

MATLAB 101 – Skills for the Modern Nerd  
HSSP Fall 2008  
Syllabus

**INTRODUCTORY UNIT**

Day 1: What is MATLAB?

- Basic MATLAB functions
- Writing simple scripts
- How is MATLAB used in the scientific world? Examples.

Day 2: Basic Computer Science Concepts & Intro to Linear Algebra

- Strings, arrays, and matrices
- Matrix operations & functions
- Variable types
- Loops & if/then statements
- Inequalities
- Skeleton of a script/calling functions
- Dissecting an m-file

**SIGNAL PROCESSING UNIT**

Day 3: Case Study -- Image Processing

Day 4: Case Study -- Filtering an Audio Signal

**MATHEMATICAL MODELLING UNIT**

Day 5: Case Study -- Population Dynamics: Predator vs. Prey

Day 6: Case Study -- Fluid Dynamics

**INDIVIDUAL EXPLORATION UNIT**

Day 7: Work on Projects

Day 8: Work on Projects