

# Matlab and data analysis class

*Jun. Prof. Dr. Marcel Lauterbach, Molecular Imaging, CIPMM.*

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 students but also all other PhD students who want to learn a versatile program for their data analysis and want to acquire basic programming knowledge. Especially those students that work already in a lab or will do so soon, e.g. for their PhD thesis.

MD-PhD students will gain 6 CP with 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 simulation

## Course contents:

- Interactive calculation 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. No exam. Certificate of attendance.

## Course dates and location:

Four afternoons, Monday October 5 to Thursday October 8, 2020, 1:00 PM to 5:00 PM as online meeting in MS Teams. **You need to have installed Matlab on your own computer!** Installation instructions will follow with the confirmation of registration. The parts of the course strongly build on each other. Participation at all days is therefore absolutely necessary.

## Binding registration:

Via email to [Marcel.Lauterbach@uni-saarland.de](mailto:Marcel.Lauterbach@uni-saarland.de) until September 29, 2020. The limited places are allocated according to the date of registration.

## Contact:

Jun.-Prof. Dr. Marcel Lauterbach, Molecular Imaging, CIPMM, Room. 02.01.10, Tel. 06841-16-16400, Email [Marcel.Lauterbach@uni-saarland.de](mailto:Marcel.Lauterbach@uni-saarland.de)