

ENGR 1120 Lecture Chapter 2 - More about 1D Matrices

- We need to remember to clear the workspace ...
 - Consider the follow scenario...

```
>> clear variables
```

```
>> X=[5 10 15 20 25 30 35 40 45 50]
```
 - If I use ‘X’ again without clearing the data...

```
>> X=[3 6 9 12 15]
```
 - What do you think will happen?

- Other weird things can happen as well...

- Consider this scenario...

```
>> clear variables
```

```
>> X=[2 4 6 8]
```

```
>> X(6)=99
```

- What do you think will happen?

- the Colon Operator :

- used with sequential arrays that are *ranges*

i.e. $[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]$ or $[0.1, 0.2, 0.3, 0.4, 0.5]$

- used for Initialization of a range

- Slicing

- **Array Concatenation**

- this is a special use of the `[]` and *initialization*

- create arrays from other arrays

- **Scalar Operations:**

All of the math we have done so far has been *Scalar Arithmetic*. This means that each operand was a Scalar (1x1) and each numerical expression was evaluated as a Scalar (1x1).

`x=10*2` `--> 20`

`y=x*5` `--> 100`

`A=[10, 15, 12, 13]`

`p=A(1)*A(3)` `--> 120`

- **Element-Wise Operations:**

It is often useful to operate on an entire array at once. These operate on the array operands one element at time and generate a array that is the same size and shape as the array operand.

– Element Wise Multiply `.` `*`

– Element Wise Divide `.` `/`

– Element Wise Power `.` `^`

`A=[10, 15, 12, 13]`

`B=[1, 5, 2, 3]`

`C=A.*B` `--> 10, 75, 24, 39`

`C=A./B` `-->10.0, 3.0, 6.0, 4.3`

`C=A.^B` `--> 10, 759375, 144 , 2197`