Workspace setup

The research group will use a shared workspace consisting of a storage space, a Math typesetting tool, and programming tools. There are many good choices for each component. With the purpose of simplifying the workflow, we will use

- Google Drive as the main storage space,
- Overleaf as the Math typesetting tool,
- Python and Mathematica as the programming languages,
- Google Colab as coding environments for Python.

Once the environment is set up, you can work online as well as offline. As a student of BYUH, you automatically have a Library account, which you will use to access books, ebooks, and journal articles necessary for your research.

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Set up Google Drive for Desktop

Because BYUH doesn't use Google as the email platform, you don't automatically have a Google Drive account through your @go.byuh.edu email. You may already have Google Drive through your personal email @gmail.com. However, I recommend that you create a free Google Drive account using your BYUH email to maximize the storage space (15 GB) and to distinguish the work storage space from your personal storage space. You can do so by:

1. Go to https://myaccount.google.com
2. Click **Create account**. If you don't see this option, you are probably logged in under a different Google account. In this case, click on the circular icon on the top right corner and choose **Add another account**. Then you will see **Create account** option. If it asks you for your purpose (work/personal), choose **For my personal use**.
3. Enter your name.
4. Click **Use my current email address instead**.
5. Enter your current email address (@go.byuh.edu email). Your password doesn't have to be the same as your BYUH email account.
6. Click **Next**.
7. Verify your email address with the code sent to your BYUH email.
8. Click **Verify**.

Once you have obtained a Google Drive account, go to

https://www.google.com/drive/download

to download the app **Google Drive for Desktop**. This app is to sync your Google Drive storage to a local folder of your choice. After installing the app, right click on the app icon on the task bar and go to Setting → Preferences. You will see an option to stream files (by default) and an option to mirror files. If you choose to mirror files, all files on your Google Drive will sync to your computer and you will be able to access them even without the Internet. Otherwise, you can still access all files on your Google Drive from a local folder as long as you have the Internet.

Set up Overleaf

Simply go to https://www.overleaf.com and sign up for a free account. The easiest way to sign up is probably to choose **Sign up with Google** and use your @go.byuh.edu Google account that you just created. Overleaf is a powerful online tool using LaTeX, a typesetting method, to compile Math formula and produce nice-looking reports, manuscripts, and presentations.

Set up Mathematica

As a student of BYUH, you can request a license to use Wolfram Mathematica. Feel free to skip this section if you already had a Mathematica license. If you haven't had one yet, you first need to create a Wolfram account by going to

https://account.wolfram.com/login/oauth2/sign-in

Click on ``Create one". Make sure to use your BYUH email (@go.byuh.edu), not your personal email account. Once you have had a Wolfram account, go to

https://www.wolfram.com/siteinfo

Enter your Wolfram ID (your BYUH email address). Then proceed as directed. You will be asked to choose between the following licenses:

- Get Mathematica Online
- Get Mathematica Desktop

The first license is to get a license for Mathematica Online (also called Wolfram Cloud). If you choose this option, you don't need to install anything on your local computer. It takes only a few seconds to be licensed. Then you can start using Mathematica immediately by going to

https://www.wolframcloud.com

The second license is to get a license for Mathematica Desktop license so that you can install Mathematica on your local computer. It will take several gigabytes on your local disk. But the advantage is that you can work on Mathematica even without an Internet connection. You will receive an email from Wolfram Customer Support saying that you have been assigned a license. Then go to

https://user.wolfram.com/portal/myProducts.html

and click on ``Mathematica for Sites" to download Mathematica installer to your computer.

