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DUT · SEMESTER 3 · COMPUTER SCIENCE

Machine Learning

Practice 01 · Installing Anaconda and getting started with JupyterLab

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Today's practice

01 What we install, and why

02 Install and check

03 A tour of JupyterLab

04 Exercise 1: a first notebook

05 Exercise 2: penguins.csv locally

06 Exercise 3: environments (bonus)

TODAY'S GOAL

Leave with Anaconda installed, JupyterLab working, and a first notebook saved on your laptop.

Learning objectives

By the end of this practice, you will be able to

1. Install Anaconda and check it in a terminal
2. Start JupyterLab and use its interface
3. Write, run and save code and Markdown cells
4. Read a CSV file with pandas
5. Explain what a conda environment is

BRING

- Your laptop and charger
- At least several GB of free disk space
- penguins.csv (course page or USB drive)

01

PART

What we install, and why

Python, the libraries of the course, and the tool we write our code in.

Anaconda: one installer, a complete toolbox

JupyterLab
Where we write and run notebooks (in the browser, on your laptop)

Packages: pandas, NumPy, matplotlib, seaborn, scikit-learn…
The libraries of this module, already installed

conda (and pip)
Installs packages and manages environments

Python 3.14
The programming language

Anaconda Distribution
one installer for everything on the left

+ Anaconda Navigator
optional graphical launcher

Figure 1. What the Anaconda Distribution installs. Everything runs on your own laptop; no account is needed to use it.

Colab or local installation?

Google Colab

SETUP

Nothing to install; needs Internet and a Google account

FILES

Files uploaded to a session disappear when it ends

WHY

Free GPU for later deep learning work

Local: Anaconda

SETUP

Works offline once installed

FILES

Files stay on your laptop, in your folders

WHY

You control versions; same tools as in companies

In this module

SETUP

Local installation from today

FILES

Colab as a fallback if your laptop cannot install

WHY

Same notebooks run in both

02

PART

Install Anaconda and check it

Download, install with the default options, then check from a terminal.

PART 2 · INSTALL

Installing on Windows

01

Download

From the Anaconda website, or the USB drive

02

Run the .exe

Choose "Just Me" (no admin rights needed)

03

Keep defaults

Default folder; avoid spaces or accents in the path

04

Do not add to PATH

Leave this option unchecked (default)

05

Open Anaconda Prompt

Start menu > Anaconda Prompt

PART 2 · INSTALL

Installing on macOS

01

Download

macOS installer for Apple silicon (.pkg)

02

Run the .pkg

Double-click; choose "Install for me only"

03

Keep defaults

Default location

04

Open Terminal

A new window, after the installation

05

Look for (base)

The prompt starts with (base): conda is active

PART 2 · INSTALL

Check the installation

PROMPT · TERMINAL

```
conda --version
python --version
jupyter lab --version

# the libraries of the module
python -c "import pandas, sklearn"
```

EXPECTED OUTPUT

```
conda 2x.x.x
Python 3.14.x
4.5.x

(no message = OK)
```

Versions may differ slightly. "command not found" means the wrong terminal.

If something goes wrong

Problem	What to do
conda: command not found	Windows: use Anaconda Prompt, not cmd or PowerShell. macOS: reopen Terminal
Download too slow	Copy the installer from the USB drive
Not enough disk space	Free several GB, or use Colab today and install at home
Intel Mac: installer stops at the start	Current installers need Apple silicon: use Google Colab for this module
Windows user name with spaces or accents	Install in a short path such as C:\anaconda3

Anaconda 2026.07 release notes: installing on an Intel Mac now stops with an error at the beginning.

03

PART

A tour of JupyterLab

Start JupyterLab from your course folder, then create your first notebook.

Start JupyterLab in your course folder

PROMPT · TERMINAL

```
# Windows
mkdir %USERPROFILE%\ML_2026
cd %USERPROFILE%\ML_2026

# macOS
mkdir ~/ML_2026
cd ~/ML_2026

jupyter lab
```

WHAT HAPPENS

Your browser opens at `localhost:8888/lab`

Keep the terminal open. Ctrl+C in the terminal stops JupyterLab.

The JupyterLab window

Main areas

- Left: file browser of the folder where you started
- Centre: Launcher, then your notebooks in tabs
- Top: menus File, Edit, Run, Kernel
- Top right of a notebook: kernel name and state

Vocabulary

- Notebook: a .ipynb file with cells
- Cell: a block of code or text
- Kernel: the Python process that runs the cells
- Launcher > Notebook > Python 3 creates a notebook

Cells, modes and the essential shortcuts

Shortcut	Mode	Action
`Shift+Enter`	Any	Run the cell and move to the next one
`Esc` / `Enter`	Any	Command mode / edit mode
`A` / `B`	Command	Insert a cell above / below
`M` / `Y`	Command	Turn the cell into Markdown / code
`D, D`	Command	Delete the cell (press D twice)
`Ctrl+S` (`Cmd+S` on Mac)	Any	Save the notebook

Run > Restart Kernel and Run All Cells… re-runs the whole notebook from the top.

