STA 290 — Homework 8

Due Friday, December 1

Please include all of your C code in an appendix.

1. Modify the code `ttest.c` from class so that it also outputs a 95% confidence interval for the mean, and run it on the `sortvec1.dat` data.

2. Write code to read in a (square) matrix, compute its inverse, and print both the matrix and its inverse. Do this with dynamic or pseudo-dynamic memory allocation, i.e., do not hard code (either literally or with a `#define`) the size of the matrix. Use code from either IMSL or LAPACK. Run your code on the matrix in the file `matrix.dat` from the course web page with all the rest of the C code (`http://www.stat.duke.edu/courses/Fall00/sta290/Slides/Ccode`).

Possibly helpful notes:

- Documentation on Compaq's implementation of BLAS and LAPACK (which should be the same as other implementations, except that they are optimized for the Alpha platform, but the syntax should all be the same) are on-line at:
  `http://www5.compaq.com/math/documentation/cxml/`

- IMSL documentation should be available in the Engineering Library as well as in the stat department lounge (Old Chem 211).

- On ACPUB, the libraries are in different directories. Here are my current guesses on how to link with IMSL and LAPACK/BLAS:

```
setenv LD_LIBRARY_PATH :/usr/local/lib
gcc -O2 -o linreg.exe linreg.c -L/usr/local/lib/ -lsocket -lnsl -limsl
  -L/usr/pkg/spro/sun4m_55/lib/ -lF77 -lM77 -lsunmath -lm

gcc -O2 -o eigen.exe eigen.c -L/usr/local/lib/ -lsocket -lnsl -llapack
  -lblas -L/usr/pkg/spro/sun4m_55/lib/ -lF77 -lM77 -lsunmath -lm
```