



Logistic Regression Models with Tools and Applications

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Total Cost is \$40 for 4 weekly classes via on-line webinars at 12:00 – 1:00 on June 16, 23, 30 and July 14.

After an overview of logistic regression and SAS® PROC LOGISTIC, the Class begins a section called Toolkit: In Toolkit, tools are given for preparing predictors for inclusion in a logistic model. First, binning tools are discussed for discrete predictors. For discrete predictors, weight of evidence is contrasted with dummy variable coding. Then tools are given for transforming continuous predictors. These tools include the function selection procedure and cubic splines. Next, tools for predictor selection methods are presented. The selection methods from PROC HPLOGISTIC (the SELECT and CHOOSE options) are illustrated. Then, LASSO model fitting from PROC HPGENSELECT is compared. Additional tools are presented for measuring the performance of logistic models. The focus of the Class is predictive modeling as opposed to explanatory modeling.

An open-source dataset, the German Credit Data, is used for illustration throughout these topics.

The Applications Section includes a discussion of (1) incremental response (net lift) models and (2) propensity scoring. Propensity scores support the measurement of treatment effectiveness in non-randomized studies. Both (1) and (2) involve logistic models. Examples are given from marketing.

The goal of the Class is to explain methodology. Methodology is illustrated using SAS coding. References to R packages will be included along with some discussion. Class slides, Data, SAS code, and SAS macros are provided.

Prerequisites: (a) Familiarity with concepts of logistic regression models. (b) Basic SAS including experience with the DATA Step, PROC SORT, PROC RANK, PROC MEANS and the usage of a SAS macro.



Bruce Lund is a statistical modeling consultant and trainer. For 15 years he was a consultant for OneMagnify of Detroit. Before OneMagnify, he was the customer database manager at Ford Motor Company and a mathematics professor at University of New Brunswick, Canada. At Ford and OneMagnify he developed numerous predictive models to support automotive marketing. Bruce has a mathematics PhD from Stanford University. He has presented at MSUG each year since 2015 and has also presented at SAS Global Forum, AnalyticsX, ASA CSP, and at regional SAS user group conferences.

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