Course Information for 22S:248 Computer Intensive Statistics
Semester: Spring 2007
Lectures: MWF 2:30PM – 3:20PM
Room: Schaeffer 74

Instructor: Luke Tierney, Schaeffer 241, luke@stat.uiowa.edu.
Office Hours MWF 1:30PM – 2:20PM or by appointment.
Web Page: http://www.stat.uiowa.edu/~luke/classes/248
DEO: Luke Tierney, 241 SH, 335-3386

Outline
The goal of this course is to develop skills, knowledge, and tools useful in applying modern computationally intensive statistical methods to research in any field. Topics will be selected from random variate generation, design and analysis of simulation experiments, optimization algorithms for model fitting, bootstrap, Markov chain Monte Carlo, and smoothing, machine learning and data mining, and graphical methods. Most topics will be presented in the context of the R statistical computing language.

Reading and Homework
Homework assignments consisting of a mix of computational and theoretical problems will be given roughly every two to three weeks. Assignments will be posted on the class web site. Suggested reading will also be posted on the class web site when appropriate, but you should also seek out and explore relevant references on your own. Most assignments will need to be submitted electronically. Many students find that these assignments take up to 20 hours to complete, so plan your time accordingly.

Class Project
Students registered for this class are expected to complete a class project. Your project should represent about 20 hours of work on a topic of your choice that involves computation. You should start to think about the topic as soon as possible. You might investigate properties of a methodology you find interesting, you might compare several methods on a variety of problems; there are many choices for the topic of your project. Some general suggestions will be posted within the first few weeks of the course, but you should feel free to choose other topics as well.

A proposal for your project is due on Friday, March 23. The proposal should be at most two pages long. A final report on your project is due on Friday, May 4. The report should be three to five pages in length, excluding any appendices you wish to attach, and must be submitted electronically. You may also be asked to share your results either by preparing a web page or in a 15 minute presentation to the class.
Grading

The course grade will be based on assignments and the class project. You may discuss general issues and approaches with your fellow students, but your work must be your own. If you use any references, including solutions to similar problems prepared by other students, you must cite and credit your sources.

EMail and World Wide Web

Announcements on changes or clarifications of assignments or other matters may be sent by email to your class account or posted on the class web page. You should check the class home page and your class email account regularly. You can arrange to forward your class email to another address if you wish.

Accommodation for Disabilities

I would like to hear from anyone who has a disability which may require seating modifications or testing accommodations or accommodations of other class requirements, so that appropriate arrangements may be made. Please contact me during my office hours.