

Advanced workshops

For students interested in additional, more advanced concepts, we offer advanced workshops. All courses include on-site lectures and tutorials, and corrected assignments.

Matlab Advanced I: Files and Functions

This 2-hour workshop covers low-level file-IO and advanced function types (nested, anonymous and recursive functions, variable numbers of arguments, function handles). The contents are a pre-requisite for efficiently programming Graphical User Interfaces, and for interfacing with many Matlab toolboxes and other software.

Matlab Advanced II: Graphical User Interfaces

In this half-day workshop, we cover building GUIs, both programmatically (using uicontrols) and using the Matlab App Designer. A solid knowledge of functional programming (including Matlab Advanced I) is highly recommended.

Image Acquisition and Processing

Matlab's Image Acquisition and Image Processing toolboxes have a variety of functions to deal with camera and video data. This half-day workshop covers loading and live-acquisition of still/video images (including raw), standard image processing algorithms (e.g. normalisation and contrast enhancement) and the basics of segmentation, detection and automated tracking.

Curve Fitting and Statistics

This half-day workshop explores the graphical and programmatic tools of the Curve Fitting Toolbox (to explore, pre-process, smooth, and fit constrained models to data) and the basics of the Statistics toolbox (to calculate descriptive and inferential statistics). Participants need to be familiar with the statistical techniques they wish to apply.

Optimising Matlab Code

In this 2-hour workshop, we cover specific techniques to reduce the computation time and memory footprint of Matlab programs, including vectorisation, in-place calculations, data structure choice, multi-threading, and GPU and cluster computation. These tools are particularly relevant for computationally intensive analyses such as image/video processing, modelling and working with large data sets.

TEACH

your students the skills they need

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for your personalised offer!

MATLAB Workshops
for Biologists
2019



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Learn to explore your data at a deeper level

With the accelerating advancement of consumer technology, scientific technology has made amazing leaps. Analysing the often immense amounts of data created by these cutting-edge technologies can be hard for students and researchers with little training in algorithmic data analysis and programming, which is especially common in the life sciences.

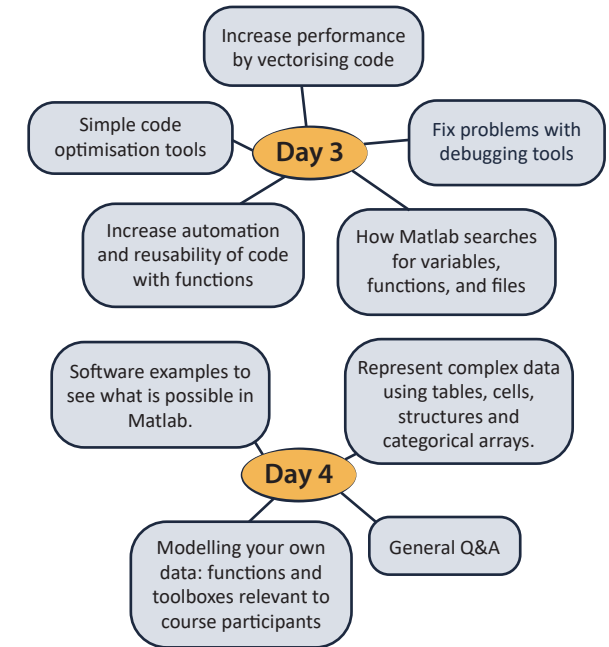
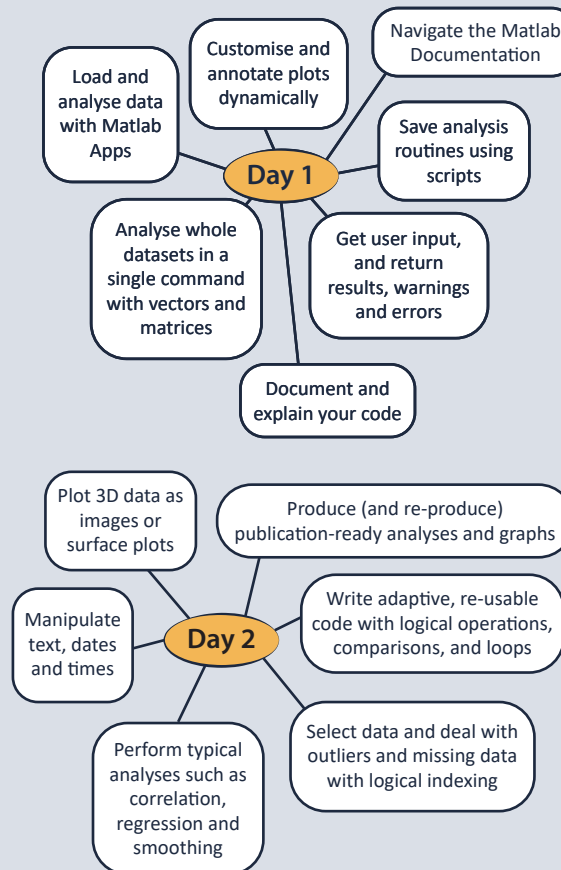
We offer professional MATLAB workshops aimed both at complete beginners and researchers with experience in other programming languages. We aim to teach the programming language MATLAB to a level where students can confidently plan, execute and analyse experiments, produce professional figures, and dig as deeply into their data as their science requires and their curiosity calls for.



Example: Basic workshop (4 half-days)

This popular workshop is run at the hosting institution with up to ten participants. Course material is provided, and an additional course book recommended. Participants are given assignments between course days to further learning success.

At the end of this course, participants will have gained a basic understanding of data exploration and analysis in Matlab. Most importantly, they will have adopted the language and tools to find and understand relevant documentation, which will allow them to learn more at their own pace when it is needed.



About the presenter: Jochen Smolka

After 15 years in biological research, I left academia in 2018 to found the scientific software consultancy ScienceDjinn. I have used Matlab as one of my main tools of research from the beginning, and immensely enjoy helping other scientists transform their research with new tools and skills.



Besides Matlab workshops and academic software development, ScienceDjinn also helps companies translate the results of scientific research into commercial products. This work has given me substantial experience in creating market-ready smart technology in modern programming environments such as Python, Go and JSX/React; experience which I bring back into my work with academic clients, and into my workshops. I strongly believe that by unlocking the power of scientific programming, we can push our scientific limits and make our research truly extraordinary.