

MGT 878 – Decision Analysis Course Syllabus

CONTACT INFO

Professor Elisa Long
Yale School of Management
Office: 55 Hillhouse Avenue
Garden Level, Room 011B
Phone: 203.436.4966
Email: elisa.long@yale.edu

COURSE INFO

Time: Tuesday, Thursday 2:40-4:00pm
Location: School of Management
135 Prospect Street, Room A48

COURSE DESCRIPTION

When faced with a complex, uncertain problem, how does one make a good decision? As a normative science, decision analysis provides a logical framework for structuring and evaluating a decision scenario, with the goal of obtaining clarity of action. This framework involves formulating creative alternatives, characterizing uncertain events, and incorporating the decision-makers values and preferences. This course introduces a set of coherent tools used for framing problems and performing logical analyses, and provides a foundation for decision-analytic modeling in Excel. We will discuss structuring problems with decision trees and influence diagrams, assessing the value of information, performing sensitivity analysis, and incorporating risk preferences.

GRADING POLICY

Class participation – 20%
Homework – 20%
Case study – 30%
Final exam (take-home) – 30%

REQUIRED MATERIAL

Students will receive a 2-month copy of DecisionTools Suite to use for homework, the case study, and the final exam. http://www.palisade.com/decisiontools_suite/default.asp

This software package includes PrecisionTree and @Risk, which are Excel add-ins for constructing decision trees and performing Monte Carlo simulations.

Students will also need to purchase three or four case studies (details to follow).

ATTENDANCE POLICY

Students are expected to attend all classes, and be prepared for class discussions. If you miss class due to illness, family emergency, etc, please email the registrar and Professor Long in advance whenever possible. Additional make-up work may be assigned.

INTRODUCTION

- 1) Oct. 28 What is a good decision?
“Decision Analysis: Applied Decision Theory” by Ronald Howard

- 2) Oct. 30 Framing decisions, alternatives, information, and preferences
“Judgment under Uncertainty: Heuristics and Biases” by Amos Tversky and Daniel Kahneman (*Science* 1974)

STRUCTURING DECISIONS

- 3) Nov. 4 Influence diagrams (part 1), sequential decision-making
Homework 1 due

- 4) Nov. 6 Influence diagrams (part 2)
“Decision Trees” by Robin Greenwood and Lucy White (*HBS* 2006)

ANALYZING DECISIONS

- 5) Nov. 11 Decision trees
Homework 2 due

- 6) Nov. 13 Solving decision trees

- 7) Nov. 18 Probability encoding, risk preferences
Homework 3 due

EVALUATING INFORMATION

- 8) Nov. 20 Value of information

- 9) Nov. 25 Deterministic sensitivity analysis
Homework 4 due

CASE STUDY

- 10) Dec. 2 Group presentations

STOCHASTIC ANALYSIS

- 11) Dec. 4 Monte Carlo simulation (part 1)

- 12) Dec. 9 Monte Carlo simulation (part 2)

APPRAISING DECISIONS

- 13) Dec. 11 Decision quality, class summary
Homework 5 due