

# Matlab and data analysis class

*Jun. Prof. Dr. Marcel Lauterbach, Molecular Imaging, CIPMM, Saarland University, Germany.*

In this course the participants will learn the **basics of programming** and in particular how to use **Matlab** for universal **data analysis**. It is a course for beginners. The aim is that participants without prior knowledge learn how to use Matlab for data analysis, statistical evaluation and presentation of results.

## Target group:

MD-PhD and other MD/PhD students who want to learn a versatile program for their data analysis and want to acquire basic programming knowledge. 1 credit point in the ECTS is granted for this class.

## Prerequisites:

Basic computer skills and basic statistical knowledge. Programming knowledge is NOT a prerequisite.

## Matlab is:

- A calculator for interactive calculations
- A programming language that also provides complex functions with one command
- A tool for simple and complicated calculations with large amounts of data
- A platform to summarize and automate different steps of the data evaluation (e.g. read in data, summarize, statistically evaluate, create graphics and save)
- A Swiss Army Knife for data analysis and simulations

## Course contents:

- Interactive calculations with Matlab
- Automation for repeated tasks, e.g. the similar analysis of several data sets
- Fundamentals of programming: functions, loops, if statements
- Graphical representation of data/simulations/results
- Basic statistics with Matlab
- Import of data from files

## Structure of the course:

A few minutes of lecture, then immediately trying out what you have just learned on the computer before continuing with the next topic in the lecture. Regular small exercises for consolidation and self-control.

## Course dates:

Four afternoons, **Tuesday, October 11; Thursday, October 13; Tuesday, October 18; Thursday, October 20, 2022, 2:00 PM to 6:00 PM** German time as online meeting in Microsoft Teams. The parts of the course strongly build on each other. Participation at all days is therefore absolutely necessary. All participants will need to have installed Matlab on their own computer. Installation instructions will follow with the confirmation of registration. If your institution does not have a license for Matlab, you can get access to the license of Saarland University.

## Binding registration:

Please contact your local organizer of the program that will collect the registrations. Indicate your family name, given name, university email address and if you need access to the Matlab license of Saarland University.

Typically, there are more students interested than there are places. Please register only if you will really participate!

## Contact:

Jun.-Prof. Dr. Marcel Lauterbach, Saarland University, Molecular Imaging, CIPMM, 66421 Homburg, Germany, Room 02.01.10, Phone +49 6841-16-16400, Email Marcel.Lauterbach@uni-saarland.de