

COURSE NUMBER: IE 3553 (cross-listed with IE 5553)	COURSE TITLE: Simulation
TERMS OFFERED: Fall	PREREQUISITES: IE 2010 and CSCI 1113, or Instructor consent
TEXTBOOKS/REQUIRED MATERIAL: Simulation 3rd Edition by Sheldon Ross	PREPARED BY: Kevin Leder DATE OF PREPARATION: 10/19/11
COURSE LEADER(S): Kevin Leder	CLASS/LABORATORY SCHEDULE: 2 115-minute lectures per week CONTRIBUTION OF COURSE TO MEETING PROFESSIONAL OBJECTIVES:
CATALOG DESCRIPTION: Introduces the techniques and tools of stochastic simulation. Along the way the course will cover applications from finance and insurance risk, and problems arising in inventory and queueing.	COURSE TOPICS: 1) Review of Probability 2) Generation of Random Variables from classic distributions. 3) Discrete Event Simulation 4) Variance Reduction Methods 5) Statistical Analysis of Simulation Data 6) Markov Chain Monte Carlo
COURSE OBJECTIVES: 1) Help students understand how to model randomness on a computer. 2) Teach students methods for constructing simulation models of real world phenomena. 3) Introduce students to methods used to analyze output of simulation studies. 4) Teach students how to increase efficiency of simulation algorithms. 5) Give the students the ability to simulate from complex and potentially multi-dimensional distributions.	

COURSE OUTCOMES:

Students learn how to construct accurate computer based models of stochastic phenomena. In addition they learn how to analyze the output of these models, and how to improve the efficiency of the algorithms underlying the model.

ASSESSMENT TOOLS:

- 1) Exams – 1 during semester and final exam
- 2) Homework – Approximately 5 assignments
- 3) Project – Final project.