SYLLABUS

Special Topics –
Monte Carlo Methods in Science, Engineering and Business

Fall, 2007

Instructor: Professor Rong Chen
Office: Hill Center 467 (will change soon)
Tel: (to be announced)
email address: rongchen@stat.rutgers.edu
Office Hours: MW 1:30-3:00 or by appointment

Course Web Site: to be set up shortly

Prerequisite: First Graduate Level Mathematical Statistics Course
It should be emphasized that this course will cover a great deal of material
at a rapid pace and will require some programming kills (Matlab, Fortran
or C). Students who have had difficulty in previous mathematical statistics
courses or have difficulty with computers may find that this course requires
a considerable amount of time and effort, and should plan accordingly.


Note: Not all the topics and chapters in the book will be covered. There
will be supplemental materials outside the book.

Lectures: MW 12:00-1:10, Hill Center 562

Grading: Homework & Computing 50%
Project 50%

Schedule: Project Presentation: last two weeks of class.
Homework: 1. Homework will be assigned and collected regularly. Late homework will not be accepted.
2. All homework assignment must be written on standard 8.5 by 11 paper and stapled together. Computer generated output without detailed explanation and remarks will not receive any credit.
3. Homework solutions will be available on our course web site.

Course outline (tentative):

1. Monte Carlo Principle and Examples
2. Review: Necessary Topics in Probability and Statistics
3. Simple Simulation Methods
4. Sequential Monte Carlo Methods
5. Markov Chain Monte Carlo Methods
6. Other Advanced Methods