STATISTICAL MODELING WEEK
bridging the gap between theory and practice
October 22-26, 2012
Boston

Course 1: October 22-23, 2012
Key Driver Regression in Practice: Challenges and New Solutions
Jay Magidson, Tony Babinec & Gary Bennett

Course 2: October 24-25, 2012
Latent Class and Finite Mixture Modeling
Jay Magidson & Tony Babinec

Course 3: October 26, 2012
Applications of Latent Class Models with Discrete Choice, MaxDiff, and Rankings Data
Gary Bennett & Jay Magidson

Three important state-of-the-art workshops that integrate theory with real world applications!
Key Driver Regression in Practice: Challenges & New Solutions
Course 1: October 22-23
Instructors: Jay Magidson, Tony Babinec & Gary Bennett

DESCRIPTION
The identification of key drivers and their contributions to customer satisfaction, loyalty or other dependent variable is an important application of regression modeling. Many challenges exist in model development and interpreting results, especially when dealing with many correlated predictors and multicolinearity. In this course, we review these challenges and show how advances in high dimensional data analysis suggest new measures of variable importance and allow reliable models to be developed even when the number of predictors exceeds the number of cases! Our applications-oriented presentation provides insight into how the new approaches work through examples and by providing an overview of the relevant theory, supplemented by the supporting equations. We use real and simulated data sets to illustrate the different approaches with SPSS®, CORExpress®, and other programs.

Day 1
A. Traditional regression modeling
   1. Challenges due to many correlated predictors
      a. Linear regression
      b. Logistic regression and ROC curves
      c. Discriminant analysis
      d. Failure of stepwise procedures
   2. Controls for overfitting
3. Model selection criteria
   a. p-values
   b. Information criteria: AIC, BIC
   c. Cross-validation statistics
4. Correlated predictors and multicolinearity
5. Variable reduction based on variable importance

Day 2
A. Case studies/applications of key driver regression
   1. Orange juice ratings data
   2. Job satisfaction data
B. Importance of including suppressor variables as predictors
C. Using cross-validation to assess prediction error
   1. Penalized regression
   2. PLS regression
   3. Correlated Component Regression (CCR)
D. Simultaneous model estimation and variable reduction
   1. Enhancing model performance with suppressor variables
   2. Scree plots and coefficient path plots
   3. Interpreting cross-validation statistics
E. Segmentation: using hybrid models to capture heterogeneity

WHAT YOU WILL LEARN
- How to develop reliable models, even with extreme multicolinearity and when # predictors > # cases
- Why many popular variable selection techniques are suboptimal
- About the powerful step-down variable reduction technique in CORExpress®
- About free and commercially available software for analyzing and interpreting high dimensional data

Latent Class and Finite Mixture Modeling
Course 2: October 23-24
Instructors: Jay Magidson & Tony Babinec

DESCRIPTION
Interest and usage of Latent Class (LC) models continues to grow due to the fact that they provide better solutions than traditional approaches to cluster, factor and regression analysis when the population is not homogenous. In this 2-day course we introduce LC as a probability model and describe various applications using the new Latent GOLD® version 5.0. On day 1, we focus on model fitting strategies, interpretation of output, and applying the resulting model to score new cases. On day 2, we consider several advanced topics including random effects with continuous factors, repeated observations, hidden (latent) Markov models for latent growth, and the computation of individual-level coefficients.

THE PROGRAM
Day 1
• Basic ideas of latent class analysis
• The concept of local independence
• The general probability model
• Handling nominal, ordinal, continuous and count variables
• LC measurement models
• Discrete vs. continuous factor analysis
• Comparing models and assessing fit
• Inclusion of covariates in LC models
• Identification problems and boundary solutions
• Use of Bayes constants to eliminate boundary solutions
• The problem of local solutions
• Bivariate residuals to diagnose local dependencies
• Case studies and computer demos
• Using a LC model to score new cases

Day 2
• LC regression models
• Relationship to random effects regression
• Model-based clustering / latent discriminant analysis
• Repeated measures / conjoint marketing
• LC Growth models
• Model specification using LG-Equations™

WHAT YOU WILL LEARN
- How to specify LC cluster, factor and regression / segmentation models
- What to look for when examining output
- Basic and advanced uses of the Latent GOLD program
- Strategies for assessing model fit with sparse and non-sparse data
- How to isolate the scale effects in ratings data
- How to obtain equations for scoring new cases using the Step3 module
- Why LC models improve over K-means clustering
Applications of Latent Class Models with Discrete Choice, MaxDiff, and Rankings Data
Course 3: October 26
Instructors: Gary Bennett & Jay Magidson

