gpgLabs --user
  !jupyter nbextension enable --py widgetsnbextension
  ```

- In the top-row menu, click "Kernel" then "Shutdown". Close your browser tab of this notebook.
- Back to the home page. On the top-right, click "Upload" and then choose the notebooks you would like to run from the unzipped package. Upload then the notebook will be ready as an entry on the home page list.
- Click one notebook from the list will open it in a separate browser tab ready for use.
- "Shift+Enter" to run the sections in the notebooks.
- TA's will demonstrate this setup in the first lab session. Ask them if you have more questions.
- Throughout the term, some notebooks may be changed. You may want to download the gpgLabs zip file again when doing a new lab.
- You may run into problems if your gpgLabs package is out-of-date. In your syzygy notebook, run one of the following lines to get the latest gpgLabs package

  ```
  !pip install -I gpgLabs --user
  !pip install gpgLabs --user --upgrade
  ```

Option 3 (Microsoft Azure cloud-based, no need of local installation, recommended for general and occasional practice)

- Open "https://notebooks.azure.com" in your browser.
- Click "Sign In" on the top right of the page. You will be directed to the login page. Sign in using your Microsoft account if you have one, or create a new account. It's free.
- After login, click "Libraries" tab on the banner, then you see the file system of the remote virtual machine under your account. It should be empty now.
- Below, click "+ New Library" to import notebooks. In the pop-up window, choose "From Github" and enter the following (you can import other notebooks or repositories on Github using the same method) then "Import".



- After importing, you will see the file system of gpgLabs package has been copied to your remote server under "your_name/Libraries/gpgLabs". Find the notebook you want to run under "Notebooks"; click the name of the notebook and it will open in a new web browser window/tab.
- Before running the notebook, you have to install a package. Just add one line of code
  !pip install em_examples
  before the first line of existing codes in the first section. Then run the notebook as usual.
- If you are required to upload data files, for example, "rebar.csv", click "Data/Upload…" in the menu of the current notebook. Find and choose "rebar.csv" on your local computer; in the pop-up "Upload status" window, choose "Destination folder" to be "/Libraries/Notebooks". On the Microsoft Azure file system page, you should be able to see the uploaded file by refreshing. This confirms "rebar.csv" is in the same folder as the notebook you are running.
- If you run into problems, you can always start over again by deleting "gpgLabs" from your libraries, then repeat the above. It gives you a fresh environment.