

MGT 206: Decision Making and Management Science

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Class Schedule: Thursday 9:00-11:50am GH 2310

Office Hours: TBA

COURSE DESCRIPTION

Successful management requires the ability to recognize a decision situation, understand its essential features, and make a smart choice. However, many of these situations – particularly those involving uncertainty and/or complex interactions – may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. In these cases, we may benefit from using *decision models* – simplified representations of these situations that allow you to consider the different possible scenarios (i.e., ask “what if”) and learn more about the problem. This course introduces several commonly used modeling tools and provides an introduction to the *art* of modeling.

The course is divided into two parts. In the first part (sessions 1-7), we discuss optimization models including linear programming, integer programming, and network models. In the second part (sessions 8-9), we introduce simulation as a tool, and discuss its application in manufacturing and service operations.

The goal of this course is to develop decision-making and problem-solving skills in conjunction with a quantitative model-building approach. We emphasize how structured modeling techniques and computer aided optimization can be used in the overall process of making decisions in complex settings.

TEXTBOOK

We use a custom eBook consisting of Chapters 2, 3, 4, 5, 6, 7, and 12 of *Introduction to Management Science* by Hillier and Hillier, 4th Edition, McGraw-Hill Irwin. The eBook (ISBN 9781308820088) is available for purchase on <https://create.mheducation.com/shop/>. It is ok to use other textbooks on management science, including 2nd, 3rd or 4th editions of *Introduction to Management Science* by Hillier and Hillier.

GRADING: 5% Class Participation, 25% Homework, 30% Mid-Term, 40% Final

CODE OF ACADEMIC CONDUCT: We are committed to the promotion of absolute integrity and high ethical standards in academic work. More information about Code of Academic Conduct at [Code's webpage](#).

HOMEWORK: Homework is due at the beginning of the class. Late homework receives half credit.

Course schedule

DATE	TOPIC	READING	HWK DUE
9/27	Introduction to LP & Graphical Method	Linear Programming: Basic Concepts	
10/4	Graphical Method (continued) LP Formulation & Excel Solver (bring laptop)	The Art of Modeling with Spreadsheets	Hwk#1
10/11	Sensitivity Analysis	What-If Analysis	Hwk#2
10/18	Applications of LP	Linear Programming: Formulation and Applications	Hwk#3
10/25	Review & Midterm Exam		
11/1	Transportation Models	Linear Programming: Formulation and Applications	Hwk#4
11/8	Network Models	Network Optimization	Hwk#5 Group Project
11/15	Integer Programming	Binary Integer Programming	Hwk#6
11/29	Simulation (1)		Hwk#7
12/6	Simulation (2)		Hwk#8
12/13	Final		

*The course schedule is subject to change.