CSCI 678: Statistical Analysis of Simulation Models  
Spring, 2014  
TR 11:00 - 12:20 Jones 307

Instructor: Larry Leemis  
Office: Jones 116  
Office hours: TR 3:30-5:00, or by appointment

Purpose:  
This course introduces students to techniques used in the analysis of simulation models. The first half of the course will be spent on determining appropriate input to a simulation model, and the last half will be spent on analyzing the output from a simulation model. Some preliminary homework assignments on simulation programming will be assigned.

Prerequisites:  
Students should have a working knowledge of probability, statistics, and programming.

Textbooks:  

Grades:  
Course grades will be determined by these weights:  
- Homework 30%  
- Midterm 30%  
- Project 10%  
- Final Exam 30%  
The grading scale for the course will be:  
- 90 - 100 % A  
- 80 - 90 % B  
- 70 - 80 % C  
Plus and minus grades may be assigned within each range.

Homework:  
A homework set will be assigned weekly.

Project:  
Each student will submit a research-oriented semester project on a topic involving a simulation technique. The final report is due on the last day of class. A one-page description of the topic is due by Spring break.

Course outline:  
1. Simulation overview  
2. Probability and statistics review  
3. Input modeling  
4. U(0,1) generators  
5. Generating random variates  
6. Time series analysis  
7. Output analysis for a single system  
8. Ranking & selection  
9. Variance reduction techniques  
10. Experimental design, sensitivity analysis, and optimization