

Wharton School
Fall 2008(9/09-10/28)

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BPUB/MGMT 784: Managerial Economics and Game Theory

The purpose of this mini-course is to develop students' abilities to apply game theory to decision-making. Development of the tools of game theory and the application of those tools is emphasized. Game theory has become an important tool for managers and consultants in analyzing and implementing tactical as well as strategic actions. This course will primarily focus on examples useful for developing competitive strategy in the private sector (pricing and product strategy, capacity choices, contracting and negotiating, signaling and bluffing, takeover strategy, etc.). Game theory can also be used to address problems relevant to a firm's organizational strategy (e.g. internal incentives and information flow within a firm) and to a firm's non-market environment (e.g., strategic trade policies, litigation and regulation strategy).

Game theory provides an extremely useful perspective on competitive interaction, but quickly becomes unwieldy when applied “literally” to complex problems. Much of the art of applying game theory lies in identifying the essential factors and interactions in a complex situation, using game theory to improve your understanding of those interactions, and then developing intuition from the discipline provided by game-theoretic models. In addition to providing the student with a set of techniques from game theory, this course will try to impart some of the art of using game theory.

Prerequisites

MGEC 621 (intermediate microeconomics) or equivalent. It is expected that the student has been introduced to some basic game theory. There will be a quick review of the basics and some recommended supplemental readings for those who have little or no background in game theory.

Materials

Managerial Economics: Theory, Applications, and Cases

By Allen, Doherty, Weigelt, and Mansfield

Bulk pack

Grading

In Class Quiz:	50%
Written Exercise	20%
Problem Sets:	30%

Study Guide and Course Outline

September 9th Session 1 – Introduction to Strategic Games

Strategic games, timing, information, players, strategies, and payoffs

Readings:

Games of Strategy: An Introduction (HBS # 9-187-159)

Managerial Economics: pp. 563-566

September 14th Session 2 – Simultaneous Move Games with Pure Strategies I: Dominant Strategies

Dominant Strategies
Iterative Dominance

Readings:

Managerial Economics: pp. 570-577

September 16th Session 3 – Simultaneous Move Games with Pure Strategies: Nash Equilibrium

Nash Equilibrium

Readings

Managerial Economics: pp. 576-578.

September 21st Session 4- Games with Sequential Moves I

Backward Induction

Readings

Managerial Economics: pp. 578-582

Course packet: “ Decision Trees” (HBS # 9-205-060)

September 23rd Session 5: Entry Deterrence Games

Readings:

Judo Economics (HBS # 794103)

September 28th Session 6: Entry Deterrence

Readings:

Bitter Competition: The Holland Sweetener Co. vs. NutraSweet (A) (HBS # 9-794-079)

September 30th Session 7: Game Theoretic Examination of Ryan Air

Readings:

Dogfight over Europe: Ryanair(A) (HBS# 9-700-115), Ryanair (B) (HBS # 9-700-116)

October 5th Session 8- Prisoner's Dilemma and Repeated Games

Readings:

Managerial Economics: pp.583-588

October 7th Session 9- Simultaneous- Move Games with Mixed Strategies

Readings:

Course packet: “ Simultaneous Move Games with Mixed Strategies “
Value Pricing Strategies

October 12th Session 10- Mixed Strategies: Promotional Pricing

Readings:

The Mother of All (Pricing) Battles”: The 1992 Airline Price War (KEL006)

October 14th Session 11- In Class Examination

FIP: No Class meetings on October 19th and October 21st

October 26th Session 12- Signaling

Readings:

Signaling Costs (9-793-125)

1. Might player A want to try to signal its cost position to player B?
2. Is there a way for it to do so? In answering, pay particular attention to the question of the credibility of any signal that A might send B.

October 28th Session 13 Product Differentiation

Readings

Case: Competition and Product variety (9-190-100)
Economics of product variety (9-191-099)

Questions

1. Which product types will managers at firms A and B decide to manufacture? State the logic underlying your beliefs?
2. Assume that firm A enters the market first. If A's managers wish to deter entry by B, which products should they produce and why?
3. Assume A has a monopoly position. What products should A's managers produce and why? Do A's managers want to serve the entire market?

Hint: Remember that the model is symmetric since demand is uniform. That is the prices And profits are the same if one product is at 0 and the other at 1 as if one product were at 4 and the other at 3.