

UNIVERSITY OF MARYLAND
Department of Civil Engineering
College Park Campus – Fall 1999

ENCE 425 - Decision Support Systems for Construction (MW 3:30 – 4:45 pm, Rm 0110)
(Prerequisite: ENCE 320, ENCE majors)

INSTRUCTOR: Professor Bilal M. Ayyub, **Office Hours:** MWF 12:00 am - 1:00 pm and by appointment, Room 0305, Engineering Classroom Building, **Telephone:** 301-405-1956,

Email: ayyub@eng.umd.edu, **URL:** <http://ctsm.umd.edu/ayyub/>

TEXTBOOKS: (1) Making Hard Decisions: An Introduction to Decision Analysis by Robert T. Clemen, 2nd edition, Duxbury Press, NY, 1996. (2) DPL, Decision Analysis Software, Standard Version, Student Edition, Duxbury Press, NY.

REFERENCE: Marshall, K. T. and Oliver, R. M., Decision Making and Forecasting, McGraw Hill, NY, 1995, and Handouts.

GRADING: HW (15%), Midterm (25%), Project (25%), Final (35%), and Quizzes (\pm).

TOPICS:

Week	Topic	Source
1.	Introduction to Decision Analysis	Textbook
2.	Modeling Uncertainty	Textbook
3.	Basic Concepts: Probability	Textbook
4.	Using Data	Textbook
5.	Introduction to Decision Models and Analysis	Textbook
6.	Model Building: Structuring Decisions and Influence Diagrams	Textbook
7.	Model Building: Decision Trees	Textbook
8.	Model Building: Risk and Decision Trees	Textbook
9.	Model Analysis: Making Choices	Textbook
10.	Model Analysis: Sensitivity Analysis	Textbook
11.	Creativity and Decision-Making	Textbook
12.	Monte Carlo Simulation	Textbook
13.	Value of Information	Textbook
14.	Multiattribute Decision Making	Handouts
15.	Review	
16.	Review	

HOMEWORK ASSIGNMENTS: Professional presentation of homework assignments is required. Professional presentation consists of neat and organized solution of problems on one side of 8.5"x11" papers. Any homework not complying with professional standards will not be graded and will be assigned zero credit. The homework assignments are due one week after they are assigned. Late homework assignments will not be accepted.

EXAMS: All students must take all exams including the final exam. Only extenuating circumstances will be accepted as excuse for missing an exam. Health related excuses require medical reports and the signature of a physician that provided treatment. Academic integrity is an important foundation and required as defined in <http://www.inform.umd.edu/jpo/>.

Week	Lecture Topic	Reading	Tentative Homework	Homework
1	Course Organization			
	Introduction to Decision Analysis	1-10	1.2, 6, 9, 12	
2	Probability Basics	219-241	7.1-6, 7, 8, 16, 19	
3	Subjective Probability	265-294	8.1, 3, 4, 5, 6, 7, 25	
4	Theoretical Probability Models	314-334	9.2, 3, 5	
5	Using Data	355-386	10.4, 5, 9, 10, 13	
6	Elements of Decision Problems	19-34	2.1, 4, 7, 10, 11	
7	Structuring Decisions	41-74 77-89	3.1, 2, 3, 7, 9, 17	
8	Making Choices	101-110	4.1, 2, 4, 6, 7, 8, 9, 10	
9		118-140		
10	Sensitivity Analysis	155-160	5.1, 4, 5, 9, 10	
11	Creative Decision Making	187-209	6.1, 3, 6, 9	
12	Monte Carlo Simulation	410-426	11.1, 2, 3, 6	
13	Value of Information	435-451	12.3, 4	
	Multiattribute Decision Making	Handouts		
14	Multiattribute Decision Making			
	Review			
15	Review			
	Review			