Manage files on the shared folder

Suppose you are shared a folder named "Summer 2024" on Google Drive. You can sync it on your local computer as follows:

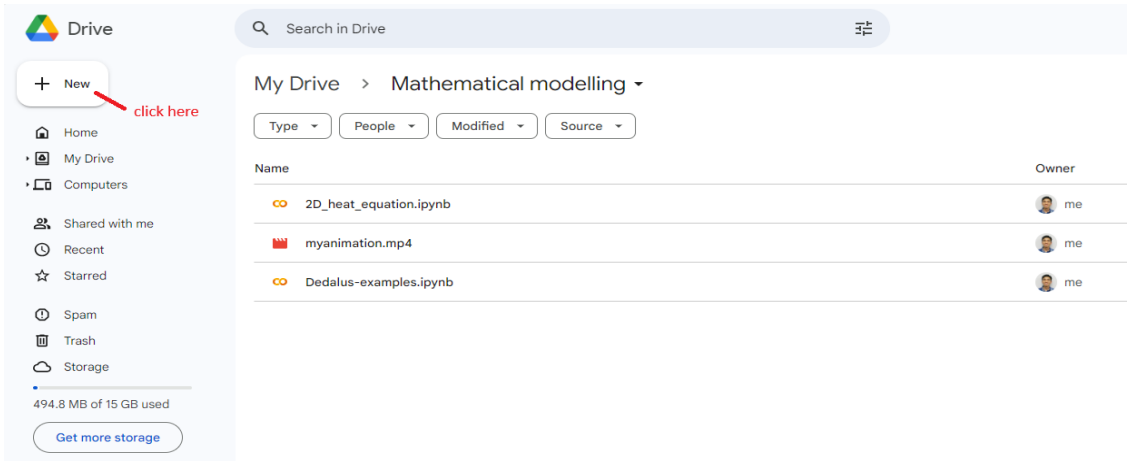
1. Go to https://drive.google.com and click on **Shared with me** on the left panel.
2. Right click on top of the folder Summer 2024, then choose **Organize**, and choose **Add shortcut.**

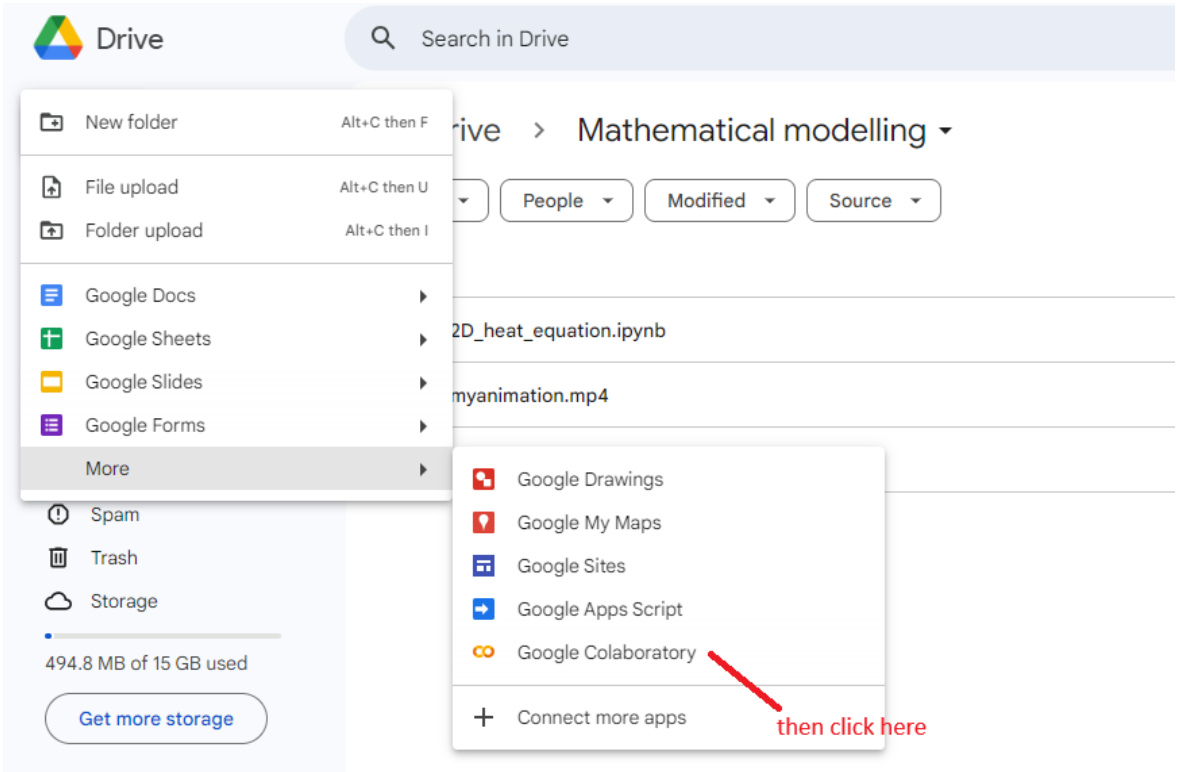
The folder *Summer 2024* will appear in the local folder where your Google Drive is synced.

