🔧 Installation Guide — UC3M Seminar

Evolving Fuzzy Neural Networks & Concept Drift

This short guide explains how to install the **minimum requirements** to run the notebooks used in the seminar.

The setup is designed to be **simple, lightweight, and cross-platform**.

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1 System Requirements

- **Python 3.9 – 3.11** (recommended: **Python 3.10**)
- Operating system:
    - Windows 10 / 11
    - macOS
    - Linux (Ubuntu, etc.)

⚠ Python 3.12 is **not recommended** yet due to library compatibility.

2-(Recommended) Create a Virtual Environment

Using a virtual environment avoids conflicts with other Python projects.

Windows (PowerShell)

python -m venv .venv

.\.venv\Scripts\Activate.ps1

macOS / Linux

python3 -m venv .venv

source .venv/bin/activate

After activation, you should see something like:

(.venv)

3-Upgrade Basic Python Tools

python -m pip install --upgrade pip setuptools wheel

4- Install Required Libraries

Run the following command **once**:

pip install numpy scipy pandas matplotlib seaborn scikit-learn tqdm river evolvingfuzzysystems jupyter

This installs:

- numerical computing
- plotting
- online learning (River)
- evolving fuzzy systems
- Jupyter Notebook

5-Verify Installation (Quick Test)

Run Python:

python

Then try:

import numpy as np

import river

import evolvingfuzzysystems

print("Environment ready!")

If no error appears → ✓ everything is installed correctly.

Exit Python:

exit()

6-Launch Jupyter Notebook

From the project folder:

jupyter notebook

Your browser will open automatically.
Open:

- Notebook1_FNN_Interpretability.ipynb
- Notebook2_EvolvingFuzzySystems_Drift.ipynb

7-Common Issues & Fixes

❓ ***"Module not found" error***

Make sure:

- the virtual environment is **activated**

- you installed packages **inside** the environment

Reinstall if needed:

pip install evolvingfuzzysystems river

❓ *Plots not showing*

Make sure you are running inside Jupyter Notebook (not plain Python).

❓ *Numerical warnings (overflow, etc.)*

These are expected in some adaptive models and **do not stop execution**.
They are safe to ignore during the seminar.

8- Optional (Advanced Users)

If you want to update the evolving fuzzy systems library to the latest version:

pip uninstall evolvingfuzzysystems -y

pip install evolvingfuzzysystems

9- What You Will Learn with This Setup

- Fuzzy Neural Networks (FNN)
- Interpretability through fuzzy rules
- Evolving systems for data streams
- Concept drift detection
- Online learning (prequential evaluation)

📨 Questions?

If something does not work during the seminar, **do not worry** — all experiments will also be demonstrated live.