CDS 101/110
MATLAB TUTORIAL Session

Top 10 Matlab Commands for Modeling and Simulation

1. help   - Gives usage syntax and description of specified command
2. eig   - Computes the eigenvalues and eigenvectors of a square matrix
3. roots   - Determines the roots (i.e. zeros) of a polynomial
4. plot   - Produces a linear plot, with a variety of options
5. det   - Computes the determinant of a matrix
6. inv   - Computes the inverse of a matrix
7. conv   - Convolves (i.e. polynomial multiplication) two vectors
8. syms   - Declares a symbolic variable to be used in symbolic manipulations
9. simulink   - Starts the Simulink modeling package in MATLAB
10. stateflow - Starts the Stateflow library in Simulink

Useful Online Matlab References:

- **http://www.cds.caltech.edu/~murray/notes/matlab-primer.ps**
  ↳ This primer contains all you need to become proficient in the Matlab.

- **http://www.engin.umich.edu/group/ctm/basic/basic.html**
  ↳ This online tutorial provides a good introduction to Matlab, in addition to many examples and illustrations.

- **http://www.mathworks.com/access/helpdesk/help/helpdesk.shtml**
  ↳ This Mathworks web site has all the documentation regarding the different Matlab-related packages, as well as the different Toolboxes available.

- **http://www.mathworks.com/access/helpdesk/help/techdoc/demo_example.shtml**
  ↳ This Mathworks web site goes through detailed examples of intermediate and advanced features in the Matlab environment.

- **http://www.math.duke.edu/education/ccp/materials/diffeq/predprey/contents.html**
  ↳ This site examines the "predator-prey" model, and a simulation in MATLAB (as well as other math packages) can be found here.

- **http://www.leang.com/kam/lit/examples/mfiles/mfile.html**
  ↳ This site illustrates the modeling and simulation of the "mass-spring" example, and even describes a few control system topics in the process.