

The University of Texas at Dallas
School of Management
OPRE 6335: RISK AND DECISION ANALYSIS
Fall 2005

Section 501: Monday 7:00 – 9:45 pm in SOM

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Required Text:

- Risk Analysis-A quantitative guide by David Vose, 2nd edition; John Wiley and Sons, Chichester, UK 2000.
- An extended version of the book will be available as a software, called “ModelAssist” in SOM computer lab.
- Lecture notes and homework assignments will be posted on WebCT.

Other: An additional text will be used for the last several chapters of the course. It is not required, but a suggested source; Financial Economics, Risk and Information-An Introduction to Methods and Models by Marcelo Bianconi; World Scientific Books, 2003

Prerequisites: OPRE 6301-Quantitative Introduction to Risk and Uncertainty in Business or an equivalent level course. A background in probability and statistics is required. A working knowledge of Excel is also recommended.

Objectives: Risk analysis is becoming prevalent in most technical and business aspects of economic activity. In this course, basic approaches of risk analysis in industry and finance will be presented. A solid review of the methodology based on probabilistic, statistical and decision making approaches will be made.

The course will contain three main parts;

- Part I refers to concepts of risk analysis used in industry.
- Part II refers to probabilistic methods of risk analysis
- Part III refers to decision making

Evaluation:

Midterm Examination	40%
Final Examination	40%
Assignments	<u>20%</u>
	100%

Assignments: There will be 4 or 5 individual assignments. Some of them will give you an opportunity to review the basic concepts and problems about probability and statistics which is a prerequisite for the

course. There will be also case studies. You will be required to use @Risk software for some of the homework assignments which will be provided in SOM computer lab. A trial version of @Risk can be downloaded at website <http://www.palisade.com>.

Tentative Course Outline and Assignment Schedule

	Date	Topic	Readings	To be handed in
1	Aug. 22	Basic concepts of risk analysis	Part I	
2	Aug. 29	Methods of risk assessment	Part I	
3	Sept. 05	Labor Day-No Class		
4	Sept. 12	Processes and systems in industry	Part I	
5	Sept. 19	Reliability theory	Part II	
6	Sept. 26	Decision theory to mitigate failures	Part II	
7	Oct. 03	Design of risk analysis models	Part II	
8	Oct. 10	Treatment of expert opinions	Part II	
9	Oct. 17	Simulation and probabilistic methods	Part II	
10	Oct. 24	Determining distribution from data	Part II	
11	Oct. 31	Midterm Examination		In-class Midterm
12	Nov. 07	From risk assessment to decision making	Part III	
13	Nov. 14	Portfolio analysis and the treatment of risks	Part III	
14	Nov. 21	Risk analysis with several decision makers	Part III	
15	Nov. 28			
16	Dec. 05	Final Examination		In-class Final