Statistics 773
Statistical Computing

Autumn 2005 Syllabus

Instructor: Dr. Christopher Hans 
Email: hans@stat.o...-state.edu
Office: 327 Cockins Hall
Phone: 614.292.7157
Website: http://www.stat.ohio-state.edu/~hans/stat773/

When: MWF 11:30
Where: 312 Cockins Hall
Office Hours: MW 12:30-1:30
Office Hours: Tue 1:30-2:30

TA: Zhenhuan Cui
Office: 412C Cockins Hall

Course Description
Statistics 773 is a graduate level course in modern statistical computing. Topics covered include maximization (including the EM algorithm), random number/variable generation, numerical integration, Monte Carlo integration, importance sampling and an introduction to Markov chain Monte Carlo methods.

Grading
The final course grade will be based on assignments (60%) and the project (40%).

Assignments
Assignments will be given approximately once every other week. Students are encouraged to typeset their solutions in \LaTeX with relevant computer output included as figures and tables. Computer code should be included as an appendix. Students are encouraged to work together on the problems, but each student must hand in his or her own work. Do not copy any part of another student’s homework, and do not turn in computer code written by another student. Late assignments will be accepted until the solutions have been posted on the course website.

Project
There will be an end-of-term project intended to i) allow a more detailed study of a topic discussed in lecture or ii) provide an opportunity to study a related topic. More information will be given mid-term.
Computing
Students should be familiar with a scientific computing package such as R/Splus or Matlab. The assignments will require writing code to implement methodology discussed in lecture. Some examples of programming in R will be given during lecture.

Reading
The primary text is *Computational Statistics* by Geof Givens and Jennifer Hoeting. We will also draw material from *Monte Carlo Statistical Methods, 2nd Ed.* by Christian Robert and George Casella. These texts will be placed on reserve in the Science and Engineering Library (SEL). *Numerical Analysis for Statisticians* by Kenneth Lange is also a good reference and is on reserve at the SEL. Other readings and research papers will be distributed when assigned.

Special Accomodations
If you need any accomodations based on the impact of a documented disability, contact the instructor privately to discuss your specific needs. You should also contact the Office of Disability Services to coordinate special accomodations.

Academic Misconduct
Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with university policy.