



# Introduction to the practical tools

Artificial Intelligence and  
Data Mining Methods in Ecology

University of Tuscia – Viterbo, July 21–25, 2025

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**IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System**  
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-  
Mission 4 "Education and Research" - Component 2: "From research to business" - Investment  
3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures"

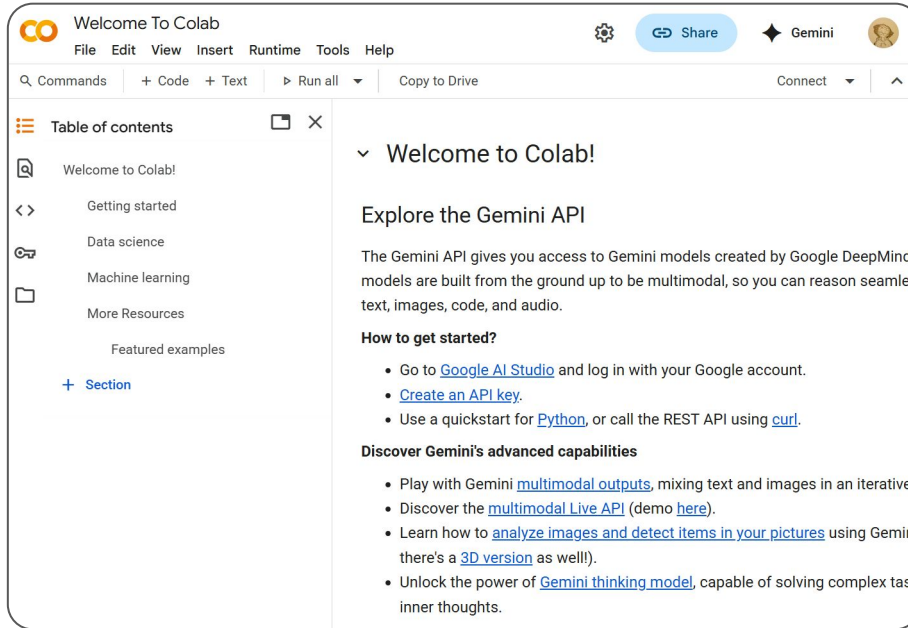


# Topics

- Google Colab (or local Python environment)
- Setting up Google Colab for the next lessons
  - Connecting Google Colab with Google Drive
  - Uploading the dataset!
- Basics data exploration activities with python
  - Exploring folders with glob
  - Exploring tabular data with pandas
  - Loading images
  - Visualizing images and creating simple plots

# Google Colab

- <https://colab.research.google.com/>



Welcome To Colab

File Edit View Insert Runtime Tools Help

Commands + Code + Text Run all Copy to Drive Connect

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- Getting started
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## Welcome to Colab!

### Explore the Gemini API

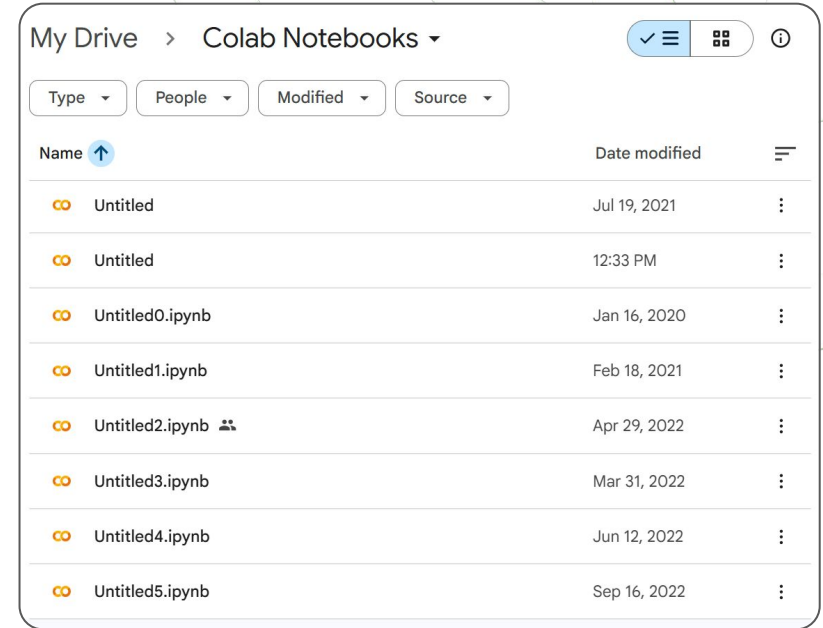
The Gemini API gives you access to Gemini models created by Google DeepMind models are built from the ground up to be multimodal, so you can reason seamless text, images, code, and audio.

#### How to get started?

- Go to [Google AI Studio](#) and log in with your Google account.
- [Create an API key](#).
- Use a quickstart for [Python](#), or call the REST API using [curl](#).

