Homework 4
Due *Tuesday*: 2/20/2018

- Assignments are due at the beginning of class on the due date.
- Any Matlab/R files are to be submitted as .m or .R files via Moodle (with a corresponding run/driver file if necessary).
- Each file must be uploaded individually. Zipped files will not be graded.
- Show all work and provide discussion where needed in order to receive full credit.

1. Consider the following data set, representing the displacement of a spring. Use Matlab or R to fit the data with the indicated model using least squares. Plot and clearly label your results, and display (or write out) the model.

$x \times 10^{-3}$	$y \times 10^{-5}$
5	0
10	19
20	57
30	94
40	134
55	173
60	216
70	256
80	297
90	343
100	390

   a. $y = ax + b$
   b. $y = ax^2$
   c. $y = ae^{bx}$

2. Consider the attached data set, Problem2.xls. Use least squares to develop a model of the form $P = aV^b$ using least squares on the **transformed** data. Plot and clearly label your results, and display (or write out) the model.

3. Compute and plot the residuals, the maximum absolute deviation, and the sum of the squared deviations for each of your models in Problem 1. Discuss which model you feel is the best fit.