MATH 437/537
Operations Research (3 units)

Course Outline

Topics	# of Weeks
Overview of models and modeling (Chapters 1 & 2) What is an optimal decision? Preview of the entire course.	1.0
Decision Theory (Chapter 15) Single and multi-level decision analysis. Utility Theory.	1.0
Linear Programming (Chapter 3, 4, 5, 6, 8 & 9) Modeling problems. Solution using the graphical method. Generalizing the graphical approach to higher dimensions. The Simplex Algorithm. Start sensitivity analysis. More on sensitivity analysis. Use of shadow prices/reduced costs. Economic interpretation. Transportation and assignment problems. LP formulations. Network problems. Review.	4.0
Dynamic Programming & Network Models (Chapter 10)	1.0
Integer Programming (Chapter 11)	1.0
Markov Chains, Markov Decision Processes (Chapters 16 & 19)	1.0
Queuing Theory (Chapter 17)	1.0
Inventory Analysis (Chapter 18)	1.0
Nonlinear Programming and Global optimization issues (Chapters 12 & 13) Goal Programming/Multi-objective Optimization.	1.0
Review and Wrap Up	1.0
Exams	1.0

Textbook: Introduction to Operations Research 8th Edition, by Hillier and Lieberman

Adopted: Spring 2007