

Wharton School
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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 managerial decision-making. The course emphasizes the application of game theory to improve students' ability to make and analyze strategic decisions. The course will emphasize application rather than theory. Game theory has become an important tool for managers, policy makers, consultants, and lawyers in 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

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

Or the Equivalent

Bulk pack

Grading

Simulation Exercise:	20%
Written Exercise	50%
Problem Sets:	30%

Study Guide and Course Outline

September 8th 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. 368-375

September 13th : Session 2 Game Theoretic Examination of Ryan Air

Readings:

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

September 15th: Session 3 – Deep Pockets

Readings

Deep Pockets (9-190-101)

Questions for the Readings

1. As a potential entrant into the industry how do you assess the possible reaction of the incumbent firm to your entry? Do you expect to be accommodated?

**** Assume that the entrant must show a profit by/in quarter 12****

September 20th: Session 4 Simulation Exercise Fare Game

Readings:

TBA

September 22nd: Session 5 Judo and Art of Entry

Questions for Judo Economics

1. Suppose that: (a) each buyer has a willingness-to-pay of \$200 for one unit of either the incumbent's or the entrant's product; and (b) both incumbent and entrant have a \$100 unit cost of serving buyers. Formulate a strategy for the entrant. How much money can the entrant make?
2. Now suppose that: (a) each buyer has a willingness-to-pay of \$200 for one unit of the incumbent's product and \$160 for one unit of the entrant's product, and (b) the incumbent has a \$100 unit cost and the entrant a \$120 unit cost. Formulate a strategy for the entrant. How much money can the entrant make?
3. Finally, suppose that: (a) each buyer has a willingness-to-pay of \$200 for one unit of either the incumbent's or the entrant's product; and (b) the incumbent has a \$120 unit cost and the entrant an \$80 unit cost. Formulate a strategy for the entrant. How much money can the entrant make this time?

September 27th: Session 6 Sequential Entry

Readings: TBA

September 29th : Session 7: Toy Game

Readings:

The Toy Game (HBS # 9-795-121)

Questions:

1. First suppose that neither Matchbox nor Hot Wheels gives out rebate coupons. What price or prices do you expect Matchbox and Hot Wheels cars to fetch?
2. Next suppose that Matchbox, but not Hot Wheels, gives out rebate coupons. What price or prices do you expect Matchbox and Hot Wheels cars to fetch now?

October 4th: session 8 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

October 6th: Session 9 Capacity Preemption

Readings:

Airbus A3XX: Developing the World's Largest Commercial Jet (A) (HBS 9-201-028)

Questions:

1. Which firm Boeing or Airbus would you predict based on Game Theory to be the first to introduce a product in the VLA segment
2. How do you explain the apparent outcome?

October 13th: Session 10 Mixed Strategies and Promotional Pricing

Readings:

TBA

October 18th Session 11 Signalling and Information

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.

