Syllabus

OR 531 Analytics & Decision Analysis

Description

Course focus is predominantly on prescriptive analytics with some parts focused on predictive analytics. Topics include operations research techniques and their application to decision making such as mathematical optimization, networks modeling, stochastic modeling, and multi-objective modeling. Other topics such as computer simulation, decision analysis using decision trees, and quantitative value functions. Couse uses contemporary computer software for problem solving. In particular, the course will extensively use MS Excel for solving the decision making problems. Case-study approach to problem solving is used.

Pre-req: Graduate Standing

Text: The Art of Modeling with Spreadsheet – by Stephen Powell and Ken Baker

Grading

Projects 70%
Final Project 30%

Rough Schedule

- Week 1
  - Excel Basics, Risk Solver
- Week 2-4
  - Using Scenarios for Risk Analysis
- Week 5
  - Linear Programming
- Week 6
  - Transportation Problems
- Week 7
  - Distribution Problems
- Week 8
  - Probability and Statistics Review
- Week 9-10
  - Decision Trees
- Week 11
  - Monte' Carlo Methods
- Week 12-13
  - Reliability Models
- Week 14
  - Queuing Models
- Week 15
  - Classification Methods