DESCRIPTION
Latent Class (LC) models are natural tools to analyze discrete choice, MaxDiff and rankings data to identify segments with differing preferences. These models are widely used to forecast market share, design optimal products and services, and more. This course begins by introducing the theory and practical applications of these models in traditional choice, rating, ranking, MaxDiff and constant sum experiments in conjunction with the latest version of the Latent GOLD Choice program. We then show how to extend these models to improve interpretation by separating out potentially confounding scale factors and incorporating additional data from the survey into the model to determine absolute as well as relative preferences. Examples include two case studies, one covering a trade-off among potential customers with a selection of ‘best’ and ‘worst’ from alternative configurations for a new product, and the other from a more traditional choice design.

THE PROGRAM
- Development of Excel-based simulators
- Stated preference vs. revealed preference data
- Experimental designs for stated preference
- Independence of Irrelevant Alternatives (IIA)
- Accounting for segment differences - Latent Class vs. HB

WHAT YOU WILL LEARN
- Overview of the theory of choice modelling
- The LC Choice approach – comparison with HB
- The family of choice model specifications/types
- Alternative approaches to experimental designs
- How to specify, estimate, and interpret the results from choice models
- Advances in Choice Modelling

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**LG-Equations™ Syntax**

```plaintext
//LC MAXDIFF WITH 2 SCALE FACTORS
variables
caseid ID;
repscale sweight;
choicesetid setid2 ;
dependent Q5 ranking;
independent set nominal inactive;
latent
Class nominal 5, sClass nominal 2
coing=first, scale continuous;
equations
Class <- 1;
sClass <- 1;
Scale <- (1)1 + (+) sClass;
(0) Scale;
Class <-> sClass;
Q5 <- attr scale | Class;
```

**LG Choice Syntax Model**
Enrollment & Information

Attendance is limited to allow for your active involvement and productive interaction with other participants and seminar instructors.

Tuition

PREPAID TUITION, which includes lunch and all course materials is $895 for the 1-day seminar (Course 3) and $1,490 for the 2-day seminars (Course 1 and 2).

Discounts are available for multiple course registrations. After enrolling in the first course for an undiscounted tuition, you deduct $50 for each additional course you sign up for (the maximum discount would be $100 if all 3 courses are taken).

Discounts are also available for additional people who sign up from your organization. Their tuition is $795 for the 1-day seminar and $1,390 for each 2-day seminar. Make checks payable to Statistical Innovations, Registrar.

Program Hours

9:00-5:00, first day of each course (registration from 8:30-9:00)
8:30-4:30, second day of Course 1 & 2

Register Online:

www.statisticalinnovations.com
or
Call: (617) 489-4490

Payment & Cancellation Policy

In order to confirm your place in a course, we require payment in full. Tuition is fully refundable for cancellations made by September 17. Cancellations made after that date until October 1 are subject to a $150 service charge. For cancellations made after October 1, tuition is not refundable. Registration for any course may be transferred to another member of the same organization without penalty.

Note: All workshop staff have agreed to participate in these workshops. We reserve the right to substitute for staff who are unable to attend for health or other emergencies. We will attempt to notify all registrants if any changes in staffing occur.

Workshop Site and Hotel Accommodations

Workshop Site
Holiday Inn Boston at Beacon Hill
5 Blossom St.
Boston, MA 02114
(617) 742-7630

Holiday Inn Boston at Beacon Hill
Special Room rate: $229
(to guarantee this rate, rooms must be booked by September 28, 2012).
For reservations contact the hotel at (617) 742-7630

Boston hotel space goes quickly, so please reserve your hotel room as soon as possible. Remember to mention Statistical Innovations to take advantage of the special rate.

Contact Us:
Statistical Innovations Inc.
(617) 489-4490
will@statisticalinnovations.com

Enrollment Fees

(1) Key Driver Regression in Practice: Challenges and New Solutions (10/22-23) $ 1,490
(2) Latent Class and Finite Mixture Modeling (10/23-24) $ 1,490
(3) Applications of Latent Class Models with Discrete Choice, MaxDiff, and Rankings Data (10/26) $ 895

Seminar Leaders

Jay Magidson is founder and president of Statistical Innovations Inc., a Boston based consulting, training and software development firm specializing in innovative applications of statistical modeling. His clients have included A.C. Nielsen Co., Chemical Bank, National Geographic Society, and Pfizer. He taught statistics at Tufts and Boston University and is widely published on the theory and applications of multivariate statistical methods. Dr. Magidson designed SPSS CHAID, GOLDMineR® and CORExpress®, and is the co-developer (with Jeroen Vermunt) of the Latent GOLD® and Latent GOLD® Choice programs.

