

Analytical Models in Marketing

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Office Hours: by appointment
Classroom: JMMH 741
Time: Tuesday 3:30 -6:30 pm

Objectives

This course is designed with three objectives in mind. First, the course provides an in-depth knowledge of many substantive topics in marketing that are amenable to economic modeling and analysis. This knowledge will, hopefully, help you to appreciate and critique some of the major streams of quantitative marketing research, and to develop your own research interests. Second, the course is designed to familiarize you with the mechanics of some workhorse models in marketing so that you can have a hands-on experience with the economic modeling of marketing phenomena. Third, the course will focus on developing your own new and exciting ideas! As you appreciate the details of how scholars navigate through different models for different issues, you will develop a keen sense of how literature on a topic develops and how your unique interest and training can lead you to new, exciting ideas.

Course Requirements

The course will meet once each week for three hours. You are expected to have completed their assigned readings before you come to each class and to be able to contribute to the class in a thoughtful manner. The class participation accounts for 20% of your final grade. There will be 2 homework assignments, all of which involve some mathematical modeling and manipulations. Each homework accounts for 20% of your final grade.

A term project is also required for this course, which accounts for 40% of your final grade. A good project paper is the one that defines clearly a marketing problem amenable to economic modeling, that sets up a reasonable model to address that problem, and that draws some sensible conclusions based on technically correct analyses. I will offer as much help to you as I can, and you are also encouraged to help each other on the project. You will have an opportunity to present your research findings in the last class.

Assigned Readings (*indicates a required reading)

Week 1 (January 15): Principles of Minimum and Maximum Differentiation: Hotelling Models

- D'Aspremont, C., Gabszewicz, J. J., and Thisse, J. F., 1979, "On Hotelling's 'Stability in Competition'," *Econometrica*, 47, pp.1145-1150.
- *Hotelling, H., 1929, "Stability in Competition," *Economic Journal*, 39, pp. 41-57.
- *Zhang, Z. John, "Price-Matching Policy and the Principle of Minimum Differentiation," *Journal of Industrial Economics*, 43 (June, 1995), pp. 287-299.

Week 2 (January 22): Price Discrimination and Targeted Pricing

- *Shaffer, Greg and Z. John Zhang (2002), "Competitive One-to-One Promotions," *Management Science*, 48 (No. 9), pp. 1143-1160.
- Chen, Yuxin, C. Narasimhan, and Z. John Zhang (2001), "Individual Marketing With Imperfect Targetability," *Marketing Science*, 20 (No. 1), pp. 23-41.
- *Shaffer, Greg and Z. John Zhang (1995), "Competitive Coupon Targeting," *Marketing Science*, 14, pp. 395-416.
- Lederer, Phillip J. and Arthur P. Hurter, Jr, "Competition of Firms: Discriminatory Pricing and Location," *Econometrica*, May, 1986, Vol. 54, No. 3 (May, 1986), pp. 623-640.

Week 3 (January 29): Competing Platforms

- *Halaburda, Hanna, Mikołaj Jan Piskorski, and Pınar Yıldırım (2017), "Competing by Restricting Choice: The Case of Matching Platforms," *Management Science*, 64(8):3574-3594.
- Arnosti, Nick, Ramesh Johari, and Yash Kanoria (2021), "Managing Congestion in Matching Markets. *Manufacturing & Service Operations Management* 23(3):620-636. <https://doi.org/10.1287/msom.2020.0927>
- Karle, Heiko, Martin Peitz, and Markus Reisinger, "Segmentation versus Agglomeration: Competition between Platforms with Competitive Sellers," *Journal of Political Economy*, 2020, vol. 128, no. 6, pp. 2329-2370.
- Hendel, Igal, Aviv Nevo and François Ortalo-Magné, "The Relative Performance of Real Estate Marketing Platforms: MLS versus FSBOMadison.com," *American Economic Review*, Vol. 99, No. 5, December 2009, pp. 1878-98.

Week 4 (April 5): Signaling and Screening Models in Marketing

- *Akerlof, George A. (1970), "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, vol. 84, no. 3, pp. 488-500.
- Spence, Michael (2002), "Signaling in Retrospect and the Informational Structure of Markets," *American Economic Review*, vol. 92, no. 3, pp. 434-59.
- Chu, Wujin (1992), "Demand Signaling and Screening in Channels of Distribution," *Marketing Science*, 11 (No. 4), pp. 327-347.
- Milgrom, Paul and John Roberts (1986), "Price and Advertising Signals of Product Quality," *Journal of Political Economy*, 94 (No. 4), 796-821.
- *Liu, Zhenqi (Jessie), Pinar Yildirim, and Z. John Zhang, "A Theory of Maximalist Luxury," *forthcoming at Journal of Economics and Management Strategy*.

Week 5 (April 12): Omni-Channels and Amazon Marketplace (Store in Store)

- Bonanno, G. and John Vickers (1988), "Vertical Separation," *The Journal of Industrial Economics*, 34, pp. 257-265.
- *McGuire, T. and R. Staelin (1983), "An Industry Equilibrium Analysis of Downstream Vertical Integration," *Marketing Science*, 2 (No. 2), pp. 161-191.
- *Jeuland, Abel and Steve Shugan (1983), "Managing Channel Profits," *Marketing Science*, 2 (No. 3), pp. 239-272.
- Jerath, Kinshuk, and Z. John Zhang, "Store within a Store," *Journal of Marketing Research*, Vol. XLVII (August 2010), 748-763.
- Jiang, Baojun, Kinshuk Jerath and Kannan Srinivasan, "Firm Strategies in the 'Mid Tail' of Platform-Based Retailing," *Marketing Science*, September-October 2011, Vol. 30, No. 5 (September-October 2011), pp. 757-775.

Week 6 (April 19): Market Entry Decisions

- Golder, Peter N. and Gerard J. Tellis (1993), "Pioneer Advantage: Marketing Logic or Marketing Legend," *Journal of Marketing Research*, Vol. 30, Iss. 2; pp. 158-171.
- Carpenter, Gregory S. and Kent Nakamoto (1989), "Consumer Preference Formation and Pioneering Advantage," *Journal of Marketing Research*, 27 (August), 285--98.
- Robinson, William T. and Claes Fornell (1985), "Sources of Market Pioneer Advantages in Consumer Goods Industries," *Journal of Marketing Research*, 22 (August), 305--17.
- *Narasimhan, C. and Z. John Zhang (2000), "Market Entry Strategy Under Firm Heterogeneity and Asymmetric Payoffs," *Marketing Science*, 19 (No. 4), pp. 313-327.
- *Kim, Byungyeon, Oded Koenigsberg and Elie Ofek, "I Don't 'Recall': The

Decision to Delay Innovation Launch to Avoid Costly Product Failure,”
working paper, July 2021.

Week 7 (April 26): Project Presentations