



# Plan for Week 2 Computer Lab


- Please run through the “**MATLAB Lab 2**” document, and try entering the examples into the window
- We’ll learn more about basic MATLAB commands such as the “for loop” and how to find eigenvectors and eigenvalues using MATLAB
- Continue with the **MATLAB Onramp Course** on the MathWorks website
- **MATLAB Project Part 1**: Please upload your progress report for the Onramp Course (modules 1-10) by **15 August** (Friday Week 2)


# Upcoming assignments


## ▼ Upcoming assignments


 **Week 2 lecture 2 (group 1)**  
Not available until 14 Aug at 14:30 | Due 14 Aug at 23:59 | -/5 pts

 **Part 1: Introduction to MATLAB**  
Available until 17 Aug at 23:59 | Due 15 Aug at 23:59 | -/2 pts

 **Week 3 lecture 1 (group 1)**  
Not available until 18 Aug at 14:00 | Due 18 Aug at 23:59 | -/6 pts

 **Week 3 lecture 2 (group 1)**  
Not available until 21 Aug at 14:30 | Due 21 Aug at 23:59 | -/5 pts

 **Week 4 lecture 1 (group 1)**  
Not available until 25 Aug at 14:00 | Due 25 Aug at 23:59 | -/7 pts

 **Week 4 lecture 2 (group 1)**  
Not available until 28 Aug at 14:30 | Due 28 Aug at 23:59 | -/4 pts

 **Part 2: Eigenvalue problems and Markov Chains**  
Not available until 18 Aug at 0:00 | Due 29 Aug at 23:59 | -/2 pts

Complete  
MATLAB Onramp  
by this Friday

Due Friday Week 4

# MATLAB Onramp

- Can access from the MathWorks website:

The screenshot shows the MATLAB Onramp page on the MathWorks website. The page has a dark blue header with the MATLAB logo on the left, a search bar labeled "Search Help Center" in the middle, and a user profile icon labeled "CB" on the right. Below the header, there is a "Get Help" sidebar on the left with links to "Documentation", "MATLAB Answers", and "File Exchange". The main content area features two large buttons: "Open MATLAB Online" and "Install MATLAB". Below these is a "Recent" section with a search bar. The "Files" section is highlighted with a red circle, showing three course cards: "MATLAB Onramp Unlimited Access", "Simulink Onramp Unlimited Access", and "Machine Learning Onramp Unlimited Access". Each card has a "Start" button. At the bottom right, there is a link to "View all courses".

**MATLAB** Search Help Center CB

**Get Help**

- Documentation
- MATLAB Answers
- File Exchange

**Open MATLAB Online** **Install MATLAB**

**Recent**

Search Recent

**Files**

**Online Training**

**MATLAB Onramp**  
Unlimited Access  
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**Simulink Onramp**  
Unlimited Access  
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**Machine Learning Onramp**  
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# MATLAB Onramp



MATLAB Onramp

Start course

Share Course | **Certificate & Progress Report | Q**  
COMPLETED

Learn the basics of MATLAB® through this introductory tutorial on commonly used features and workflows. Get started with the MATLAB language and environment so that you can analyze science and engineering data.

## Course modules

✓ > **Course Overview** 100% | 5 min

✓ > **Commands** 100% | 20 min

✓ > **MATLAB Desktop and Editor** 100% | 15 min

✓ > **Vectors and Matrices** 100% | 15 min

✓ > **Array Indexing and Modification** 100% | 15 min

✓ > **Array Calculations** 100% | 5 min

✓ > **Function Calls** 100% | 5 min

✓ > **Documentation** 100% | 5 min

✓ > **Plots** 100% | 10 min

✓ > **Data Import** 100% | 5 min

✓ > **Logical Arrays** 100% | 5 min

✓ > **Programming** 100% | 10 min

✓ > **Final Project** 100% | 10 min

✓ > **Conclusion** 100% | 5 min

Complete this at a minimum to get full marks for “Introduction to MATLAB” assignment

Upload Progress Report



## Progress Report

**Name:** Chris Blake  
**Course:** MATLAB Onramp  
**Progress:** 100% complete (as of 11 August 2025)

### Chapters

- |                                    |      |                   |      |
|------------------------------------|------|-------------------|------|
| 1. Course Overview                 | 100% | 12. Programming   | 100% |
| 2. Commands                        | 100% | 13. Final Project | 100% |
| 3. MATLAB Desktop and Editor       | 100% | 14. Conclusion    | 100% |
| 4. Vectors and Matrices            | 100% |                   |      |
| 5. Array Indexing and Modification | 100% |                   |      |
| 6. Array Calculations              | 100% |                   |      |
| 7. Function Calls                  | 100% |                   |      |
| 8. Documentation                   | 100% |                   |      |
| 9. Plots                           | 100% |                   |      |
| 10. Data Import                    | 100% |                   |      |
| 11. Logical Arrays                 | 100% |                   |      |


Release: v1 | Language: English

# Lab 2 instructions


## ▼ Week 2

 Study plan for Week 2 (August 11-17)

