# A Getting Started On Windows

Welcome to ACME!
This "Getting Started" guide will help you set up your workflow for summer.

## Installing WSL

Windows Subsystem for Linux (WSL) is a compatibility layer for running Linux natively on Windows 10/11. We'll go through the steps to install Ubuntu on Windows using WSL which will be used to run all relevant programs. Many people have their own workflows they are familiar with, and while we do not discourage these, we warn you that you may have extensive difficulty installing different items for different labs.
Do not worry if you have zero Linux experience. Even with little or no Linux experience, you will soon become comfortable enough with it to help your peers and coworkers in the future.

1. *Enabling WSL:*
   (a) Open the Start menu and search for "Turn Windows features on or off".
   (b) Click on it.
   (c) In the "Windows Features" window, scroll down until you see "Windows Subsystem for Linux" in the list.
   (d) Check the box next to it to enable the feature.
   (e) Click "OK" to save your changes.
2. *Installing Ubuntu:* Now that WSL is enabled, you can install Ubuntu on your computer.
   (a) Open the Microsoft Store app on your computer.
   (b) Search for "Ubuntu" in the search bar and select "Ubuntu" from the search results.
   (c) Click the "Get" button to download and install Ubuntu on your computer.
   (d) Wait for the installation to complete.
3. *Launching Ubuntu:* Now that Ubuntu is installed, we can launch it and start using it.
   (a) Press the Windows key and type "Ubuntu" in the search bar.
   (b) Select "Ubuntu" from the search results to launch it.

(c) Wait for Ubuntu to start up and create a new user account with a username and password when prompted.

Make sure not to forget the password.

4. *Installing Linux Updates:*

   (a) In the Ubuntu terminal, run the command "sudo apt update" to update the package list.

   (b) Install any necessary updates by running the command "sudo apt upgrade".

## Finding Your Files From WSL

> ACHTUNG!
>
> To access your c drive (your files) you will need to use `cd /mnt/c` to get to the head directory.

This is counterintuitive to how Windows normally works, but other than this everything will be easier. Essentially WSL has its own home and file system, but once you switch over to the Windows side you will still have all of your files. For example, if you want to access your Desktop, you can find it at `/mnt/c/Users/<username>/Desktop`. In order to find your documents, you can use the command `ls /mnt/c/Users/<username>/OneDrive/Documents`.

## Downloading Course Materials

The lab manuals can be found at `https://acme.byu.edu/`. If you are a junior, you should download the junior summer materials. You should then unzip this in a folder you are familiar with, such as your documents folder or desktop folder.

## Using VSCode

VSCode is the recommended code editor in ACME, though it is not required. We recommended it because it is free , open source, and can use WSL very easily. You can download it at `https://code.visualstudio.com/`. Once you have it installed, you can open it by typing in the search bar `Visual Studio Code`. You can also open it from the terminal by typing `code`.

1. *Installing the Remote WSL Extension:* The Remote WSL extension allows you to use VSCode to edit files in WSL. You can install it by opening VSCode then click on the Extensions tab on the left (little building blocks). Search for `WSL`. Then click install.

   You will need to restart VSCode for the extension to take effect.

2. *Opening a Folder in WSL:* In order to open a folder in WSL, click on the bottom left corner of VSCode (blue box) to open a remote window. Then click `Connect to WSL`. Type in the file path such as `/mnt/c/Users/<username>/Desktop/Volume1`.

   Make sure to navigate to the folder that contains all of the lab folders, not just your desktop or another higher directory. Click open.

## Installing Python

To install python , open Ubuntu and type:

```
sudo apt install python3 python3-pip ipython3
```

There are three things there.

1. Python, which is the python language itself.
2. Pip, which is a package manager for python.
3. IPython, which is an interactive python shell.

If something is not included in the base python installation, you can use pip to install it. You will know you need to install something if you encounter a ModuleNotFoundError, which you may encounter soon. For example, in order to install numpy, you could write `pip3 install numpy` in the terminal. If this does not work on your machine, try `pip install numpy` or `python3 -m pip install numpy`.

IPython is an interactive python shell. You will be taught how to use it soon.

Python will now be accessible from the terminal with the command `python3`. You can also run a python script with `python3 <scriptname>`. Python is now accessable globally, meaning you can run python from any directory as long as you are still typing the command in ubuntu.