Spring, 2024: 95-760 Decision Making Under Uncertainty

Class Time and Location:
Monday 6:30PM – 9:20PM HBH 1204
Recitation:
Friday 11:00AM – 12:20PM HBH 1204

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Course Objectives:
This course has four objectives besides learning a variety of spreadsheet skills.

First, you should learn about a variety of management science techniques, what they are capable of, and what their limitations are so that you can intelligently call upon specialists and consultants when the occasion arises.

Second, you should acquire sufficient proficiency with some of the techniques that you can use them as an end user modeler.

Third, you should learn how to approach, abstract, and analyze problems from a quantitative, analytical perspective. In short, you should be able to use the language of mathematical modeling. In most lectures we will work through a small case to help you connect the methods to a problem that is richer than the typical end of chapter problem.

Fourth, doing these things will prepare you to manage staff who are doing analytics projects. Walking a mile in their shoes (reflectively), will help you understand what they can and cannot do to create value for your organization. The course moves quickly; be careful not to fall behind.

Text: Anderson, et al, *Quantitative Methods for Business, 13th edition*.

Handouts:
Course materials will be posted to canvas. You should monitor it for announcements (e.g., changes to assignments).

Homework and Quizzes:
Homework will be assigned on Canvas on Mondays, and will be due at 6:30pm on the following Mondays. Quizzes will be assigned on Canvas, and can be taken from your choice of location.

Grading:
Course grades will be based on: in-class quizzes (15%), homework (20%), midterm exam (25%), and the final exam (40%).

The HW can be done individually or in groups of 2 or 3 students. If you work in a group: (a) you should submit one HW for the group and everyone in the group will receive the same grade on that HW; (b) you must identify all members of the group. When we determine overall course grades, we will look at average scores on homework handed in by groups of 1, 2, and 3 students. If average homework scores from groups of 1 and 2 students are lower than scores from groups of 3 students, we will award a few additional homework points to students who handed in homework in groups of 1 or 2.

Within a group you may collaborate in any way you choose, although it is a bad idea to let others do the work for you because they won't be able to help you during tests. There should be no interaction across groups concerning homework problems. You are encouraged to discuss the readings, concepts, and other problems that are not assigned as homework, including ones that parallel the homework assignment, but you should not collaborate in any way on the problems assigned as homework. It is never permissible for a person from another group to see your homework, drafts, calculations, spreadsheets, or other computer work. Likewise, you should avoid seeing the homework of any other group, and if it is offered, you should decline.

The quizzes, midterm and final exams must be done alone, with no help from others.

Taping or Recording Classroom Activities
No student may record or tape any classroom activity without my express written consent. If a student believes that they are disabled and needs to record or tape classroom activities, they should contact the Office of Disability Resources to request an appropriate accommodation.

Study Tips:
The key to learning mathematics is repeated exposure. It is hard to grasp new concepts from one or two exposures, no matter how intense. It is usually more fruitful to work on the material repeatedly, in small chunks and via different formats (reading the text, listening to lecture, doing HW, etc.).

Likewise, it is important to use active learning. Typically mathematical material will "make sense" when you read or hear it, but it is only when you try to use it that you find out whether you've actually learned the material. So challenge yourself to work problems, explain concepts to friends or family members, and think about how you would apply the material outside the classroom, in professional or personal life.

We will not cover all of the material in the textbook, we will only cover chapters listed in the syllabus. Also, in many of the chapters, we will only cover material in the first few sections. However, students can be confident that all homework and test problems will be based on material covered during lectures.

Course Schedule:

Week 1, Monday, January 22. Lecture 1: Chapters 1, 2, and 3; Introduction, Introduction to Probability, and Probability Distributions

Week 1, Friday, January 26. Lecture 2: Chapter 4, Decision Analysis

Week 2, Monday, January 29. No class

Week 2, Friday, February 2. Quiz 1 – virtual attendance is optional

Week 3, Monday, February 5. Lecture 3: Chapter 6, and 7; Time Series Analysis, and Introduction to Linear Programming

Week 3, Friday, February 9: Midterm Exam

Week 4, Monday, February 12. Lecture 4: Chapter 9; Linear Programming Applications in Marketing, Finance, and Operations Management

Week 4, Friday, February 16: Quiz 2 – virtual attendance is optional

Week 5, Monday, February 19. Lecture 5: Chapter 16, Simulation

Week 5, Friday, February 23. Quiz 3 – virtual attendance is optional

Week 6, Monday, February 26. Lecture 6: Review or Final Exam

Week 6, Friday, March 1: Final Exam, unless moved up to 2/26