

# CSCE155N Lab 01

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## 1. Lab Objectives

- a. Log into a Windows machine and your CSCE account.
- b. List the lab rules and hours of operation.
- c. Understand the academic integrity policy of the Department of Computer Science and Engineering.
- d. Know where to find help regarding CSE accounts and lab facilities.
- e. Download and run MATLAB on your personal computer.
- f. Use the locally installed MATLAB Interactive Development Environment (IDE) to create and update MATLAB source code.
- g. Use the MATLAB IDE to execute simple M-Files.
- h. Explain how variable assignments work in MATLAB.
- i. Execute simple MATLAB commands interactively in the command window.
- j. Execute a MATLAB program.

## 2. Prior to Lab

- a. Review the laboratory handout.
- b. Read chapters 1 & 2.

## 3. Activities

- a. Acquire a license and Install MATLAB on your personal computer. A UNL email address is required (@huskers.unl.edu, @cse.unl.edu, @unl.edu, etc.). Version 2015a is recommended.
  - i. <http://itprocurement.unl.edu/matlab-license-request>
- b. Log into cse.unl.edu Domain on lab computers. The network shared drive is the Z: drive.
  - i. Username: Your CSE username
  - ii. Password: Your CSE password
- c. Access your Z: drive from your personal computer using FileZilla on Windows or Terminal on OSX.
  - i. Host: cse.unl.edu
  - ii. Username: Your CSE username
  - iii. Password: Your CSE password
  - iv. Port: 22
- d. Run MATLAB and learn where to find help.
  - i. Create a csce155n folder either on your Z: drive or on your personal computer
  - ii. Create a subdirectory csce155n\lab01
  - iii. Run MATLAB
  - iv. Observe the output of the following Commands, paying particular attention to any errors that may occur

```
help cd
lookfor pie
who
whos
home
clc
help pi
help scatter
doc scatter
lookfor plot
```

- v. Type each of the following commands into the Commands into the Command Window, and observe what happens in the Workspace, as well as any errors that may occur

```
var = 6;
x = 5; y = 10;
x = 5 y = 10
x = 6
y = 11
input( 'Enter a value: ' );
value = input( 'Enter a value: ' );
disp( value );
fprintf( 'The value that you entered was: %f' , value );
fprintf( 'The value that you entered was: %f\n' , value );
```

e. Hello World

- i. Change the Current Directory using the command `cd Z:\csce155n\lab01` (or the location where you made the `csce155n` folder on your personal computer)
- ii. Download all files from URL NEEDED to the `lab01` folder
- iii. Use either the Open -> Open... tool in the toolbar at the top of MATLAB, or type the command `edit helloworld.m` to open `helloworld.m`

iv. Replace the line

```
string = 'Replace this line\n';
```

with the line

```
string = inputdlg( 'Enter your name' ); name = string{ 1 };
```

in the function `getName()`

v. Replace the line

```
message = 'And also this line\n';
```

with the line

```
message = sprintf( 'Hello, %s', name );
```

in the function `printMessage()`

- vi. Save all open `.m` files

vii. Type `helloworld()` into the Command Window and input your name

f. Distance Converter

- i. In `meters2yards.m`, convert the value stored in meters into the correct number of yards and store the result in yards, using the formula 1 meter = 1.09361 yards
- ii. Run `meters2yards(m)` with various values in the parentheses

g. Polar Converter

- i. In `polar2cartesian.m`, convert the values stored in `r` and `t` into the correct `x` and `y` coordinates using the formulas  $x = r * \cos(t)$  and  $y = r * \sin(t)$
- ii. Note that `Pt` will be provided in degrees, and will need to be converted into radians using the formula  $radians = \frac{degrees}{180} * \pi$
- iii. Run `polar2cartesian(r, t)` with various values in the parentheses. If your program is working, `polar2cartesian(5, 90)` should return (0,5), and `polar2cartesian(10, 30)` should return (8.66025,5).