

Intro to MATLAB

QCB Collaboratory Workshop W12

Fall 2024

Dates: Oct 30, 31
Hours: 9:30 pm - 12:00 pm

Location: Boyer Hall 529
Course website: [Collaboratory website](#)

Instructor: Lukasz Salwinski
E-mail: lukasz@mbi.ucla.edu

Course Description

MATLAB is a powerful, high-level programming language for numerical computation, visualization, and application development. The workshop will introduce the MATLAB environment and will cover working with arrays, matrices and mixed (numerical/text) data tables as well as reading/writing data files and data visualization. Emphasis will be placed on MATLAB GUI with brief introduction to writing scripts and user defined functions.

Prerequisites

There are no prerequisites for this workshop, although some knowledge of matrix notation/algebra would be useful. The workshop is suitable for those with or without coding experience in other languages.

Technical Requirements

Computer with access to MATLAB and to the internet to participate in the coding component of the course:

- UCLA students, faculty and staff, can install MATLAB or access it online using UCLA-wide license by following information provided at:
<https://www.mathworks.com/academia/tah-portal/ucla-31454052.html>
- External participants can download MATLAB or access it online from MatkWorks:
<https://www.mathworks.com/>; does not include license).

Course Materials

The complete course materials (recordings, slides and scripts) will be made available daily on the Collaboratory Google Drive (link will be sent to participants at the beginning of the workshop).

Course Objectives

Students will gain proficiency with MATLAB. In particular, they will learn:

- How to interact with MATLAB GUI
- The basic syntax of MATLAB commands.
- Conditional statements, loops and functions.
- How to read and write data files.
- How to generate plots (line, scatter, histograms, heat maps, surface plots)

Assessment

An assignment will be provided at the end of the workshop. It is mandatory for UCLA students taking the workshop for credit and optional for the other participants. The assignment will be divided in 2 parts:

- A quiz aimed at testing your basic MATLAB knowledge.
- A set of coding exercises aimed at testing your MATLAB pro-efficiency. Assessment and correction will be based on a two-step iterative process:
 - Participants can submit a first version of their work (potentially accompanied with questions) by Monday, Nov 12, 2024 ('optional' deadline, one week after the workshop). The instructor will send a comments by the end of the week.
 - Participants have to submit the final version of their work by Monday, Nov 25, 2024 ('mandatory' deadline, 3 weeks after the workshop).
 - The final grade will be calculated based on the final submission.

Late assignments will be accepted for no penalty if a valid excuse is communicated to the instructor before the deadline.