

Analytical Models in Marketing

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Classroom: JMMH 741
Time: Tuesday 3:30 -6:30 pm

Objectives

This is a tentative syllabus for Spring 2024 term from March 19 to April 30. Depending on the interests of enrolled students, I will change some of the topics to achieve the objectives of this course.

I design this course 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 from the beginning to now so you appreciate how literature develops and scholarship builds. 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 in an easy, comprehensible way so that you can have a hands-on experience with the economic modeling of marketing phenomena regardless of your math sophistication. 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 with different assumptions, you will develop a keen sense of how literature on a topic develops and how your unique interest and training can lead you to different assumptions and hence new, exciting ideas. Many PHD candidates from OID, economics, marketing, health care management, and Stats have benefited from this course and subsequently become a skilled modeler in their successful academic career.

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 (March 19): 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 (March 26): 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 (April 2): 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 9): 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 16): 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 23): 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 30): Project Presentations