COGS 119
MATLAB for Experimental Research

Fall 2014 – Week 1

Introduction to Matlab

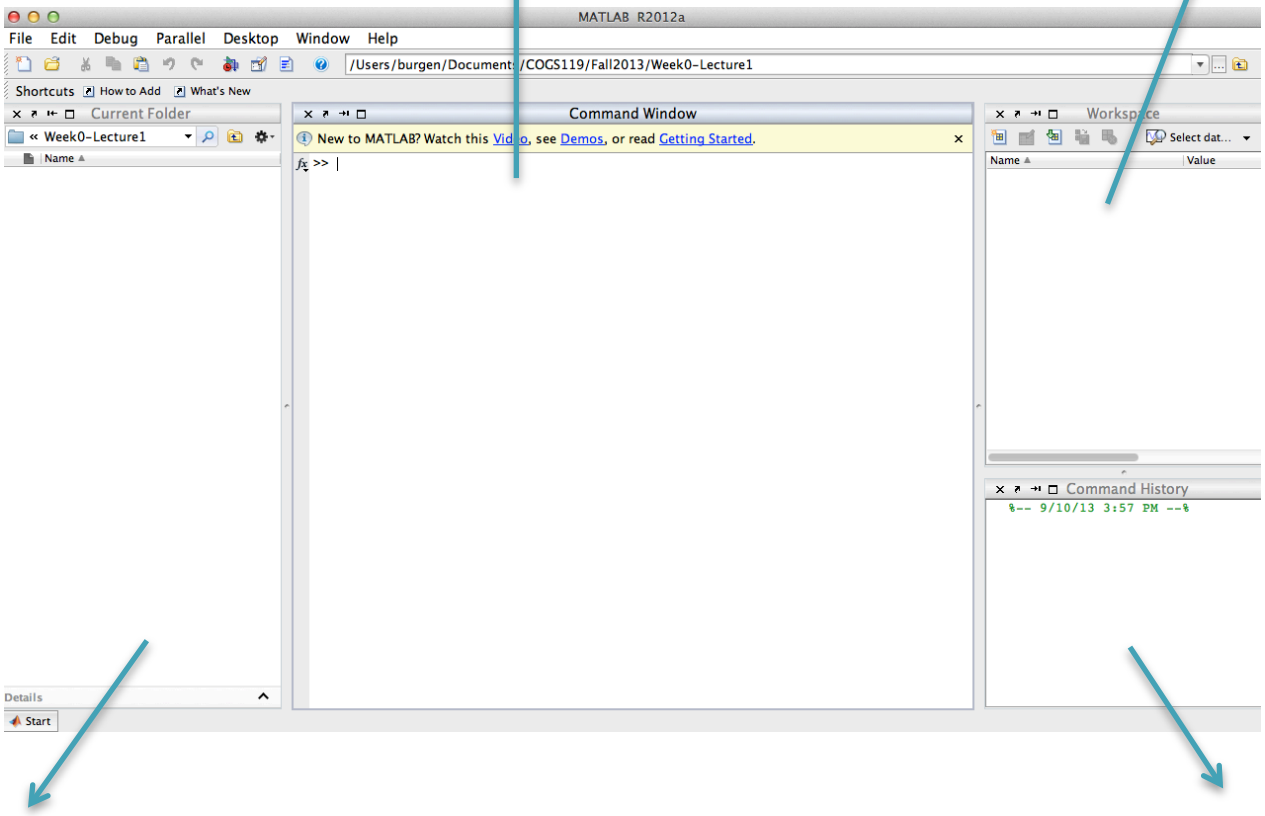
Introduction to MATLAB

Go ahead and start MATLAB

Introduction to MATLAB

Command Window

Workspace Window



Current Directory Window

Command History Window

MATLAB Windows

Window	Purpose
Command Window	Main window, enters variables, runs programs
Current Directory Window	Shows the files in the current directory
Workspace Window	Provides information about the variables that are used
Command History Window	Logs commands entered in the Command Window
Help Window	Provides help information

This window can be opened from the **Help** menu in the toolbar of Matlab window

Working in the Command Window

- To type a command, the cursor must be placed next to the command prompt (**>>**)
- Once a command is typed and **Enter** key is pressed, the command is executed.

