Pre-Module 2: Getting Started with Jupyter Notebooks

Getting Started with Jupyter Notebooks

Your Interactive Coding Environment for Clinical Data

What are Jupyter Notebooks?

Interactive Web Application: Runs in your browser.

"Digital Lab Notebook": Combines code, output, visualizations, text.

Perfect for: Data exploration, analysis, learning, documentation, sharing

Launching Jupyter Notebooks (Local – Anaconda)

Heading: Launching Jupyter Notebooks (Local)

If Anaconda is Installed:

- Open Anaconda Navigator.
- Click "Launch" under "Jupyter Notebook".
- Browser window opens to your file system.

Launching Jupyter Notebooks (Cloud – Google Colab)

Launching Jupyter Notebooks (Cloud)

If Using Google Colab:

Go to colab.research.google.com.	Sign in with Google account.	Use "File" > "Upload notebook" or "New notebook".

Navigating the Jupyter Interface – Key Components

Heading: Jupyter Interface Overview

Cells:

Code Cells: For Python code execution.	**Markdown Cells:** For text, headings, explanations (using Markdown).	**Toolbar:** Common actions (Save, Add Cell, Run).	**Kernel:** The "engine" running your Python code.

upyter Operations – Running Cells

Heading: Basic Jupyter Operations: Running Code

To Execute a Cell:

Select the cell.	Press Shift + Enter (Run and move to next).	Press Ctrl + Enter (Run and stay in cell).	Click "Run" button in toolbar.

Jupyter Operations - Managing Cells

- Heading: Basic Jupyter Operations: Managing Cells
  - Adding Cells: + button, or A (above) / B (below) in Command Mode.
  - Deleting Cells: Scissors button, or DD in Command Mode.
  - Changing Cell Type: Dropdown menu (Code/Markdown) in toolbar.
  - Saving: Floppy disk icon, or Ctrl+S (Cmd+S).

Loading Data into Notebooks (CSV & Excel)

- Heading: Loading Clinical Data into DataFrames
  - Key Tool: pandas library (use import pandas as pd).
  - Making Files Accessible:
  - Local: Place files in same directory, or use full path.
  - Colab: Upload directly (files.upload()) or mount Google Drive.

Loading Data – Code Examples

- Heading: Loading Data: CSV & Excel
  - Code Example 1: pd.read_csv()
  - df_vitals = pd.read_csv('patient_vitals.csv')
  - print(df_vitals.head())
  - Code Example 2: pd.read_excel()
  - df_demographics = pd.read_excel('patient_demog.xlsx')
  - print(df_demographics.head())

Saving Data from Notebooks

- Heading: Saving Processed Data
  - Key Tool: pandas library.
  - Export Cleaned/Transformed Data:
  - df.to_csv('processed_data.csv', index=False)
  - df.to_excel('processed_data.xlsx', index=False)

Conclusion: Ready for Action!

- Heading: You're All Set!
  - Jupyter Notebooks: Your Interactive Workspace.
  - Mastered: Launching, Interface, Basic Operations, Data I/O.
  - Next Step: Module 1: Start your Python journey in Clinical Trials!