# Mini-Lesson 1: VSCode, Quarto, and Jupyter

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# Downloading and Installing

- VSCode: https://code.visualstudio.com/
- Quarto: https://quarto.org/docs/get-started/
- Jupyter: `pip install jupyter`

```
pip install jupyter pandas altair
```

- Helpful startup guides:
  - Installing VSCode on **Mac** and **Windows**
  - Setting up **python** for VSCode

# Basics

- How to use VSCode:
  1. Open a folder the folder for your github repo in VSCode
  2. Install the Python, Quarto, and Jupyter VSCode extensions
- Quarto Syntax:
  1. Preamble: Format selection using YAML (like R Markdown)
  2. Content: Markdown (like R markdown)
  3. Code chunks: Python, R, etc. (like R markdown)

# Setting up Python in VSCode

- Ctrl+Shift+P to open command palette (or `Cmd` on Mac)
- Type "Python: Select Interpreter"
- Choose the Python interpreter you want to use
- In terminal, type `which pip` to make sure you are using the right Python version when installing packages with pip

# Compilation and Code Chunks

- Compilation
  - Keyboard shortcut: Ctrl+Shift+K
  - Render button in VSCode (top right corner)
  - Command line: `quarto render document.qmd`
    - Automatically compiles into output format from preamble
- Code Chunk Options
  - `echo: true` - Show code
  - `eval: true` - Run code

# Jupyter in VSCode

- Interactive Python development
- Run code chunks individually
- View output in-line

```
import pandas as pd

df = pd.DataFrame({
    'A': [1, 2, 3],
    'B': [4, 5, 6]
})
print("Here is some output!")
df.head(1)
```

```
Here is some output!
```

| | A | B |
|---|---|---|
| 0 | 1 | 4 |

# This Class: Repository Structure and Usage

- Student repo contents:
  1. `.qmd` files in lecture folders
  2. Compiled HTML/PDF files
  3. Data and figure folders
- In-class workflow:
  1. Open compiled HTML/PDF to follow along
  2. Have `.qmd` open in VSCode for exercises
  3. Use Jupyter for interactive coding