The Ohio State University  
Fisher College of Business

BA 951 Ph.D. Seminar in Marketing Models  
Prof. Greg M. Allenby

2012 Syllabus

BA 951 will focus on recent developments of quantitative methods in marketing. The course is targeted to students interested in developing a conceptual understanding of quantitative models and an appreciation of the literature in this area. Quantitative models aim to explain consumer and firm behaviors and their relationship to managerial decision making. This course surveys quantitative research in marketing, with a focus on statistical and game-theoretic models. The goal of the course is to a) raise students' awareness of this literature and b) stimulate new research interests. By the end of the course, students should be familiar with the key issues and approaches in quantitative marketing, the strengths of these research streams, and the opportunities to extend them.

Approach

The course meets each week for 3-4 hours. For each topic, I will list a number of papers. We will spend the majority of time reviewing three papers in depth. The last portion of the class will be spent integrating the days’ readings. The class will be largely discussion oriented, though I will at times interject to give a brief lecture. These lectures will range from technical discussions to research taxonomies. For suggestions on reading these articles, please see the Appendix to this syllabus, provided by Vithala Rao at Cornell.

Course Requirements

Each student is expected to read the required reading to be discussed. In addition, they are expected to pursue additional optional readings as time permits to obtain a broader sense of research in the area. Every week, students will be assigned to write a one page summary of a given paper for the edification of themselves and their peers. These should be distributed to all persons in the class, and include: objective of the paper, its unique contribution, why it is important, hypotheses if any, assumptions in the model, key equations, key findings, key limitations, and opportunities to extend the work. Each person will also be required to hand in a one page summary of all the required readings for the week (how they inter-relate, what the key questions are, what issues have been resolved, and what issues remain open). In addition, the write-up should contain answers to each of the questions (A-K) listed in the Appendix on the last page of this syllabus.

Finally, at the end of the quarter, students will hand in a research proposal that extends the work of a paper presented at the 2012 Frank M. Bass UTD FORMS conference. The papers will be available from the instructor. The proposal should outline why the idea is important, how it is different from existing work, and present a model to implement the idea.
Grading

Students will be graded using the following criteria: class participation (30%), paper summaries (20%), and the final project (50%).

Course Framework

Marketing models can be categorized along two dimensions – topics and approaches. The approaches used to model marketing phenomenon include statistical models (e.g., stochastic models, hazard models, time series models, new empirical I/O, and spatial models) and analytical models such as game theory and operations research. Topics can be categorized into “external to the firm” marketing environments (e.g., Industry Such as Internet, Pharmaceutical, etc., Competition, and Customers), and internal to the firm marketing policies (Price, Promotion, Advertising, Distribution and Product) used in those contexts. As research issues drive the tools used to solve them, we will organize the course by the topics as opposed to the approaches.

Acknowledgements

I would like to thank Carl Mela (Duke) from whom I have obtained the extensive reading list below. His compilation of the material was done with assistance from Asim Ansari (Columbia); Bart Bronnenberg (UCLA); Yuxin Chen (NYU); Pradeep Chintagunta (Chicago); Michaela Draganska (Stanford); Wes Hartmann (Stanford); Rajeev Kohli (Columbia); Vithala Rao (Cornell); Michel Wedel (Maryland); Christophe Van den Bulte (Wharton); and John Zhang (Wharton).

Session Details

Specifically the course will be organized as follows (* denotes required, all other readings are optional in case you would like more information or background on the topics). The papers can be downloaded from Carl Mela's website:

http://faculty.fuqua.duke.edu/~mela/BA561/

Week 1: Course Introduction and Overview

Week 2: Economic and Descriptive Marketing Models

Statistical Models (Stochastic Models, Hazard Models, Time Series, Spatial, Market-level, NEIO)


Chapters 1 and 2 from An Introduction to Statistical Modelling, by Wojtek J Krzanowski, Arnold publishers, 1998.


Analytical Models


Week 3: Models of Consumer Behavior, Choice Models

**Economic Foundations of Choice**


**Classical Choice Models**


Bayesian Choice Models


Aggregate Choice Models

Lifetime Value Models


Week 4: Consumer Models: Social Choice


Week 5: Consumer Models: Dynamics and Search


Kim, Jun, Paulo Albuquerque and Bart Bronnenberg (2009), "Online Demand Under Limited Consumer Search," working paper, SSRN.


