ME121: Homework 3

Group Assignment

1. Tabulate and summarize the raw data from calibrating your salinity sensor. The summary table (of raw data) should look like this:

Wt% NaCl	n	Mean	Standard deviation	Median
0				
0.05				
0.10				
0.15				

   where n is the total number of readings for each calibration set. In addition to this tabular data, create a histogram of the raw readings.

2. Write an Arduino program that will alternately display the first and last name of each team member on the LCD panel. Each member should write the portion of the code that displays their name. The names can appear at any position on the LCD—creativity is encouraged. Bring your Arduino and LCD panel to class and be ready to demonstrate the solution at the start of the class period.

Individual Assignment

3. In Matlab, perform a least squares curve fit to the salinity calibration data. In your solution, include a plot of the raw data and curve fit on the same axes. On your written solution list the coefficients of the curve fit to six significant figures. If you include the curve fit on your plot, also list the coefficients on the written solution that you turn in for grading. In other words, don't leave it to the grader to read the tiny print on your plot.

4. Make a table of mixture measurements for creating one liter of calibration standards of 0.05, 0.10 and 0.15 wt % NaCl. The solution would allow you to fill in the table to the right

Wt% NaCl	NaCl (g)
0	
0.05	
0.10	
0.15	