



Decision making (for FERMers)



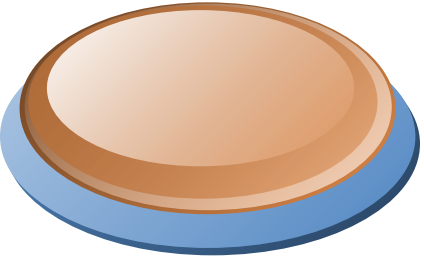
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Course outline



Decision Making

- ◆ **Introduction & Course objectives**
- ◆ **Elements of decision problems**
- ◆ **Decision Analysis**
 - ◆ * **Without uncertainty**
 - ◆ * **with uncertainty (plus review on probability)**
- ◆ **Game theory**
 - ◆ * **Zero-sum games**
 - ◆ * **Nash-equilibrium**





More on Games

- * Non-zero-sum games**

- * Cooperative games**

- * Cooperative versus non-cooperative games**



Project Management with PERT/CPM





Text book

- ❖ F. S. Hillier, G. J. Lieberman, **Introduction to Operations Research**, McGraw-Hill, 10th Edition, 2015.
- ❖ C.M. Harvey, **OPERATIONS RESEARCH: An Introduction to Linear Optimization and Decision Analysis**. Elsevier North Holland, 1979.

[Some more on **Game theory** will be supplied by lecturer]





Course objectives

- ❖ To provide the students with the main ideas and techniques of Decision analysis and game theory.
- ❖ To develop skills in mathematical modeling and problem solving.
- ❖ Students identify and analyze the values that give meaning to their lives and the role those values play in establishing their behavior patterns.
- ❖ Students recognize ethical dilemmas [hard situations] and demonstrate the capacity to analyze and resolve them effectively.





Course objectives (cont'd)

- ❖ Students comprehend effective problem-solving strategies and resources [methods/ways] and apply them to routine and unique (very special) situations,
- ❖ To develop abilities of thinking reasonably, of realizing new problems/questions and answer/solve/prove them under some new conditions arising in practice.
- ❖ **[Example in the file of Chapt 1]**





◆ **Exercises/Quizzes/Attendance (20%)**

**Assignment 1, 2 (50pts) + ATT (30pts) +
Quizzes (10 + 10) + Bonus \geq 100**

◆ **Midterm Exam (30%)**

◆ **Final Exam (50%)**





analytical

link makers

effective memorisers

Successful

learners

structure/organise ideas

capable communicators

enquiring

good listeners

interested in other cultures

Responsible

tolerant citizens

collaborative group workers

What do we want our learners to look like?
What skills do we want them to have?

independent

risk takers

able to self-assess

Confident

individuals

confident performers

able to cope with unpredictable

creative thinkers



welcome to **DECISION MAKING!**