Gary Bennett founder of Logit Research, is an applied Market Researcher with 20 years’ experience in the UK Marketing Research Industry, including director roles at leading agencies. Gary works for a diverse array of leading organisations in the Pharmaceutical, Petrochemical, Media, Technology, telecommunications, FMCG and Automotive sectors as well as Political parties and Government. He has managed hundreds of Discrete Choice & Predictive Modeling projects for his survey research clients and is an advanced user of both Latent GOLD and CORExpress.

Tony Babinec, President of AB Analytics, specializes in the application of statistical and data mining methods to the solution of business problems. Tony has multiple degrees from the University of Chicago, where he specialized in Advanced Statistics and Survey Research. Prior to AB Analytics, Tony worked for over two decades at SPSS Inc. in a variety of technical and managerial roles. He has presented at numerous professional meetings. He is on the Board of Directors of the Chicago Chapter of the American Statistical Association, where he has held various offices including President. He is on the Editorial Board of the Journal of Targeting, Measurement and Analysis for Marketing.

Seminar Leaders

Seminars are conducted by internationally recognized authorities who are experienced in seminar leadership.
Transforming Data Overload into Meaningful Information and Improved Predictions

Dear Researcher/Research Manager:

A major problem facing researchers today is that commonly accessible statistical methods have not kept pace with the vast amounts of available data and related challenges. The challenges of extracting meaningful information and obtaining reliable predictions can no longer be met by traditional techniques. Our courses are designed to expedite the process of learning the important new innovative breakthrough methods by showing how these methods can be used effectively in important real-world applications.

Whether you work in marketing, health care, biomedical research or some other area, you will learn more than the techniques – you will also gain the theoretical insights needed to apply the techniques properly.

Take an important step towards mastering your data overload and related challenges by signing up today for one or more of these important sessions.

Sincerely,

Jay Magidson, Ph.D., Program Chair

A sampling of institutions that have participated in previous workshops:

A.C. Nielsen  |  Merceds Benz
Aetna  |  Merck & Co.
Allstate  |  MOBIL Oil Corp.
American Express  |  National Geographic Society
AT&T  |  National Institutes of Health
BancOne  |  Naval Surface Warfare Center
Blue Cross Blue Shield  |  Novartis
Boston Edison  |  Northwestern University
Bureau of Labor Statistics  |  Pharmacia
Capital One  |  Pfizer Pharmaceuticals
CBS  |  Price Waterhouse
Chase Manhattan Bank  |  Pinconet Survey Research
Ciba-Geigy Pharmaceuticals  |  Prodigy Services Company
Citibank  |  Quaker Oats
Columbia University  |  Raytheon Company
Dean Witter  |  RJR Nabisco
Dow Jones & Co.  |  Scotia Bank
Dun & Bradstreet  |  Siemens Medical Research
Eastman Kodak  |  Simon Schuster
Equifax  |  Smithsonian Institute
Franklin Mint  |  Stanford University
Gartner Custom Research  |  Swissair
General Electric  |  The Polk Co.
General Motors Corp.  |  Transportation Systems Center
GlaxoSmithKline  |  University of Michigan
Hallmark Cards  |  University of Wisconsin
Harvard University  |  U.S. Automobile Association
HBO  |  U.S. Dept. of Agriculture
IBM  |  Veterans Administration
Kellogg Co.  |  Wang Laboratories
Liz Claibourne  |  Westinghouse Health Systems
Marriott Corp.  |  World Bank
MCI  |  Yale University

What people are saying about Statistical Modeling Week:

"Eye-opening introduction to a new class of models"
Richard Popper, Vice President - R&D, Peryam & Kroll

"I have discovered a brand new way of extracting meaning from my data"
Richard Shewchuk, Professor, University of Alabama

"Perfect level of in-depth statistical thinking and practical applications"
Matthew Gray, Manager, Quantitative Commercial Insight, AstraZeneca

Can't attend Statistical Modeling Week?
We also offer Online Courses.
Learn about modeling techniques from the comfort of your own home.

For more information, go to www.statisticalinnovations.com
STATISTICAL MODELING WEEK 2012

Boston, MA

Call us at (617) 489-4490 or visit our website at www.statisticalinnovations.com for more information and to register.

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