Course Syllabus

MISM 95.760: Decision Making Under Uncertainty Fall 2015 Mini 2
6 units

Meeting times and locations:
Section A1: MW 1:30-2:50pm HBH 1502
Section B2: Tu 6-8:50pm HBH 1502
Review session (all sections): F 1:30-2:50pm HH B131 (this is Hammerschlag Hall)

Personnel:
Instructor: David Choi, davidch@andrew.cmu.edu, Office hours Th 5:30-6:30pm, HBH 2101C.

TA and TA office hours:
TBD

Course objectives:

1. Become facile with Excel. This helps you get a job.
2. Survey many optimization and decision science methods. This helps you hire consultants intelligently, should you need to.
3. Learn some analytical methods. This helps you solve smaller problems yourself.
4. Learn how to make a mathematical model. This helps you think clearly and precisely.

All skills will be assessed by your performance on the homework sets and exams


New copies of this book include a license card for the Risk Solver Platform software that we will be using in this course. Instead of acquiring a license, you can use the Heinz Virtual Labs instead if you wish (http://www.heinz.cmu.edu/computing-services/virtual-labs/index.aspx).

The 7th edition of the textbook will also be compatible with the course. The numbering of the homework problems may change slightly (i.e., if we ask you to do problem #23 in the 6th edition, it may be #25 in the 7th), and we will include enough information in the homework handout for you to find the correct problem in either edition.

Grading policy and course expectations:

Homework: There will be 5 homework sets. Late homework will be penalized by 20% per day. Extensions will not be granted, with the exception of students who are added to the class after Oct 20 (we will handle these on a case-by-case basis). Instead, I will simply drop your lowest homework score when computing grades.

Homeworks must be done alone.
Homeworks should be submitted in hard copy in class. You may submit in either section. Late submissions should be emailed directly to me and to the TA who is grading the homework assignment for that week:

HW 1 grader: TBD
HW 2 grader: TBD
HW 3 grader: TBD
HW 4 grader: TBD
HW 5 grader: TBD

Exams: There will also be a midterm and final exam. Both will be open book, open note, and closed computer. Note that if you purchase an electronic version of the textbook, you won’t be able to access it during the exam, but you may print or prepare your own notes.

Contributions to final grade:
Homework (best 4 out of 5): 25%
Midterm exam: 35%
Final exam: 40%
Final letter grades will follow Heinz College recommendations.

Course expectations: Lecture attendance is not required, nor part of your final grade. However, the course moves quickly and if you should fall behind, it may be extremely difficult to catch up. Laptop usage will be permitted during lectures.

Under normal circumstances, I should respond to questions sent via email in 24 hours. Course announcements and materials will be distributed via blackboard.

Academic Integrity:

The rules and the academic integrity standards outlined in your student handbook will be strictly enforced. Violations of these rules or standards are considered a fundamental breach of trust and will result in failure of the course.

Collaboration on homework is not permitted in this class. Cheating will be treated very seriously.

The following are OK:
1. Discussing the requirements of a homework problem as long as no specific solution is discussed
2. Discussing general approaches to solving a problem as long as no specific solution is discussed
3. Using Excel samples from the textbook and class handouts.

The following are considered cheating:
1. Discussing specific math or Excel formulations
2. Showing anyone your Excel spreadsheet
3. Looking at anyone else's Excel spreadsheet
4. Having anyone else produce an Excel spreadsheet for you
5. Having anyone else correct your Excel spreadsheet for you
6. Copying any Excel spreadsheet you find on the web

A student who shares code with another student will be treated the same as the person who does the copying. Keep your own work safe.

You are not permitted to be in possession of any assignments, quizzes or exercises from another student either from the current semester or from past semesters whether they are electronic or paper. Possession of or sharing such files constitutes an infraction of the academic integrity policies of this course.
There are unscrupulous book sellers on the Internet who will sell you a copy of the Solutions Manual for our text book. This is illegal in the U.S., and our book publisher actively seeks out, and sues, such vendors and sometimes those who buy these illegal books. I cannot prevent you from buying an illegal book. However, using such a book usually results in great homework scores and really bad exam scores. Since the exam scores are much more heavily weighted in this course, your best plan for a good final grade is to work all of the homework problems yourself. Also, there are often errors in the solutions manual, some of them placed there on purpose by the author, “designed” to let us discover who is cheating in this way.

Schedule of topics:

Week 1: Introduction to linear optimization, begin network flow models
Reading: Ragsdale 6th edition, Chapter 2 and 3
HW 1 assigned: due Oct 28th or 29th in class.

Week 2: Finish network flow models
Reading: Rags. 6th ed., Ch. 5
HW 2 assigned: due Nov 4th or 5th in class. No late submissions! (this is because we will distribute solutions on Nov 5th so that you can study for the midterm)

Week 3: Integer programming
Reading: Rags. 6th ed., Ch. 6
HW 3 assigned: due Nov 18th or 19th, in class

Week 4: Midterm and Sensitivity Analysis (M/W), or Midterm only (T)
M/W section: Midterm on M Nov 10, Sensitivity Analysis on W Nov 12
T section: Midterm on T Nov 11 (half-class only)
No HW assigned this week, no review session this week
Midterm will cover weeks 1, 2, and the first half of week 3.

Week 5: Time Series Forecasting and Simulation (M/W), or Sensitivity Analysis and Time Series Fore. (T)
M/W section: Time series forecasting, start Simulation
T section: Sensitivity Analysis, Time series forecasting
HW 4 assigned: Due Monday Nov 24 or Tuesday Nov 25 in class.
HW 4 and review session this week will cover sensitivity analysis and time series forecasting
Read: Rags. 6th ed., Ch. 4 and Ch 11

Week 6: Simulation
M/W section: Finish simulation on M Nov 24, no class W Nov 26 (Thanksgiving holiday)
T section: Simulation
HW 5 assigned: Due Dec 2 or 3, in class. We will distribute solutions on Dec 3 to help you study for the final. No late submissions!
Read: Rags 6th ed., Ch 12

Week 7: Discriminant Analysis and wrap up
Read: Rags 6th ed., Ch 10

Exam week: the final exam will be scheduled during Dec 8-12. (As far as I know, the date is TBD, and is determined by the MISM program).