

OR 681/SYST 573
Decision and Risk Analysis
Fall 2014

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Office Hours: Before or after class, or by appointment

Text: Strategic Decision Making Author: Craig W. Kirkwood
ISBN-13: 978-0-534-51692-5
Publication Date: 1997

Software: *Logical Decisions for Windows*
Analytica

Description: The intent of this course is to provide a modern perspective on analytical methodologies to support decision making. Decision analysis offers a set of structured procedures that assist decision-makers in structuring decision problems and developing creative decision options, quantifying their uncertainty (this includes combining available statistics with expert judgments, and their own beliefs to arrive at estimates of the probabilities of various outcomes), quantifying their preferences (this includes structuring their value tradeoffs and examining their attitude towards risk), combining their uncertainty and preferences to arrive at “good” decisions. This course provides an introductory treatment of decision analysis. The intended participants are students who want to learn more about decision making under uncertainty and tools that can be used to support it.

<u>Topic</u>	<u>Reading and Assignment*</u>
Introduction	Read Chapter 1
Review of Probability	Read Chapt. 6 Sections 6.1-6.3 Probability HW
Value Focused Thinking	Read Keeney Article and Chapter 2, pg 11-23 Read How to Build an Affinity Diagram Affinity Diagram HW + Value Hierarchy HW
Value Functions and Weight Elicitation	Read Chapter 4, pgs. 53-68 (Single Dimensional Value Functions) Chapter 4, pgs. 68-98 (Weights), pgs. 259-260 (AHP)

	Single Dim VF HW	Weights and AHP HW
		Hierarchical Value function HW
		Do Logical Decisions for Windows Tutorial
Decisions Under Uncertainty Influence Diagrams	Read Chapt.5 and article by Slovic	Decision tree HW
	Read Pages 326-329 (Influence Diagram)	
	Do Analytica Tutorial	
Utility Functions, Multiattribute Utility	Read Chapt. 9 (Utility Theory)	Utility HW
Sensitivity Analysis	Read pgs. 82-86 (Sensitivity)	

Grading:

Midterm	30%
Project	30%
Final	30%
Class & Homework*	10%

*Homework will be assigned on a weekly basis from problems in the textbook and from handouts

Student Expectations:

Academic Integrity

Students must be responsible for their own work, and students and faculty must take on the responsibility of dealing explicitly with violations. The tenet must be a foundation of our university culture. [See <http://academicintegrity.gmu.edu/distance/>].

Honor Code

Students must adhere to the guidelines of the George Mason University Honor Code [See <http://oai.gmu.edu/honor-code/masons-honor-code/>].

MasonLive/Email (GMU Email)

Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account. [See <https://thanatos.gmu.edu/masonlive/login/>].

Patriot Pass

Once you sign up for your Patriot Pass, your passwords will be synchronized, and you will use your Patriot Pass username and password to log in to the following systems: Blackboard, University Libraries, MasonLive, myMason, Patriot Web, Virtual Computing Lab, and WEMS. [See <https://thanatos.gmu.edu/passwordchange/index.jsp>].

University Policies

Students must follow the university policies. [See [University Policies](#)].

Diversity: George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

Responsible Use of Computing

Students must follow the university policy for Responsible Use of Computing. [See <http://universitypolicy.gmu.edu/1301gen.html>].

University Calendar

Students must follow the university policies. [See [Catalogue](#)].

Students with Disabilities

Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester [See <http://ods.gmu.edu>].

Students are expected to follow courteous Internet etiquette.

Student Services:

University Libraries

University Libraries provides resources

Writing Center

The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing. [See <http://writingcenter.gmu.edu>]. You can now sign up for an Online Writing Lab (OWL) session just like you sign up for a face-to-face session in the Writing Center, which means YOU set the date and time of the appointment! Learn more about the [Online Writing Lab \(OWL\)](#) (found under Online Tutoring).

Counseling and Psychological Services

The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See <http://caps.gmu.edu>].

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act of 1974 (FERPA), also known as the

"Buckley Amendment," is a federal law that gives protection to student educational records and provides students with certain rights. [See <http://registrar.gmu.edu/privacy>].