

# Course Announcement

## CIS 786: Simulation and Modeling for Engineering and Business (crosslisted as CIS 661: System Simulation)

Spring 2004 at NJIT  
Tuesdays, 6:00 - 9:05pm

### Instructor

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### Description

Simulation is one of the most widely used tools for analyzing complex processes and systems. Its use in engineering and business has increased dramatically in recent years, in part because of the increased power of personal computers and workstations, on which the vast majority of simulations are carried out. Examples of the use of simulation in engineering include computer-systems design, networking, web-based systems, fault-tolerant computing, and performance analysis. The uses of simulation in a business environment include evaluating alternative operational policies, viewing the impact of changes in personnel or equipment on business performance, assessing the capabilities of a proposed factory, performing risk analysis of a proposed business plan, or pricing financial instruments.

This course covers the use of simulation as a tool for analyzing engineering and business problems. The two primary goals of the course are to learn how to plan, build and use simulation models and to develop an understanding of when simulation is an appropriate tool for analysis. Much of the work in the course will involve learning the mathematical and software tools for building simulation models, performing experiments with them, and interpreting the results.

To build simulation models, we will make use the software package ARENA, a popular simulation package. ARENA is well suited for creating large and detailed discrete-event simulation models.

### Prerequisites

An undergraduate or graduate calculus-based course in probability and statistics at the level of Math 244 or Math 333, and working knowledge of at least one higher-level programming language (e.g., C or Java).