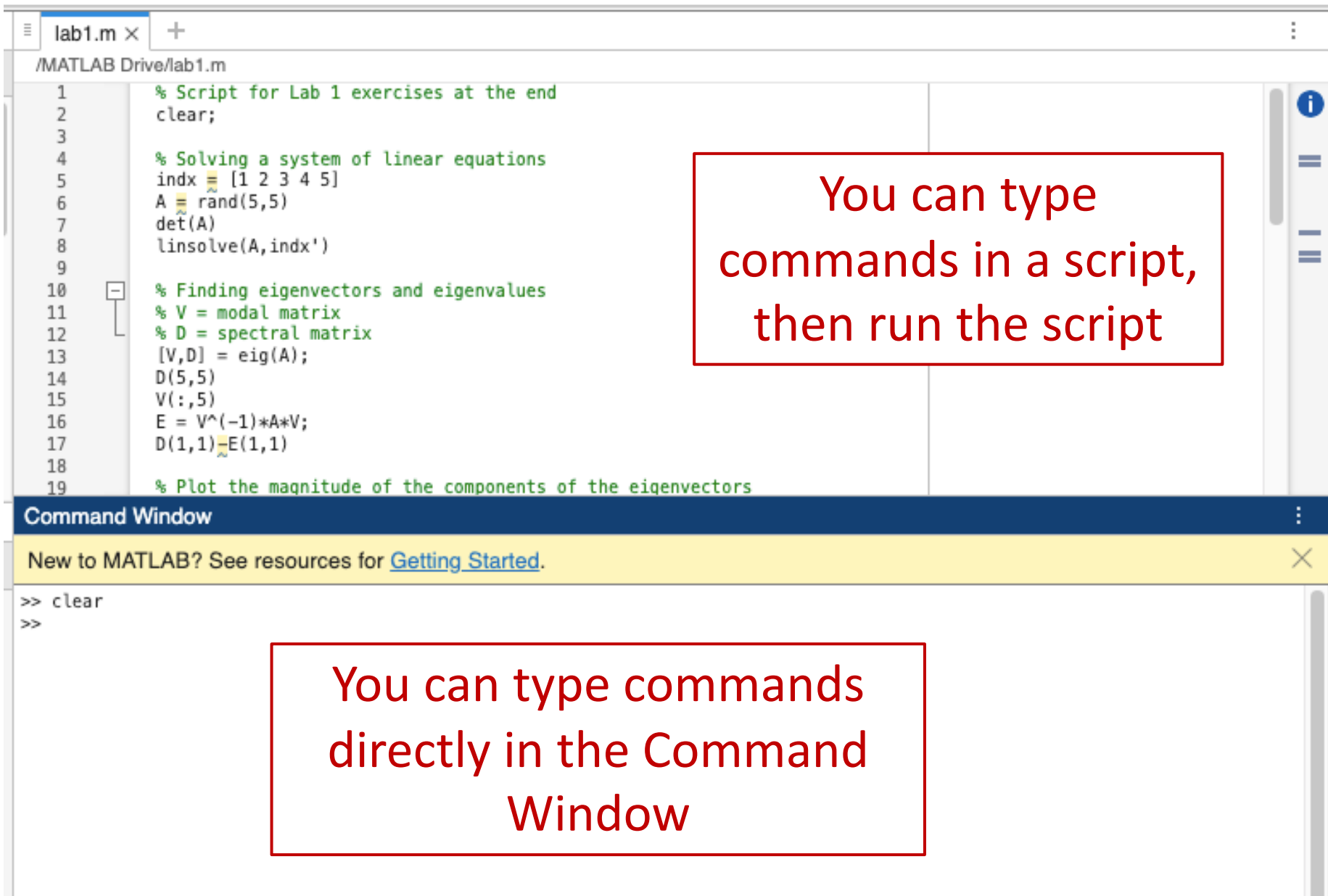
 Tutorial 2

 Tutorial 2 Solutions

 lecture notes from study guide

 Matlab laboratory 2

# Reminder on running MATLAB



The image shows the MATLAB software interface. At the top, there is a title bar with a tab labeled 'lab1.m'. Below this is the script editor, which contains a MATLAB script. The script starts with a comment '% Script for Lab 1 exercises at the end' followed by 'clear;'. It then has a comment '% Solving a system of linear equations' followed by 'indx = [1 2 3 4 5]', 'A = rand(5,5)', 'det(A)', and 'linsolve(A,indx')'. Next is a comment '% Finding eigenvectors and eigenvalues' followed by '% V = modal matrix', '% D = spectral matrix', '[V,D] = eig(A);', 'D(5,5)', 'V(:,5)', 'E = V^(-1)\*A\*V;', and 'D(1,1)=E(1,1)'. The script ends with a comment '% Plot the magnitude of the components of the eigenvectors'. To the right of the script editor, there is a red-bordered box with the text 'You can type commands in a script, then run the script'. Below the script editor is the 'Command Window' tab, which is currently active. It shows the prompt '>>' followed by 'clear' and another '>>' on the next line. Below the command window, there is a yellow banner with the text 'New to MATLAB? See resources for [Getting Started](#)'. At the bottom, there is a red-bordered box with the text 'You can type commands directly in the Command Window'.

```
1 % Script for Lab 1 exercises at the end
2 clear;
3
4 % Solving a system of linear equations
5 indx = [1 2 3 4 5]
6 A = rand(5,5)
7 det(A)
8 linsolve(A,indx')
9
10 % Finding eigenvectors and eigenvalues
11 % V = modal matrix
12 % D = spectral matrix
13 [V,D] = eig(A);
14 D(5,5)
15 V(:,5)
16 E = V^(-1)*A*V;
17 D(1,1)=E(1,1)
18
19 % Plot the magnitude of the components of the eigenvectors
```

Command Window

```
>> clear
>>
```

New to MATLAB? See resources for [Getting Started](#).

# By the end of today ensure you can ...

Determinant and trace

```
>> A = [1 2 2; 2 2 -2; 3 4 -1]
>> det(A)
>> trace(A)
```

Invert a matrix

```
>> inv(A)
```

Solve linear equations

```
>> r = [3; 1; 3]
>> inv(A)*r
>> linsolve(A,r)
```

Find eigenvectors and eigenvalues of a matrix

```
>> [V,D]=eig(A);
>> e = eig(A)
```

Check normalization of eigenvectors

```
>> for i=1:3
    sum(V(:,i).^2)
end
```