

IEE 545 SIMULATING STOCHASTIC SYSTEMS

Fall 2013 Online

INSTRUCTOR: Dr. John Fowler
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TA: TBD

TEXTBOOK: Discrete-Event System Simulation, Banks, Carson, Nelson, and Nicol (2010), 5th Edition, Prentice-Hall

Optional Textbook: Introduction to Simulation and SLAM II, Pritsker, 4th ed., Wiley

PREREQUISITES IEE 385 (statistics and queueing theory)
Computer Programming (emphasis on logic flow, looping, etc. -- any programming language is fine as long as programs were written, debugged and executed.)

COREQUISITE IEE 376 (deterministic OR)

COURSE OBJECTIVES:

- Students will have the ability to identify systems appropriate for analysis via simulation
- Students will have the ability to build a simulation model in a selected high level language
- Students will have the skills necessary to determine input data requirements
- Students will have the ability to interpret output data and make statistical statements on performance
- Students will have the ability to communicate results effectively via written reports

COURSE OUTLINE:

Session(s)	Topics	Reading
1-3	Introduction, Modeling and Simulation Basics	Ch. 1-2
4	Monte Carlo Simulation / Simulation Clock	Ch. 3
5-6	Basics of Modeling with SLAM	SLAM, Ch. 5, 8
7-8	SLAM – Resources & Gates	SLAM Ch. 6
9-10	Random Numbers, Random Deviates	Ch. 7-8
11-12	Input Modeling	Ch. 9
13	SLAM – Resources & Gates-Cont.	SLAM Ch. 6
14	EXAM I	10/8/13
15-18	SLAM – Logic and Decision Nodes	SLAM Ch. 7
19	Verification and Validation	Ch. 10
20-22	Output Analysis for a Single Model	Ch. 11
23	Comparison of System Designs	Ch. 12
24	Variance Reduction Techniques	Notes
25	EXAM II	11/19/13
26	Advanced Concepts - TBD	
27	Cycle Time – Throughput Curve Generation	Notes
28	Simulation Languages	Ch. 4
29	Project Presentations	
	FINAL EXAM	12/6/13

COURSE STRUCTURE

1. The course will consist of two 100-point examinations and a 100 point cumulative final exam. There will also be a project worth 100 points (75 points for Written Report, 25 points for PowerPoint Presentation). A one paragraph proposal for the project is due **10/10/13** and the final report is due **12/6/13**.
2. Final grades may be based on a curve, but will be (at least) consistent with ASU guidelines i.e. >90% is an A, etc. The course structure and grading policy do not allow for the "earning" of additional credit or for the awarding of points based on effort. This course will not implement the plus/minus grading system.
3. Cheating will not be tolerated! This includes plagiarism, which is defined as "the taking of the ideas, writings, etc. from another and offering them as one's own" (Webster's New World Dictionary, 1973). Referring to old files is clearly prohibited by this definition. All students involved in any such incidents will be prosecuted vigorously! Please see the *Industrial Engineering Student Handbook on Academic Dishonesty*. The university academic integrity policy is found at <http://www.asu.edu/studentlife/judicial/integrity.html>
4. Regrading: when you receive a graded assignment back, you will have until the next scheduled class period to resubmit the assignment for regrading. You must also turn in a written request describing the reason(s) for the regrade. Please note: when you submit a regrade, the problem will be *entirely* regraded, which means that it is possible you will *lose* points as a result of the submission.
5. Keep up with the material presented in class. If you get behind it, it will be very difficult to recover.