Working with ipynb files on Google Colab

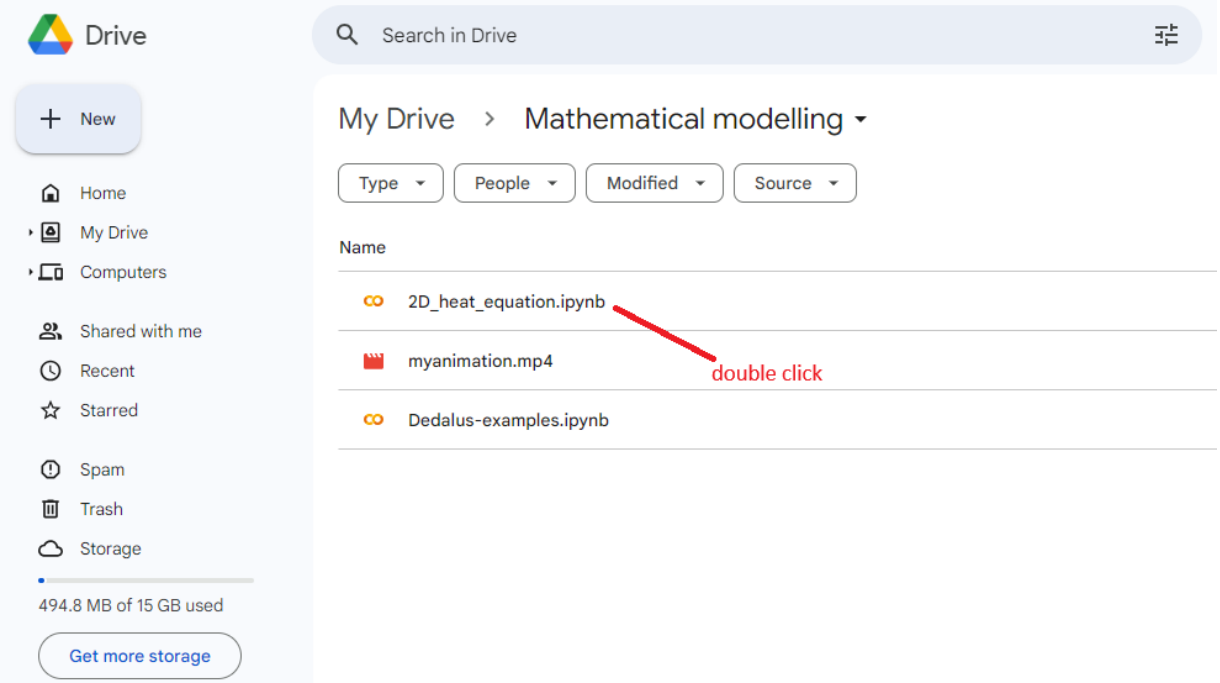
If you have an ipynb file stored on Google Drive, you can create/open/run/edit it as follows:

1. Go to Google Drive
2. To create a blank ipynb file, click on the plus sign “New”.





3. To open an existing ipynb file, just double click on that file.



You may see the screen below on the first time you open an ipynb file on Google Drive. Just click on either “Open with Google Colaboratory” on the top or “Google Colaboratory” at the bottom and it will take you to Google Colab.