Running cells out of order

× INCORRECT APPROACH

Run cells in any order, delete a cell that defined a variable, and keep going: the notebook still seems to work

✓ CORRECTION

Before saving or handing in: Kernel > Restart Kernel and Run All Cells. It must run from top to bottom without error

WHY IT FAILS

The kernel remembers every variable you created, even from deleted cells. After a restart, or on another computer, the notebook breaks.

Exercise 1 · A first notebook

GOAL

Create, run, document and save a first notebook: Practice01_Lastname.ipynb

TIME

30 min

STEPS

1. Create a notebook in ML_2026; rename it
2. Markdown cell: title, name, today's goals
3. Code cell: name and group in variables; print
4. grades = [12, 15, 9, 14, 11, 16, 13]: mean, median
5. Check with statistics.mean and statistics.median
6. Restart Kernel and Run All Cells; save

DELIVERABLE

The saved notebook, which runs from top to bottom without error.

Exercise 1 · Hints

PYTHON · NOTEBOOK CELLS

```python
name = "Amina"
group = "IA"
print(f"{name} is in group {group}")

grades = [12, 15, 9, 14, 11, 16, 13]
mean = sum(grades) / len(grades)
print(mean)
print(sorted(grades))

import statistics
statistics.median(grades)
```

LINES 1-3

An f-string inserts variables into text

LINES 5-8

Mean by hand; sort to find the median

LINES 10-11

The last line of a cell is displayed without print

EXERCISE 2 · JUPYTERLAB

Exercise 2 · Session 01 statistics, locally

GOAL

Reproduce Session 01 results on your own laptop, with no Internet.

TIME

20 min

STEPS

1. Copy penguins.csv into ML_2026
2. df = pd.read_csv("penguins.csv"); print shape and missing values
3. Mean, median, s, Q1, Q3 of body_mass_g
4. Count species; histogram of flipper_length_mm
5. Correlation between flipper_length_mm and body_mass_g
6. Export the notebook as HTML

CHECK

Mean mass 4,201.8 g; median 4,050 g; r = 0.87, as in Session 01.

EXERCISE 2 · JUPYTERLAB

Exercise 2 · Reading a local file

CODE · PYTHON

```python
import pandas as pd
import matplotlib.pyplot as plt

df = pd.read_csv("penguins.csv")
print(df.shape)
mass = df["body_mass_g"]
print(mass.mean(), mass.median())

fl = df["flipper_length_mm"]
fl.plot.hist(bins=13)
plt.show()
```

OUTPUT

```
(344, 7)
4201.754385964912
4050.0
```

Then the histogram of flipper length.

Exercise 3 · Environments (if you finish early)

```
conda create -n ml python=3.13 jupyterlab pandas scikit-learn seaborn
```

THEN

`conda activate ml` the prompt starts with (ml)

`jupyter lab` runs inside this environment

`conda env list` shows all environments

`conda deactivate` returns to (base)

INTUITION

An environment is a separate Python with its own packages.

Different projects can use different versions without breaking each other.

Before you leave: checklist

CHECKLIST

- conda --version and python --version answer
- JupyterLab starts from your ML_2026 folder
- Practice01_Lastname.ipynb runs from top to bottom
- penguins.csv is read without Internet
- You stopped JupyterLab with Ctrl+C in the terminal

NEXT

- Next practice: the Session 02 and 03 notebooks, run locally
- Could not install? Finish at home, or use Colab

Resources

(1) Anaconda. Anaconda Distribution 2026.x release notes (2026.07-1: Python 3.14.6, JupyterLab 4.5.9). anaconda.com/docs/getting-started/anaconda/release/2026.x

(2) Anaconda. Installing Anaconda Distribution. anaconda.com/docs/getting-started/anaconda/install

(3) Anaconda (2024). Update on Anaconda's Terms of Service for Academia and Research. anaconda.com/blog

(4) Project Jupyter. JupyterLab documentation: interface and keyboard shortcuts. jupyterlab.readthedocs.io

(5) conda documentation. Managing environments. docs.conda.io

Course page
learn.drsoufiane.com

SH

Good work · Questions?

Keep JupyterLab installed: every practice session uses it from now on.

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