#### Discover Gemini's advanced capabilities

- Play with Gemini [multimodal outputs](#), mixing text and images in an iterative
- Discover the [multimodal Live API](#) (demo [here](#)).
- Learn how to [analyze images and detect items in your pictures](#) using Gemini (there's a [3D version](#) as well!).
- Unlock the power of [Gemini thinking model](#), capable of solving complex tasks with inner thoughts.



My Drive > Colab Notebooks

Type People Modified Source

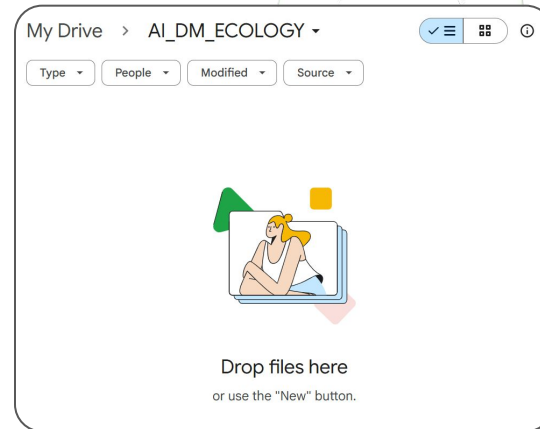
Name	Date modified
Untitled	Jul 19, 2021
Untitled	12:33 PM
Untitled0.ipynb	Jan 16, 2020
Untitled1.ipynb	Feb 18, 2021
Untitled2.ipynb	Apr 29, 2022
Untitled3.ipynb	Mar 31, 2022
Untitled4.ipynb	Jun 12, 2022
Untitled5.ipynb	Sep 16, 2022

# Google Colab

(let's all go to Google Colab!)

# Setting up Google Colab for the next lessons (1)

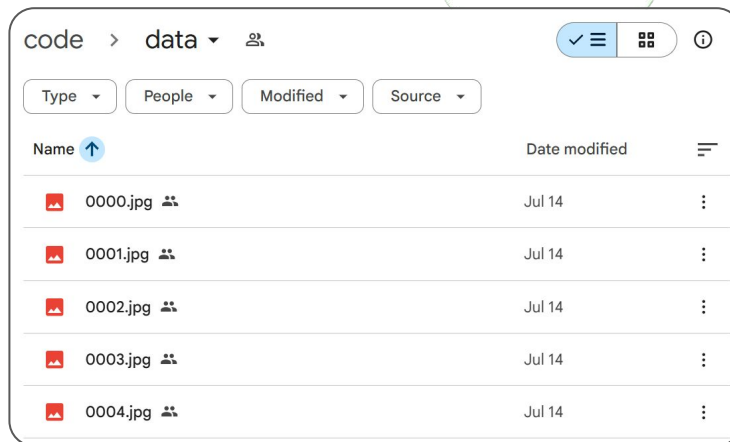
- Go to your Google Drive and **create a new folder** for the lab sessions (e.g., “AI\_DM\_ECOLOGY”)



# Setting up Google Colab for the next lessons (2)

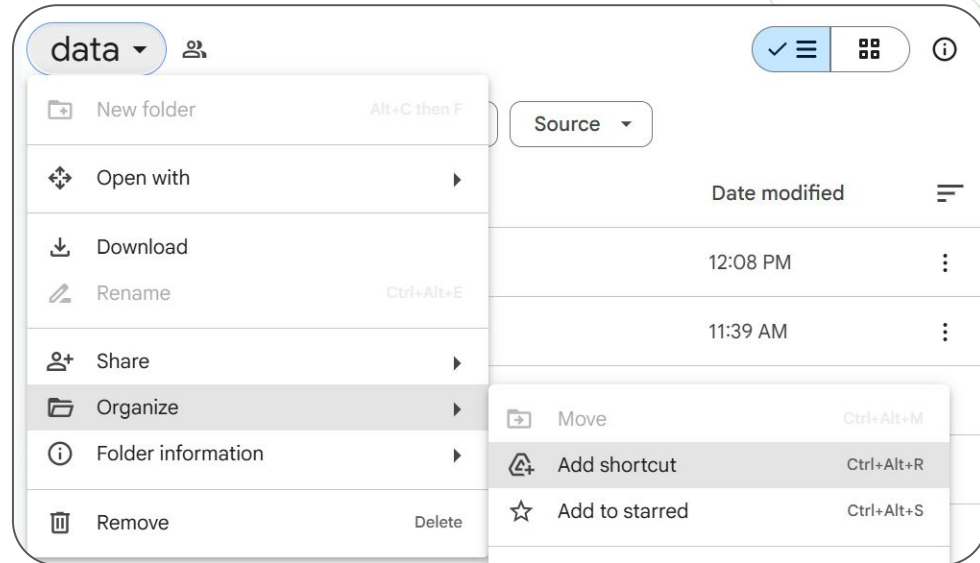
- Access the shared “shared” folder
  - Note: this is a read-only folder, so we will copy it in your own Drive to work on it

