Rational

Analytic modeling and its counterpart simulation are important tools in analyzing systems.

Course Description

The course will concentrate on stochastic systems using both analytic techniques and discrete event simulation techniques exemplified by modeling of networks of queues.

Learning Goals

Students are expected to learn concepts of computer modeling and simulation applicable to a wide variety of technological, natural, and social systems, provide hands-on experience with modeling and simulation and specifically simulation of discrete event models. By the end of the class, students will have established a sound foundation of computer modeling and simulation, learning a set of computer-based tools for constructing, simulating and analyzing dynamic models of complex systems.

Assessment

There will be three writing assignments 30%, a final presentation 30%, students are expected to participate in discussions 20%, midterm 20%

Background

All students must have a background in probability, statistics and data structures. They must also be able to program in a high level language. All play an important role in this course.

Required texts

Discrete-Event simulation: a first course; Leemis and Park, Pearson Prentice Hall, 2003
Probability & Statistics with reliability, queueing and computer science applications, Trivedi, Prentice-Hall, 1982