Example: Using MATLAB as a calculator

Type the following on the command window and press **Enter**

```
>> 7 + 8
ans =
        15
```

Example: Using MATLAB as a calculator

```
>> 15 – 8
ans =
        7

>> 10 * 5
ans =
        50
```

Example: Using MATLAB as a calculator

```
>> 5 / 3
ans =
        1.6667

>>  2 ^ 3
ans =
         8
```

Example: Using MATLAB as a calculator

```
>> (7 + 8) / 2
ans =
        7.5000

>> 4+5/3+2
ans =
        7.6667
```

diary

```
>> diary
      .
      .
      .

>> diary off
```

Try >> help diary

Defining Scalar Variables

Variable: A name made of a letter or a combination of several letters (and digits) that is assigned to a numerical value.

variable_name = a numerical value, or a computable expression

Assignment operator

```
>> x = 15
x =
      15
```

Examples

```
>> a = 12
a =
        12

>> B = 4
B =
        4

>> C = (a - B) + 40 – a / B
C =
        45
```

Using semicolon (;)

```
>> a = 12;
>> B = 4;
```

If a semicolon is typed at the end of the command then, when the **Enter** key is pressed, MATLAB does not display the variable with its assigned value.

The variable still exists and is stored in memory.

```
>> B
B =
     4
```

Re-assigning a variable

A variable that already exists can be reassigned a new value.

Re-assigning a variable

```
>> d = 72;
>> d = 9;
>> d
d =
     9
```

Rules about variable names

- Must begin with a letter
- Can contain letters, digits, and the underscore character
- Cannot contain punctuation characters (e.g. period, comma, semicolon)
- MATLAB is case sensitive; it distinguishes between uppercase and lowercase letters.

  e.g. AA, Aa, aA, and aa are the names of four different variables
- No spaces are allowed between characters

