

# Advanced MATLAB®

## Interactive Hands-on Course

### Course Outline

#### ***Quick review of the essentials***

Standard functions. Data and array types.  
Integrated development environment.  
Working with data files. Graphics.

#### ***Advanced graphics***

Programmatic and interactive techniques.  
Getting and manipulating data from graphs.

#### ***Function types***

Use of subfunctions, anonymous and nested functions.

#### ***Date and time***

Standard and custom functions for working with dates and time.

#### ***Development practices***

Best practices. Code management. Style.  
Documentation. Help integration.

#### ***Object oriented programming***

Advantages and disadvantages of OOP. Use of `classdef` and method functions.

#### ***Performance and memory issues***

Techniques for memory management and speed improvement. Code assessment with timers and profiling. When to vectorize.

#### ***Examples in data analysis and signal processing***

This course can be customized to address client needs and interests. The use of client data is encouraged.

### Summary

This one or two day intensive course explores advanced features of the MATLAB environment and improving programming skills. Training stresses the best ways to use this powerful mathematical application. The emphasis is on quickly developing code that is correct, maintainable and efficient. The course includes many examples and exercises.

### What you will learn

- Getting results more effectively.
- Improving software practices.
- Dealing with challenging data.
- Specific techniques to meet your needs.

### Who should attend

Engineers, scientists and programmers who have knowledge of MATLAB Fundamentals and want to improve. Those who are unfamiliar with features in recent releases. Those interested in mathematical programming, data analysis, or visualization.

### Instructor

Richard Johnson has taught dozens of MATLAB courses. He is the author of the MATLAB Style Guidelines and developer of the Data Visualization Toolbox for MATLAB. He has a B.S. in Mathematics from Purdue University, a Ph.D. in Engineering Science from UCSD, and was a professor at Oregon State University.