

# Homework 1

Economics 7103

## Initial setup

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The goal of this homework is to get you to install and integrate Anaconda, Stata, Overleaf, GitHub, and Copilot. Please follow these initial installation instructions that you will need to complete all of the homework assignments:

1. Register for free accounts with GitHub and Overleaf as specified in the homework guidelines.
2. Download Python via the Anaconda distribution, Stata, VS Code, and GitHub desktop as specified in the homework guidelines.
3. Complete the GitHub “hello world” exercise: <https://guides.github.com/activities/hello-world/>
4. Complete the Overleaf “hello world” exercise: [https://www.overleaf.com/learn/latex/Questions/How\\_to\\_create\\_a\\_very\\_basic\\_hello\\_world\\_document\\_using\\_LaTeX](https://www.overleaf.com/learn/latex/Questions/How_to_create_a_very_basic_hello_world_document_using_LaTeX)
5. Follow this VS Code startup guide: <https://code.visualstudio.com/docs/setup/setup-overview>
6. Set up GitHub Copilot in VS Code following this guide: <https://code.visualstudio.com/docs/copilot/overview>
7. Consider configuring VS Code to run Stata .do files using this guide: <https://gdeiana.github.io/economics/stata-vscode/>
8. Follow this Stata video: <https://www.youtube.com/watch?v=9QKSLu3TEA4>.

You can skip hello world exercises if you are familiar with the program.

## Setting up your homework repository

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For homework 1, you will create a homework repository in which you will save all of your homework code and output to turn in to me. To do this, you will exactly replicate the files in the `sample_code` folder in the repository I shared with you. This exercise will help you to integrate all of these tools into one automated workflow that is reproducible and able to be shared. To do this, follow these steps (there are other, arguably better ways to do these things, but I am just sharing what I have found most convenient so far—next year these processes will be updated as I learn more!):

Set up a repository using GitHub desktop.

1. In GitHub desktop, create a new repository using **File, New repository**. Name it `phdee-XX` where you replace `XX` with your own initials. You can create this anywhere on your local system that you would like, but I recommend keeping it on Dropbox so everything is backed up (Georgia Tech has a free subscription to Dropbox). Check the box to initialize the repository with a readme. This will create a folder called `phdee-XX` on your computer.
2. In your repository, create a subfolder called `homework1`. Within that subfolder, create two subfolders: one for code called `code` and one for TeX and image output called `output`.

Now, copy my `sample_python_script.py` Python script from the `phdee-2025-homework/sample_code/code` folder, run it in VS Code, and push the script and output to GitHub:

1. Open up Anaconda and create an environment to manage your packages for your homework. You can do this by clicking the **Environments** tab on the left, selecting **Create**, checking the Python box (I suggest using Python version 3.10), and pressing Create. This loads all the Python packages you install for your homework assignments each time.
2. Open up VS Code. Create a new Python script copying the sample code contained in `sample_python_script.py` in the repository I shared with you. Save your script in your code folder.
3. Select your Conda environment in VSCode (see <https://code.visualstudio.com/docs/python/environments> for help).
4. Edit the directory path `outputpath` so that they match the path to the output subfolder you created.
5. Save your `.py` script in your code subfolder.
6. Run the `.py` code (and fix any errors if necessary). In your output folder, you should have two `.tex` files and two `.pdf` files.
7. In GitHub desktop, commit these changes to the main branch. Then publish your repository to GitHub.

You now have saved a record of your code and your output to GitHub. Next, you will run the sample Stata code and push the script and output to GitHub:

1. Open up Stata. Create a new `.do` file by copying the sample code contained in `sample_stata_code.do` that I shared with you.
2. Edit the directory paths and uncomment line 22 if you are working on the VLab.
3. Run the `.do` file and resolve any errors if necessary. In your output folder, you should have two `.tex` files, one `.txt` file, and two `.pdf` files.
4. Upload your final code and output files to your GitHub directory. In GitHub desktop, push these changes to GitHub.

Next, you will replicate the `main.tex` and `Homework_sample.pdf` file using Overleaf:

1. From the Overleaf main page, click new project and use the option to start a blank project for your homework.
2. In Overleaf, create a new `.tex` file and copy and paste the text from my `phdee-2023-homework/sample_code/output/main.tex` file in the `sample_code/output` folder. Click the green button to compile it.
3. You will notice some errors or warnings in the paper icon next to the compile button. One of the errors is that you need to include a bibliography file to use with natbib. Create in your output folder a file called `sampleref.bib` and copy and paste the content from `phdee-2023-homework/sample_code/output/sampleref.bib` to create the file.
4. Recompile your main file and fix any errors or warnings until you have an error-free pdf.
5. You have the option to link your Overleaf account to Dropbox and to GitHub. If you choose to link to Dropbox, you can output your files directly from Stata and Python to Overleaf, automating any file uploads. If you link with GitHub, you can automatically commit your writing to a repository to archive it for yourself or even publicly! This is not required for class.
6. Finally, from Overleaf, download the `.pdf` file you have created and all `.tex` files. Save them in your homework 1 folder, and push this change to GitHub.

Your `homework1` folder in your `phdee-XX` repository should now look exactly like my `sample_code` folder. If not, figure out where you went wrong and troubleshoot it.

## How do I turn in this homework?

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To turn in this homework assignment, share your `phdee-XX` repository with me.