Probability Models for Marketing Research
A Workshop with Peter Fader, the Wharton School

May 23rd - Bar Ilan University, Graduate School of Business Administration
May 24th - The Hebrew University, School of Business Administration

The workshop will focus on probability models and their implications for customers based analytics. Probability models are becoming the fundamentals of describing customer behavior over time, and they are used in building regression models, and modeling dynamic choice, switching, adoption and attrition.

Pete Fader, is one of the leading researchers in quantitative marketing today, a great teacher and a true friend of our community.

Please register with Naama shivuk.huji@gmail.com

Registration is free and includes parking, breakfast, lunch, reception on the 23rd, and all the workshop materials.

Workshop program:

Monday, May 23th: Introduction to Probability Models for Marketing Research
Bar-Ilan University, Auditorium 010, Economics & Business Administration Bldg No. 504

9:00-9:30 Breakfast
9:30- 12:30 Morning session
12:30-13:30 Lunch
13:30-14:45 Afternoon session

18:00 Reception
Address: 6 Poaley Harakevet, Givatayim, apt 1, Renana & Zeev

Tuesday, May 24th: Probability Models for Customer-Base Analysis
The Hebrew University, School of Business Administration, Room 2113

9:00-9:30 Breakfast
9:30- 12:30 Morning session
12:30-13:30 Lunch
13:30-14:45 Afternoon session
Detailed program:

**Day #1: Introduction to Probability Models for Marketing Research**

Central to a complete understanding of today’s leading-edge market research techniques is a sound intuitive appreciation of the basic foundations upon which these sophisticated tools are built. For example, both hierarchical Bayes models and latent class models build on simple probability modeling concepts (e.g., zero-order choice process, Poisson counts, conditional expectations, and exponential interpurchase times) — yet how many researchers are comfortable at precisely defining these concepts or explaining the motivation for using them?

This tutorial aims to fill in these gaps by bringing participants fully up to speed on the basic methods that may underlie many of their current or future research activities. Our two broad objectives are (1) to review the basic terminology and logic associated with the area of probability models as applied to marketing research problems, and (2) to develop participants’ skills through a set of case studies that demonstrate the model building process in detail. We will illustrate all of the steps required to develop a probability model, estimate its parameters, and interpret the results. Careful and extensive use is made of the Solver tool in Microsoft Excel, which makes it possible to construct all of these models within a familiar spreadsheet environment. By the end of the tutorial, participants should be quite comfortable with all of the aforementioned principles and models and the managerial issues that surround them.

**Day #2: Probability Models for Customer-Base Analysis**

Customer-base analysis seeks to use information on the history of customer purchase patterns to identify which individuals are most likely to be active (or inactive) customers and to predict future purchasing patterns by those customers listed in the firm’s transaction database. Any researcher hoping to make statements about “customer lifetime value” must deal with these issues, but unfortunately the set of commonly available tools is not well-suited for the task.

This tutorial builds upon the basic “platform” provided in our introductory tutorial to provide a set of techniques and models tailored to address these situations properly. We focus on developing the models entirely in Excel and provide attendees with the relevant spreadsheets and notes on how to implement the models “from scratch.” We cover some of the mathematical elements that go beyond the basics from Day #1, but focus primarily on the implementation and implications of the models.

The structure of the tutorial is as follows:

- Introduction to the idea of customer-base analysis
- Overview of the concept of Customer Lifetime Value (CLV) and the presentation of a general framework for its calculation
- Brief review of the probability modeling basics required for model building (e.g., review of binomial, geometric, Poisson, exponential, gamma, and beta distributions; discussion of common mixtures such as the NBD, beta-geometric, and beta-binomial)
- Presentation of probability models that can be used to answer various managerial questions including the calculation of CLV. (The empirical examples come from settings as diverse as e-tailing, the charity sector and media subscriptions)
- Generalizations of the specific models presented in this tutorial making links to the broader modeling literature