School of Business

THE GEORGE WASHINGTON UNIVERSITY

DEPARTMENT OF DECISION SCIENCES
Fall 2019 Draft

Course Number:	Decision Science 6258
Course Title:	Executive Decision Making/Collaborative Decision Making
Course: Description:	Concepts and methods for making complex decisions in business and government; identifying objectives and alternatives, setting priorities, and making collaborative decisions.
Professor:	Dr. Ernest Forman. Funger 404. 202-994-6206. E-mail: forman@gwu.edu
Office Hours:	By Appointment: Collaborate Sessions: Mondays at 10 PM.
Textbooks / Software:	Forman, Ernest H., and Selly, Mary Ann, *Decision By Objectives*, World Scientific Press, 2001, free download Recommended: Dan Ariely, *Predictably Irrational -- The Hidden Forces That Shape our Decisions,* Harper Perennial, 2010 Daniel Kahneman, *Thinking, Fast and Slow,* Farar, Straus and Giroux, 2011 Richard Thaler, *Misbehaving: The Making of Behavioral Economics,* 2015 James Surowiecki, *The Wisdom of Crowds*, Anchor Books, 2005 Deepak Malhotra and Max Bazerman, *Negotiation Genius,* Bantam, 2008 Software (to be provided): Expert Choice Comparion
Course Objectives:	You will learn to: o Structure complex decision problems, measure, synthesize o Focus on objectives o Identify objectives o Identify alternatives o Identify constraints o Incorporate both quantitative and qualitative information in the decision process o Synthesize knowledge, data and experience o Include values and politics in the decision process o Include ethical considerations in the decision process

	o Measure, not count o Appreciate that: "Not everything that counts can be counted and not everything that can be counted, counts" o Levels of measurement and why numbers are sometimes mathematically meaningless o Deal with competing factors o Incorporate ethical considerations in making decisions o Compare apples and oranges o Investigate sensitivity of decisions o Communicate recommendations and rationale o Convince others your are right o Deal with group decisions and conflict o Learn how to communicate better both orally and in writing o Make effective presentations
Method of Instruction:	Lectures, projects, student presentations. Students will learn by applying theoretical decision making concepts to real world problems. The Professor will provide individual guidance throughout the course both during classroom presentations as well as in individual and electronic consultations (e.g., Blackboard and Chat).

Assignments/Deliverables	(Individual) Quizzes (~20%)
	(Group of 2) Real World Decision Project -- PowerPoint presentation and paper
	(~50%)
	Final Exam
	(~30%)
	Class Participation ~ *if on borderline between two letter grades*
	  Campus Students -- Classroom discussion and 1 Minute Summaries
	  Distance Students -- Blackboard Collaborate and 1 Minute Summaries

Grading:	See above but note that the percentages are approximate and may be adjusted as per discussion of prioritization with feedback.

Session/Topic	Assignment:
Session 1:Aug 29 Introduction to decision making concepts, theory and practice. Intuition (Emotion) and Reason (Rationality) Cognitive limitations and bounded rationality Discussion of *Predictably Irrational* and *Thinking Fast and Slow*	Reading: *Predictably Irrational* and/or *Thinking Fast and Slow*
Session 2: Sep 5 Introduction to The Analytic Hierarchy Process (AHP) Levels of measurement Pairwise measurement validation exercise Discussion of decision project Discussion of *The Wisdom of Crowds*	Reading *The Wisdom of Crowds* *Decision by Objectives*: Ch 1-3
Session 3 Sep 12 Background of AHP Focusing on objectives Developing a decision model with Comparion Absolute measurement -- utility curves; step functions Discussion of decision project proposals	Reading *Decision by Objectives,* Ch 4 Submit decision project proposals to Blackboard the Monday before class
Session 4: Sep 19 Continue decision modeling techniques Absolute Measurement details Review student projects Current/Past	Reading *Decision by Objectives:* Ch 5,6,9
Session 5: Sep 26 Ethics and Ethical Decision-Making Models Dealing with uncertainties; Risk assessment Forecasting with AHP Relationship of executive decision making and interfaces with other decision models and methods Negotiations Arrows Paradox Happiness	Reading *Decision by Objectives:* Ch 7 Optional: *Negotiation Genius*
Session 6: Oct 3 Increasing Quality of Information Risks We Take vs. Risks We Face	Reading *Decision by Objectives:* Ch 10 Submit PowerPoint presentation for decision project. Monday before Week 7's class. Provide enough detail for meaningful feedback

