



# Computation Analysis and Programming in MATLAB®

N/A  
The MathWorks, Inc.

## WORKSHOP

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### ABSTRACT

The use of MATLAB® as a technical computing language is widespread in advanced engineering curriculum. The goal of this workshop is to introduce first time users in various engineering and sciences disciplines to the MATLAB® interface. Participants of the workshop will learn how

- To do computational analysis using MATLAB®
- To write programs to automate data analysis tasks in MATLAB®

Additionally, best programming practices for MATLAB® and publishing features of MATLAB® will be illustrated. While the workshop is geared towards first time MATLAB® users, faculty with some MATLAB® experience and those looking for a language to use for Freshman Introductory programming courses should also find the workshop useful.

### OUTLINE

#### Workshop Introduction

Gain an understanding of the purpose and applications of MATLAB®.

- Obtain a quick overview of The MathWorks and MATLAB®
- Provide a "big picture" view of the workshop ahead

#### MATLAB® On-Ramp (45 min)

This section introduces the MATLAB® interface, ways to create, access, and manipulate variables in MATLAB®, and the usage of MATLAB® library functions.

- The MATLAB® Desktop Interface
- Working with variables in MATLAB®
- Calling MATLAB® functions

#### MATLAB® for Computational Analysis (45 min)

This section shows the standard MATLAB® workflow for solving problems, starting from reading data from external sources, analyzing data and visualizing results and finally publishing the results.

- Importing and extracting data
- Data analysis: computation and tools
- Data visualization
- Publishing result

#### Programming using MATLAB® (30 min)

Automating data analysis tasks is achieved by writing scripts and functions in MATLAB®. This section shows how to write scripts and functions using the MATLAB® Editor. Basic programming constructs like loops and conditional statements that are universal to all programming language will be introduced. Best programming practices will be discussed. Benefits

- Scripts and Functions
- Programming Constructs
- Best practices





## **ADDITIONAL INFORMATION**

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### **The MathWorks, Inc. Contacts**

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### **Quality Management**

The MathWorks, Inc. is committed to deliver the highest quality products and services to its customers and management of quality is regarded as an integral part of the business policy. The MathWorks, Inc. objective is to serve its customers by meeting and exceeding their requirements.

### **Instructors**

A MathWorks engineer experienced in classroom teaching leads each workshop. Instructors are dedicated to the philosophy that training should be hands-on, interactive, and based on real-world problems and examples. The actual Training Engineer teaching the course may vary depending on date requested.

### **The MathWorks Deliverables**

1. Tutorial workshop
2. Course Materials to include:
  - Exercises and examples provided on CD-ROM
  - MATLAB© product family software for the duration of the course.

### **Participant Requirement**

1. Participants will benefit most by having personal laptops to follow along during the presentation.
2. Participants are advised to register in advance and follow the software installation procedures before the workshops.