OR 586
Simulation Modeling and Languages

Course Description: This course acquaints students with GPSS simulations: clock mechanisms, data structures, output analysis, sample applications in queuing and production.

Prerequisite: OR 585, STAT 480b

Textbooks: *Simulation Modeling and Analysis,* 4th Edition, by Averill M. Law

Course Outline and Topics

Chapter 7. Random-Number Generators

- **7.1. Introduction**
- **7.2. Linear Congruential Generators**
- **7.3. Other Kinds of Generators**
- **7.4. Testing Random-Number Generators**

Chapter 8. Generating Random Variates

- **8.1. Introduction**
- **8.2. General Approaches to Generating Random Variates**
- **8.3. Generating Continuous Random Variates**
- **8.4. Generating Discrete Random Variates**

Chapter 9. Output Data Analysis for a Single System

- **9.1. Introduction**
- **9.2. Transient and Steady-State Behavior of a Stochastic Process**
- **9.3. Types of Simulations with Regard to Output Analysis**
- **9.4. Statistical Analysis for Terminating Simulations**
- **9.5. Statistical Analysis for Steady-State Parameters**
- **9.6. Statistical Analysis for Steady-State Cycle Parameters**

Chapter 10. Comparing Alternative System Configurations

- **10.1. Introduction**
- **10.2. Confidence Intervals for the Difference between the Expected Responses of Two Systems**
- **10.3. Confidence Intervals for Comparing More than Two Systems**
- **10.4. Ranking and Selection**

Chapter 11. Variance-Reduction Techniques

- **11.1. Introduction**
- **11.2. Common Random Numbers**
- **11.3. Antithetic Variates**
- **11.4. Control Variates**