Axioms and mathematics of AHP
Other multi objective methodologies; criticisms
Introduction to and overview of resource allocation
Project Presentations as time permits

Session 7: Oct 10
Project presentations
Final exam (Following Week 7 Class)

<u>REAL WORLD DECISION PROJECT</u>

This project is to be completed and presented by students working in groups of 2 (individual projects or larger groups may be allowed depending on circumstances). Each project will address an important, interesting and complex real world decision.

The project will involve a business, political or societal REAL WORLD (alternative selection) decision, evaluated from the perspective of a specific decision maker(s). The anticipated impact of the project on the organization is important in choosing a topic.

Project Report Requirements and Guidelines

The following guidelines may help you in selecting and organizing your real world projects and papers:

- Choose a problem that is both important and interesting.
- Paper should state why you are doing the project and indicate your involvement or connection with the organization for which the project is being done.
- Emphasize the problem, not the model or approach, e.g. start by discussing the problem, not multi-objective decision making or AHP.
- Explain why this important decision is complex and should not be made only by an intuitive synthesis of relevant information..
- Assume reader has no knowledge of modeling, multi-objective problems, or AHP.
- In discussing the model, emphasize judgments rather than weights. Describe how judgments were made, how priorities are derived from the judgments (briefly and at a high level) and discuss some of the more interesting judgments.
- Integrate figures into the report and make meaningful references.
- Number and title figures.

- Compare the model results with the decision maker(s) intuition. Discuss agreement or disagreement and iteration that led to final decision.
- Discuss the rational for the assignment of roles to participants.
- If you can't identify the organization for which the decision is being made explain why.
- Illustrate and explain how judgments were made and priorities derived
- Conclude with a discussion of what action will or is likely to be taken.
- Bibliography if appropriate.
- Abstract: The abstract should be a single paragraph, single spaced summary of the important points of the paper.

Timeline for Decision Project:
After Session 2: Brainstorm for project ideas
Between Sessions 2 and 3: Post ideas to Blackboard and form partnerships
and submit decision project proposals to Blackboard
Between Sessions 2 and 3 receive my feedback and revise and resubmit if necessary
After Session 3: Structure Comparion Decision Project; Complete Monday before Session 4
Receive feedback about your decision project structure and begin eliciting judgments
(measurement, synthesis, iteration) after responding to my feedback if necessary.
Request feedback for your project/results as soon as possible and receive my feedback.

Prepare PowerPoint presentation (enough for meaningful feedback) and submit Monday before Session 7
Submit papers after Session 7.

Code of Academic Integrity Agreement
Students are expected to adhere to the Code of Academic Integrity as defined below:
Section 1: Definition of Academic Dishonesty
(a) Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.
(b) Common examples of academically dishonest behavior include, but are not limited to, the following:
Cheating - intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise; copying from another student's examination; submitting work for an in-class examination that has been prepared in advance; representing material prepared by another as one's own work; submitting the same work in more than one course without prior permission of both

instructors; violating rules governing administration of examinations; violating any rules relating to academic conduct of a course or program.

Fabrication - intentional and unauthorized falsification or invention of any data, information, or citation in an academic exercise.

Plagiarism - intentionally representing the words, ideas, or sequence of ideas of another as one's own in any academic exercise; failure to attribute any of the following: quotations, paraphrases, or borrowed information.

Facilitating academic dishonesty - intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.