Introduction to MATLAB

Important Links

- Course Notes
- MATLAB installation instructions
- Official MATLAB help pages
- Course Feedback
- Slides: https://uomresearchit.github.io/matlab-novice/files/intro_slides.pdf

Outline

- Investigating medical data - reaction of patients to a new drug to treat arthritis.
- Start with one data set, then move to dealing with multiple data sets.
- Variables and arrays
- Plotting data
- Writing scripts to repeat our analysis
- Loops and choices - analysing lots of data quickly and efficiently.
- Functions - making our code stable and re-usable.

Timetable: Day 1

- **09:30 — 10:30** Introduction, Working with Variables
- **10:30 — 10:45** *Break*
- **10:45 — 11:45** Arrays
- **11:45 — 12:00** *Break*
- **12:00 — 13:00** Loading data & Plotting data

Timetable: Day 2

- **09:30 — 10:30** Scripts, Conditional statements
- **10:30 — 10:45** *Break*
- **10:45 — 11:45** Functions
- **11:45 — 12:00** *Break*
- **12:00 — 13:00** For loops

Teaching methods

- Live coding - we will demonstrate everything live on my screen.
- Regular exercises to try out what you're learning.
- Course notes and slides available online.
- All examples and exercises included in notes.
- We're using MATLAB today, but you'll learn lots of things that are useful when working with other languages.

Getting help / asking questions

- Use Zoom reactions:
- ‘Green tick’ if you’re okay
- ‘Red cross’ if you need help / you’re not okay
- Mute your microphone, but **please turn it on and interrupt with questions. Asking questions in the meeting chat is also good.**
- **You will have questions, please ask them!**
- I will pause at the end of each section for questions.

MATLAB

- MATLAB (MATrix LABoratory) is a programming language and numerical computing environment with its own IDE (Interactive Development Environment
- [Advantage] Very good at matrix operations
- [Advantage] Large user base in science and engineering
- [Advantage] Well documented
- [Advantage] Can do a lot with it
- [Advantage] “Semi-interpreted” language - easy to use, great for prototyping and debugging
- [Disadvantage] “Semi-interpreted” language - slower than “compiled” language (eg C/C++)
- [Disadvantage] Not free to use or open source

Let’s Code!

Next steps

- Please fill in the feedback form.
- How can you use what you've learned today?
- Google and MATLAB documentation are very useful if you get stuck. I use both all the time.
- Attend one of our other courses.