

Installing Python on Windows

Virtual Environments and Jupyter Notebooks

MMAE 350

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Overview

- Install Python on Windows
- Create and activate a virtual environment
- Install required Python packages
- Register a Jupyter kernel
- Run Jupyter Notebook

Download Python for Windows

- Go to:

<https://www.python.org/downloads/windows/>

- Click **Latest Python 3 Release**
- On the next page, scroll to **Files**
- Download **Windows installer (64-bit)** Do not download the Python install manager.
- The installer will be saved in your Downloads folder

Open PowerShell

- Open **Windows PowerShell**
- Change to the Downloads directory:

```
cd $HOME\Downloads
```

Install Python (Quiet Install)

Run the installer from PowerShell:

```
Start-Process '  
    -FilePath "python-3.12.4-amd64.exe" '  
    -ArgumentList "/quiet InstallAllUsers=1 PrependPath=1" '  
    -Wait
```

- Installs Python for all users
- Adds Python to your system PATH

Verify Python Installation

Verify that Python installed correctly:

```
py --version
```

- You should see the Python version number

Create a Virtual Environment

- Create a course workspace on your computer:

Documents\Projects\MMAE350

- Open PowerShell and change to this directory
- Create a virtual environment inside this folder

```
cd $HOME\Documents\Projects\MMAE350  
py -m venv my_venv
```

Activate the Virtual Environment

Activate the environment:

```
my_venv\Scripts\activate
```

- Your command prompt will change to show the active environment

Example prompt after activation:

```
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350>
```

- To deactivate the environment:

```
deactivate
```

Upgrade pip

Ensure pip is up to date:

```
python -m pip install --upgrade pip  
python -m pip --version
```

Install Required Packages

- Make sure your virtual environment is active
- Your prompt should start with (my_venv)

Install the required packages:

```
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
    pip install pandas  
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
    pip install sympy  
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
    pip install notebook  
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
    pip install matplotlib  
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
    pip install ipykernel
```

Register Jupyter Kernel

- Jupyter does *not* automatically know which Python environment to use
- Registering a kernel links Jupyter to your virtual environment
- This ensures notebooks use the correct packages and Python version

Register the virtual environment as a Jupyter kernel:

```
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350> python -m  
ipykernel install --user '  
--name=mmae_venv '  
--display-name "Python (mmae_venv)"
```

If you skip this step, Jupyter may use the wrong Python installation.

Run Jupyter Notebook

- Download the notebook from **Canvas Module 1**
- Save it in:

Documents\Projects\MMAE350\Module1

- Open PowerShell and change to this directory
- Execute the jupyter notebook command:

```
(my_venv) PS C:\Users\YourName\Documents\Projects\MMAE350\Module1>
jupyter notebook
```

- A browser window will open showing the Module1 folder
- Open the notebook you downloaded
- In Jupyter, open the notebook and use:
 - **Kernel → Change Kernel**
 - **Select Python (my_venv)**

Summary

- Python installed system-wide
- Project-specific virtual environment created
- Required packages installed cleanly
- Jupyter kernel registered correctly

You are ready to work in MMAE 350