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.
Text:	*Monte Carlo Strategies in Scientific Computing*, Springer Series in Statistics, by J. S. Liu [Supplemental Text] *Monte Carlo Statistical Methods*, Springer Texts in Statistics, by C. P. Robert and G. Casella 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**