Week 6: Competition and Positioning

Market Structure and Brand Differentiation

Market Entry and Location: Economic Foundations

NEIO Models

Entry and Location: NIEO Models


Beresteanu, Arie and Paul Ellickson (2006), "The Dynamics of Retail Oligopolies."


**Week 7: Product**

**Idea Generation**


**Conjoint & Optimal Product Design & Concept Testing**


**Across Products: Product Lines and Market Baskets**


**Diffusion of Innovations**

*Ansari, Asim (2004), Bass Diffusion Model Note*


**Product Lifecycle and Pioneering Advantage**


*Product Roll-out*


**Week 8: Pricing**

*Price-matching and Price Discrimination*


Asymmetric Information, Signaling and Screening,


**Auctions**


**Dynamics in Pricing**


**Decision Support Systems**


**Price Promotions**


Reference Price

Reward Programs

Week 9: Distribution/Channel

Store Brands
Performance of Store Brands: A Cross-Country Analysis of Consumer Store-Brand Preferences, Perceptions, and Risk Tulin Erdem, Ying Zhao, Ana Valenzuela, Journal of Marketing Research, (February), 86-

Vertical Games


Kumar, Nanda and Ranran Ruan (2006), “On Manufacturers Complementing the Traditional Retail Channel with a Direct Online Channel,” Quantitative Marketing and Economics, 4, 3 (September), 289–323.


Asymmetric Information - Principal Agent


Sales Force Issues (Sales Call Planning, Territory Alignment, Compensation)

Godes, David (2003), “In the Eye of the Beholder: An Analysis of the Relative Value of a Top Sales Rep Across Firms and Products, Marketing Science, 22, 2 (Spring), 161

Retail Assortment


International


Week 10: Advertising

Budgeting


Media Planning

Advertising Message


Advertising v. Promotions

Appendix: A Suggested Guide for "Reading" Journal Articles, by Vithala Rao, Cornell

Allow enough time to read the article at least twice. In the first reading, which may be quite superficial, try to get a general idea of the subject matter examined, uniqueness of the approach, and significant results. In the second reading, try to be critical of the concepts, assumptions, models, and application. If necessary, look over the article for a third time to seek a sharper understanding of the article and to evaluate where else the results and models can be applied.

While reading the article try and answer the questions indicated below for yourself. Doing so should significantly enhance your understanding of the research reported and your ability to critique the work.

Note that some published articles may not fit this format.

A. What aspect(s) of the business system is (are) being studied by the author? (E.g., relationship between a firm and competitor, consumer choices over time.)

B. What are some significant research issues addressed in the paper? Reflect upon why they are significant.

C. What specific managerial decisions can be addressed by the results reported in the paper? Are these decisions made better when the recommendations from this research are adopted?

D1. What is (are) the microunit(s) whose "behavior" is (are) being addressed in the paper?

D2. State the basic model of the behavior of the microunit in words or as a flow chart. State the premises and assumptions of the model. Identify major constructs.

D3. State the basic model of the behavior of the microunit in a mathematical form and identify the variables (predictor or criterion) and the parameters (unknown) of the model.

E. Does the paper deal with aggregation of the model across various microunits or segments? If so, how is this aggregation accomplished? If aggregation is not considered, what are the effects of the assumption of homogeneity?

F. How are the variables of the model measured? Are these measures appropriate? What are the sources of data? How reliable are these measures? What are some alternative ways of measuring the variables?

G. How are the parameters of the model estimated? Are the properties of the estimates discussed? (For example, are they unbiased and/or consistent?)

H. Is the empirical application discussed in the papers appropriate? Are the results validated? (This aspect may not be relevant for some articles.)

I. Are the results interpreted well? Are there any alternative explanations of the results?

J. Identify one or two other applications of the basic model?

K. What general conclusions can be drawn? In what ways does this article contribute to (or extend) our understanding of marketing science in the substantive area(s) examined by the article?