General Tips and Reminders

- The most important command in MATLAB: help function
- To terminate a program that is currently running: Ctrl-C
- The command whos will display all variables that have been defined and their respective dimensions
- MATLAB indexing begins with 1, as opposed to 0 in C/C++
- In order to suppress printing to the Command Window, end the line with a semicolon
- The equal sign is an assignment operator, whereas the double equal sign is a relational operator. For example, \( a = 3 \) will substitute all future instances of \( a \) with the value 3. In the conditional statement if \( (a == 3) \), the value of \( a \) is compared to 3.
- The command clc clears the Command Window
- The command clear all removes all variables from memory
- The command hold on will retain plots in the open figure window
- Remember to comment your code for ease of understanding, both for yourself in the future and for other users

for Loop

- Use when you know the number of times a given calculation should be repeated
- Syntax: 
  
  ```
  for i = 1:2:9
  ...
  end
  ```
- In the above case, the first iteration of the for loop is for \( i=1 \), and the second iteration is for \( i=3 \) because the step size is specified to be 2. The variable \( i \) continues to be incremented by 2 until \( i=9 \), at which point MATLAB completes one last iteration and then exits the for loop.

while Loop

- Use when you have a known constraint and require a calculation to be performed an unknown number of times
- Syntax: 
  
  ```
  x = 1;
  while (x <= 5)
  ...
  x = x + 1;
  end
  ```
- In the above case, \( x \) is initialized to a value of 1 so that the program will actually enter the while loop. Remember that the calculations performed in the while loop must alter the constrained variable, otherwise this will result in an infinite loop.
**if/elseif/else Statement**

- Use when you have a set of calculations to be performed only when a specific condition is met; these conditional statements allow the program to make decisions during its execution.
- Syntax:
  
  ```
  if (j == 1) 
    ...
  elseif (j == 2) 
    ...
  else 
    ...
  end
  ```

- Note that specific relational comparisons must be stated for `if` and `elseif`, whereas `else` is an option for any remaining, yet not explicitly specified, condition.
- Only one of these options will be performed each time the set of conditional statements is encountered.