Spring 2010

CS 470/670: Systems Simulation

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CS470/670 Systems Simulation

Spring Quarter 2010

Wright State University

Course Description

Introduction to simulation and comparison with other techniques. Discrete simulation models. Introduction to queuing theory and stochastic processes. Co mparison of simulation languages. Simulation methodology and selected applications.

Professor

Dr. Thomas C. Hartrum
Office: 337 Russ Engineering Center
Office Hours: M, T, W, F 3:00-4:00.
Office Phone: 775-5015
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Class Hours: M W 6:05 P.M. – 7:20 P.M., Oelman Room 132.

Text

A. M. Law, *Simulation Modeling and Analysis (4th Edition)*, McGraw-Hill, 2007.

Prerequisites

CS 400 or CS 600

Grading

Grading will be as follows:

Simulation exercises (2 @ 15%)	30
Simulation Project	30
Midterm Exam	20
Final Exam	20

Course grades will be based on the total score as follows. A: 90-100, B: 80-89, C:70-79, D: 60-69, F: below 60. Grades may be further curved if appropriate.

- You may work with others on homework assignments, but you must turn in your own individual work. Homework that has obviously been copied will result in a grade of zero for both parties and will be reported to the Office of Judicial Affairs, as will any other form of cheating.
- Ten percent will be deducted for unexcused late work.
- The project will be worked in teams. You may pick your partner(s) or I will pick them. More detail on the project will be handed out later.

Tentative Schedule

Week	Topic	Law
1	Basic Simulation Concepts	1.1-1.4, 1.7-1.9
	Simulation Methodologies	2.1-2.4, 2.8
2	Introduction to Python and SimPy	Handouts
3	Building Valid Simulations	Ch 5
4	Probabilistic Aspects of Simulation	
	Review of Probability	Ch 4
	Random Number Generators	Ch 7
	Random Variates	8.1, 8.2, 8.3.1-8, 8.3.15-16, 8.4, 8.6
5	Statistical Aspects of Simulation	
	Selecting Input Distributions	Ch 6
	Analysis of Output	9.1-9.5
6	Midterm (5/3/10),	
	Comparing Alternate Configurations	Ch 10
7	Variance reduction Techniques	Ch 11
8	Experimental Design	12.1-12.3
9	Simulation languages	Ch 3
10	Project Demos	
F	Wednesday (6/09/10) 8:00 PM to 10:00 PM Final Exam	

NOTE: There will be *no* early final exam -- plan your travel accordingly. In case of a legitimate conflict, a makeup final can be arranged.