STATISTICS 890-4

Statistics: Selected Topics: (Statistical Computing)

Course Outline

This course provides an introduction to algorithms and software that are useful to statisticians.

Topics may include:

1. Basic numerical methods
   - computer arithmetic
   - error analysis
2. Random number generation
   - -uniform generators
   - inversion
   - rejection sampling
   - aliasing
   - envelope methods
3. Optimization
   - Newton type methods
   - EM algorithm
   - simulated annealing
4. Integration
   - Laplace methods
   - quadrature
   - importance sampling
   - Markov chain Monte Carlo
   - variance reduction
5. Splus
6. Bootstrapping
7. Symbolic Computation
8. Density estimation
9. Data exploration

A major component of student evaluation is a presentation.

Tim Swartz
January 2001

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.
