

## Problem Set 1: MAE 127

*due Friday, April 8, 2005*

**1.** Matlab is going to be an important tool for this course. Get yourself set up to use Matlab either on a UCSD computer or at home. If you don't have much Matlab experience, run the Matlab tutorial located at:

[http://www.mathworks.com/academia/student\\_center/tutorials/launchpad.html](http://www.mathworks.com/academia/student_center/tutorials/launchpad.html).

If you have used Matlab before and think the tutorial is old hat, then take this as an opportunity to learn about some aspect of Matlab with which you are unfamiliar, either by reading Matlab help pages or working through another tutorial.

Either way, write a paragraph describing what you did, what you found interesting, and what was most helpful.

**2.** The rest of this problem set will look at temperature data from a buoy in the Santa Monica Basin. First access the data from the course computer system:

[ieng9.ucsd.edu/me127s/public/hw1](http://ieng9.ucsd.edu/me127s/public/hw1)

or download the data from the course website:

<http://www-pord.ucsd.edu/~sgille/mae127/ps1.html>

Plot the air temperature and sea surface temperature data. Be sure to read the data descriptions on the web site, and take account of missing data.

**3.** Now write a program in Matlab to compute the mean and variance of the data that you plotted in problem 2. Your program should use a for loop. Verify that your program gives the same results as the Matlab functions ('mean' and 'var' or 'nanmean' and 'nanvar'). Your homework should include a printout of your program as well as a summary of your results.

**4.** Write a program in Matlab to compute the median of the data. You may use the Matlab 'sort' function, but do not use the 'median' function. Verify that your result is the same as the result obtained from the Matlab 'median' function. Again turn in a printout of your program as well as a summary of your results.