Installing Python on macOS
Virtual Environments and Jupyter Notebooks

MMAE 350

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Overview

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

Check Python on macOS

- Open **Terminal**
- Check your Python version:

```
python3 --version
```

- If Python is found, you are ready to continue
- If Python is *not* found, install Python using Homebrew

If Homebrew is not installed, install it first:

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/
   Homebrew/install/HEAD/install.sh)"
```

Then install Python:

```
brew install python
```

Create Course Workspace

- Create a workspace for this course:

$$\text{\$HOME/Projects/MMAE350}$$

- This folder will contain:
  - virtual environment
  - notebooks
  - homework files

Create a Virtual Environment

- Open Terminal
- Navigate to your course directory
- Create a virtual environment inside this folder

```
cd ~/Projects/MMAE350
python3 -m venv my_venv
```

Activate the Virtual Environment

Activate the environment:

```
source my_venv/bin/activate
```

- Your command prompt will change to show the active environment

Example prompt after activation:

```
(my_venv) MacBook-Pro:MMAE350 yourname$
```

- 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) $ python -m pip install pandas
(my_venv) $ python -m pip install sympy
(my_venv) $ python -m pip install notebook
(my_venv) $ python -m pip install matplotlib
(my_venv) $ 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

Register the virtual environment as a Jupyter kernel:

```
(my_venv) $ python -m ipykernel install --user \
  --name=my_venv \
  --display-name "Python (my_venv)"
```

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

Run Jupyter Notebook

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

$HOME/Projects/MMAE350/Module1

- Change to this directory in Terminal

```
(my_venv) $ cd ~/Projects/MMAE350/Module1
(my_venv) $ jupyter notebook
```

- Open the notebook in your browser
- In Jupyter:
    - **Kernel → Change Kernel**
    - Select **Python (my_venv)**

Summary

- Python environment isolated for MMAE 350
- Packages installed cleanly
- Jupyter linked to the correct environment
- Ready to work in this course