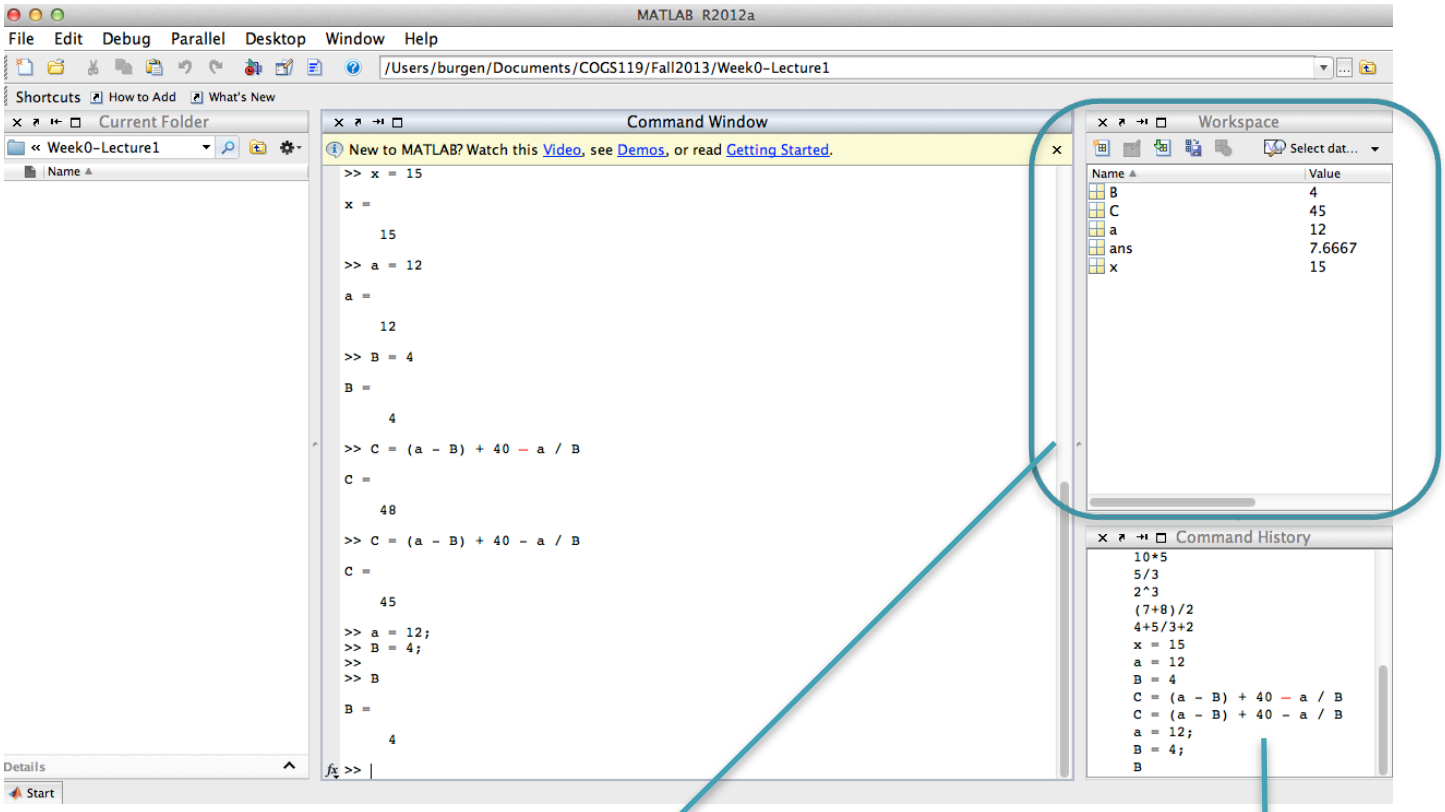
Rules about variable names

- **Keywords** reserved by MATLAB for various purposes cannot be used as variable names. Examples of these words are:

break	case	catch	continue
else	elseif	end	for
function	global	if	otherwise
persistent	return	switch	try while

- When typed, these words appear in blue. An error message is displayed if the user tries to use a keyword as a variable name.

Look at the workspace window



Variables in the workspace

Command history

Useful commands for managing variables

```
>> who
Your variables are:
B       C       a       ans     x

>> whos
```

Useful commands for managing variables

```
>> who
Your variables are:
B      C      a      ans    x
```

Try
>> help who
and
>> help whos

```
>> whos
```

Name	Size	Bytes	Class	Attribute
B	1x1	8	double	
C	1x1	8	double	
a	1x1	8	double	
ans	1x1	8	double	
x	1x1	8	double	

Useful commands for managing variables

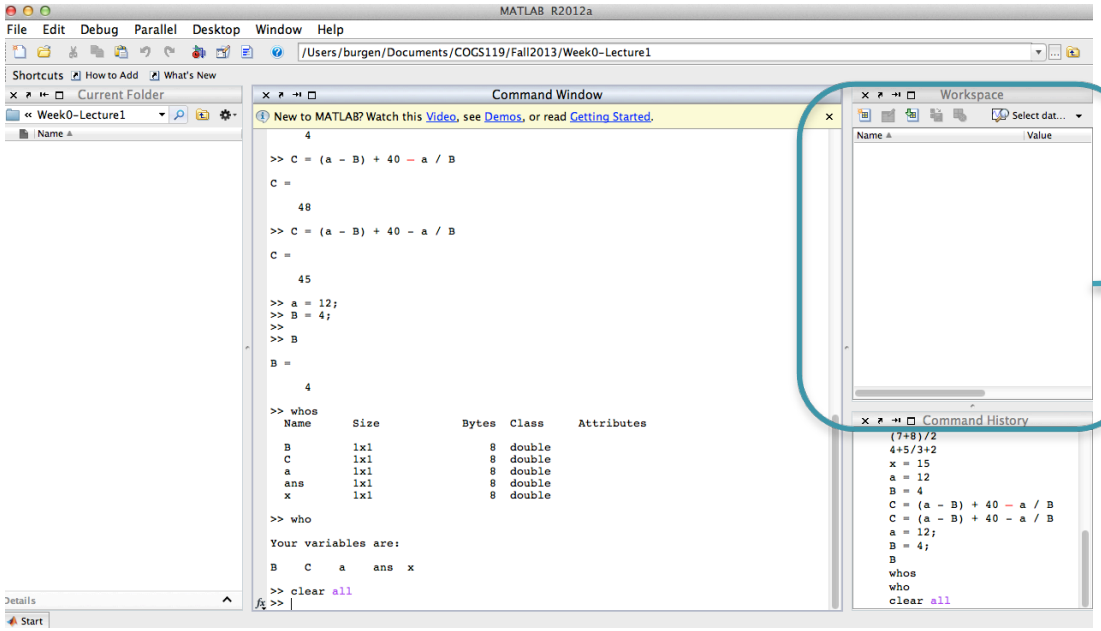
>> clear a B

Removes the variables a and B from memory

Useful commands for managing variables

>> clear

Removes all variables from memory



empty