

Game-Theoretic Marketing Models  
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**Course Description:** The purpose of this course is to familiarize students with both introductory game theory and its applications in marketing. To achieve this goal, the first part of this course will be an introduction of game theory and the second part of it will be the applications of game theory (including cases) to various marketing issues. Students will need to spend some time in problem solving (for homework assignments) and in cases and some reading in order to maximize the benefit obtained from this course. The course will employ a mix of lectures and selected cases (1-2 cases) and readings of marketing papers. The topics covered in this course are as follows (though more focus will be given on the issues of online marketing, channel design, product line design, and price promotion strategies):

- On-line Marketing strategies
- Optimal Channel Design
- Individual Marketing
- Multi-product Pricing
- Optimal Product Line Design in a Distribution Channel
- Pull and Push Promotions in a Distribution Channel
- Competitive Price Promotion Strategy

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**Prerequisites** Students are expected to have taken marketing courses and have some background (or be interested) in microeconomic theory. Mathematics is kept at a minimum level in this course; however, students are expected to feel comfortable with basic calculus and elementary probability.

**Grading**

Midterm and Homework	50%
Case discussion and paper Presentation <sup>1</sup>	50%

**Reference Book**

- Tirole, Jean. 1988. *The Theory of Industrial Organization*. Cambridge, Mass: MIT Press.

**Cases**

1. Bundling, Harvard Business School, 9-191-177.
2. Southwest Airlines (A), Harvard Business School, 9-575-060 (subject to change).

Week No. (Date)	Topics	Papers
Module 1: Introduction to Game-Theoretic Models		
1 (2/20)	Introduction	
2 (2/27)	Games with Complete Information Dynamic Games with Complete Information	

<sup>1</sup> Each group of students may be responsible for presenting one of assigned papers chosen from the list of papers.

3	(3/6)	Games with Incomplete Information	
4	(3/13)	Screening Game	Bundling papers
5	(3/20)	Applications	
Module 2: Interactions among 4P's			
<b>6</b>	<b>(3/27)</b>	<b>Case 1: Bundling</b> Optimal Channel Design	
7	(4/3)	<b>No Class</b>	
8	(4/10)	Product Line Design	Villas-Boas (1998)
9	(4/17)	Midterm	
10	(4/24)	Sales Promotion Design	Gerstner and Hess (1991)
Module 3: Online Marketing			
11	(5/1)	Online Marketing	Lal and Sarvary (1999)
12	(5/8)	Individual Marketing	Iyer et al. (2005)
<b>13</b>	<b>(5/15)</b>	<b>Case 2: Southwest Airlines (A)</b> Competitive Promotion Strategies	Varian (1980) Iyer et al. (2003) Narasimhan (1988)
Module 4: Retailing			
14	(5/22)	Competition in shopping experience The Targeting of Advertising	Iyer, Ganesh, and Dmitri Kuksov (2012) Iyer, G., D. Soberman, and J. M. Villas-Boas (2005)
15	(5/29)	Advance Selling	Xie, Jinhong, and Steven M. Shugan (2001)
Module 5: Modern Marketing Issues			
16	(6/5)	Behavior-based discrimination	Shin and Sudhir (2010) Fudenberg, D., and J. Tirole (2000)
<b>17</b>	<b>(6/12)</b>	No class (to be made up )	
18	(6/19)	Name your own price; Information Sharing in a Distribution Channel	Scott Fay (2008); Guo (2009)

### **Reading list (To be revised)**

- Adams, W. J., and J. L. Yellen (1976), "Commodity Bundling and the Burden of Monopoly," *Quarterly Journal of Economics*, 90, 3, 475-498.
- Fay, S. (2008), "Selling an Opaque Product through an Intermediary: The Case of Disguising One's Product," *Journal of Retailing*, 84(1): 59-75.
- Fudenberg, D., and J. Tirole (2000)," Customer Poaching and Brand Switching, *Rand Journal of Economics*, 31, 4, 634-657.
- Gerstner, E. and J. Hess (1991), "A Theory of Channel Price Promotions," *American Economic Review*,

81(4): 872-886.

- Guo, Liang (2009), "The Benefits of Downstream Information Acquisition," *Marketing Science*, 28 (3), 457-471.
- Iyer, G. and A. Pazgal (2003), "Internet Shopping Agents: Virtual Co-Location and Competition," *Management Science*, 22(1): 85-106.
- Iyer, G., D. Soberman, and J. M. Villas-Boas (2005), "The Targeting of Advertising," *Marketing Science*, 24(3): 461-477.
- Lal, R. and M. Sarvary (1999), "When and How is the Internet Likely to Decrease Price Competition," *Marketing Science*, 18(4): 485-503.
- Lal, R. and C. Matutes (1989), "Price Competition in Multimarket Duopolies," *Rand Journal of Economics*, 20(4): 516-537.
- Lal, Rajiv and Carmen Matutes (1994), "Retail Pricing and Advertising Strategies," *Journal of Business*, 67, 3, 345-370.
- McAfee, R. P., J. McMillan, and M. Whinston (1989), "Multiproduct Monopoly, Commodity Bundling, and Correlation of Values," *Quarter Journal of Economics*, 104, 371-383.
- Narasimhan, C. (1988), "Competitive Promotional Strategies," *Journal of Business*, 61(4): 427-429.
- Varian, H. R. (1980), "A Model of Sales," *The American Economic Review*, 70(4): 651-659.
- Villas-Boas, Miguel (1998), "Product Design for a distribution channel," *Marketing Science*, Vol.17, No.2, 156-169.

**List of Papers Assigned for Presentation (subject to change)**

1. Xie, Jinhong, and Steven M. Shugan (2001), "Electronic Tickets, Smart Cards, and Online Prepayments: When and How to Advance Sell," 20, 3, 219-243.
2. Guo, Liang and J. Zhang (2012), "Consumer Deliberation and Product Line Design," *Marketing Science*, 31, 6, 995-1007.
3. Iyer, Ganesh, and Dmitri Kuksov (2012), "Competition in Consumer Shopping Experience," *Marketing Science*, 31, 6, 913-933.
4. Ofek, Elie, Z. Katona, and M. Sarvary (2011), "Bricks and Clicks": The Impact of Product Returns on the Strategies of Multichannel Retailers," *Marketing Science*, 30, 1, 42-60.
5. Fay, S. (2008), "Selling an Opaque Product through an Intermediary: The Case of Disguising One's Product," *Journal of Retailing*, 84(1): 59-75.
6. Shin, Jiwoong, and K. Sudhir (2010), "A Customer Management Dilemma: When Is it Profitable to Reward One's Own Customers?" *Marketing Science*, 29, 4, 671-689.