MATLAB® Fundamentals

Interactive Hands-on Training

Course Outline

Numerical data and operations

Arithmetic. Matrix and array operations. Indexing and logical operations. Standard functions. Variables. Finite precision.

Character data and operations

Manipulating and comparing strings. Character conversions. Using cell arrays of strings.

Programming

Use of the Editor. Programming and naming conventions. Structured programming. Flow control. Advanced arrays. Vectorization. Effective programming style.

Function files

Function use and grammar. Making code modular. Considerations for sharing and reuse. Integrated development environment features. Strategies and techniques for programming and debugging.

Working with data

Reading and writing data files. Basic data characterization and analysis. Curve fitting. Time series analysis. Interactive and programmatic techniques. Reporting results.

Graphics

2-D and 3-D graphics and annotation. Interactive and programmatic refinement. Exporting graphics to other applications.

Help and resources

How to find the information you need about code that you can use. Documenting your own code.

Summary

This two day intensive course emphasizes the best ways to use MATLAB® for working with data. It provides an introduction to the MATLAB computing environment and a solid foundation for development of programming and data analysis skills. The course includes many examples and exercises. It will show you how to write clean code that helps you analyze your data.

What you will learn

- Working with numerical and character data.
- Reading and writing data files.
- Working with structures, multidimensional and cell arrays.
- Using 2D and 3D graphics to present information.
- Writing solid code.
- Using the MATLAB desktop features.
- Automating your work.
- Getting results effectively.
- Essential MATLAB best practices.

Who should attend

Engineers, scientists and programmers who have experience with some high level programming language. Self taught MATLAB programmers who want a solid foundation. Those interested in working with data effectively.

Instructor

Richard Johnson has taught dozens of MATLAB courses. He is the author of *The Elements of MATLAB Style* 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.

richj@datatool.com   866-633-0432