<https://drive.google.com/drive/folders/1kNtltneLYk5RbsrFXDVg-ObkFgtDm7fW>



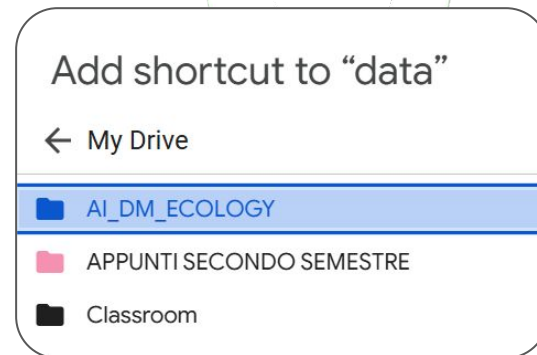
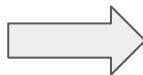
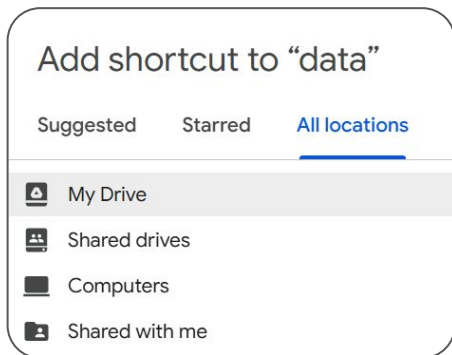
# Setting up Google Colab for the next lessons (3)

- Link the “data” folder to your own drive  
data  Organize  Add shortcut



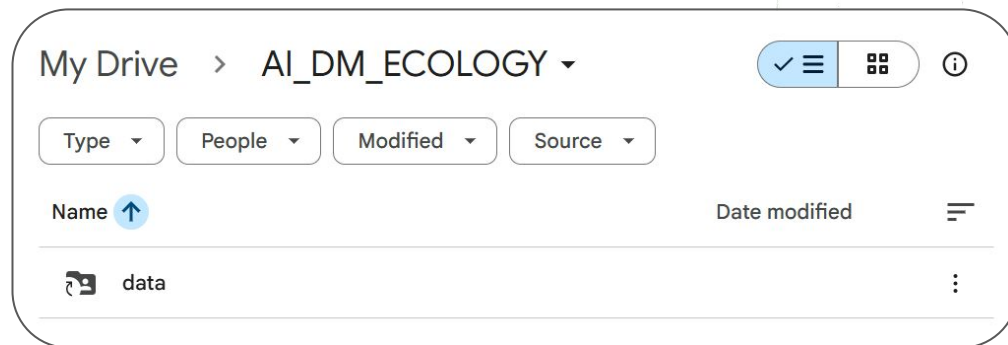
# Setting up Google Colab for the next lessons (4)

- Link the “data” folder to your own drive data  Organize  Add shortcut  
All locations  My Drive (double click)  AI\_DM\_ECOLOGY



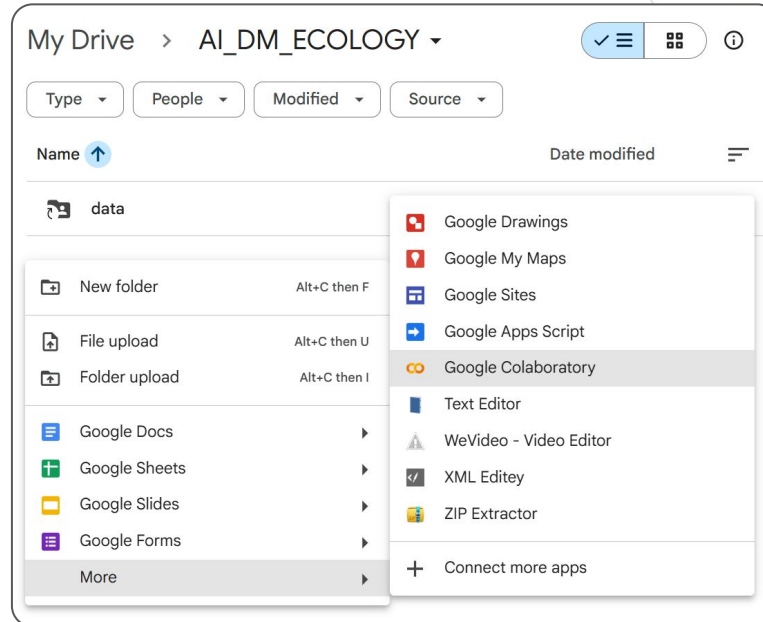
## Setting up Google Colab for the next lessons (5)

- Now you have a (read-only) copy of the data folder in your Drive



# Setting up Google Colab for the next lessons (6)

- Let's create a new "Google Colaboratory" file to start exploring (right-click)
  - More
  - Google Colaboratory



# Basics data exploration activities with python

(back to Google Colab)



# THANKS!

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