# Assignment 1 – Course Setup & Environment Initialization

Due: 09/01/2025

Welcome again! This first assignment will set you up with the essential tools and project structure we’ll rely on throughout the course. It’s simple, yet foundational, and completing it carefully now will save you time and confusion later.

## Why this setup matters

### 1. Setting up a Conda Environment (and why it’s important)

In this course, we’ll be writing and running a lot of Python code. But as your projects grow more complex, managing software versions and dependencies can quickly become overwhelming. That’s where Conda comes in.  
  
A Conda environment is an isolated workspace where you can install and manage specific versions of Python packages without interfering with your system or other projects. This is crucial for:  
- Reproducibility  
- Collaboration  
- Project isolation  
  
You’ll define your own environment (called “machine\_learning”) and add packages as needed. You won’t be given a pre-configured environment — learning to navigate technical documentation and build your own tools is part of the learning process.

#### Required packages for Assignment 1

After installing Conda, activate your new environment and install the following packages:

**pip install notebook  
pip install spyder  
pip install pandas**  
  
We'll add more modules as we go. For now, this minimal setup will allow you to run Jupyter notebooks and begin coding.  
  
Going forward, every assignment you submit must include a requirements.txt file, generated from your active environment. This ensures that others can replicate your exact setup using:  
**pip install -r requirements.txt**

## What to do

### Step 1: Install Anaconda

Download and install Anaconda from the official site: https://www.anaconda.com/products/distribution

### Step 2: Create a new Conda environment

1. Open the Anaconda Prompt (Windows) or Terminal (Mac/Linux)  
2. Run:  
 **conda create --name machine\_learning python=3.11**  
3. Activate:  
  **conda activate machine\_learning**  
4. Install:  
 **pip install notebook  
 pip install spyder  
 pip install pandas**  
5. Launch Jupyter:  
 **jupyter notebook**  
6. List environments:  
 **conda env list**  
  
Reference:  
- Getting Started: https://docs.conda.io/projects/conda/en/latest/user-guide/getting-started.html  
- What is a Conda environment?: https://docs.conda.io/projects/conda/en/latest/user-guide/concepts/environments.html

### Step 3: Set up your course workspace

Create this directory structure:

2025Fall\_ADAN7430/  
├── Docs/  
├── Presentations/  
├── assignments/  
│ └── assignment\_0/  
│ ├── Code/  
│ ├── RawData/  
│ ├── ProcessedData/  
│ ├── Output/

This structure will be used for every assignment. Following it ensures code is shareable, reproducible, and easy to maintain.

### Step 4: Set up Git & GitHub

1. Create a GitHub account: https://github.com  
2. Initialize a Git repo inside your assignment\_0 folder:  
 **cd path/to/assignment\_0**  
 **git init  
 git add .  
 git commit -m "Initial commit: setup for assignment\_0"**  
3. Create a GitHub repo and push your local repo following GitHub instructions.

## What to submit

You’ll submit two deliverables:

### 1. A link to your GitHub repository

Make sure it includes:

- The full assignment\_0 folder with all subfolders  
- A requirements.txt file generated from your environment (pip freeze > requirements.txt)

### 2. A Jupyter notebook named assignment\_0\_setup.ipynb

This notebook should include:

- A screenshot showing your conda environments (from conda env list)  
- A short description of what a conda environment is and why it’s useful (in your own words)  
- A summary of key takeaways from the two python notebooks posted in the assignment\_1 page on Canvas

Feel free to reach out on Canvas or drop into office hours (Fridays at 4:00pm ET) if you get stuck or want to talk through any part of the setup.  
  
Let’s get rolling!

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