

# ***Using the SAS<sup>®</sup> System for Survey Sampling***

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This two-day session is designed to provide you with the skills and insights necessary to apply the SAS System's survey sampling procedures to your projects. This class is tailored for the knowledge worker who is confronted with standard business and scientific problems, such as:

- Developing cost-effective survey samples that can properly address business needs
- Avoiding the often unintended consequences of poorly-designed survey samples
- Preventing the biases and errors that are incurred when incorrectly analyzing survey samples using standard tools such as PROC REG and PROC MEANS
- Coping with missing data in survey samples.

Through instructor's presentation and the examination of example SAS programs provided in the course materials, you will learn about the basic concepts of survey sampling, as well how to apply these concepts using the SAS System. The topics to be presented include:

- Essential concepts of survey sampling
- The real-world meaning of probability samples vs. non-probability samples
- How to use
  - PROC SURVEYSELECT to draw probability samples
  - PROC SURVEYMEANS to analyze survey samples
  - PROC SURVEYREG to perform regressions on sample data
- Applying Output Delivery System (ODS) capabilities with SAS sampling tools
- What you need to know about the way the SAS survey-analysis procedures work
- What could happen if you apply the wrong tools when analyzing survey samples
- Generating and analyzing results from
  - simple random samples with varying sample weights
  - stratified samples
  - cluster samples
  - sequential and systematic samples
  - two-stage samples and multi-stage samples
- Calculating the right multipliers to get the sampling rates one needs
- What to do when sample weights are wind up being too large or too small
- What to do when some observations must be selected in the sample
- Adjusting the sample weights to handle problems in collecting the sample
- Using SAS survey-sampling macros to perform additional analyses

The materials presented in this build on your prior experience with SAS software, including familiarity with core SAS programming concepts such as data step, procedure step, variable, and observation. Prior experience with PROC MEANS and PROC REG, as well as familiarity with statistical concepts such as confidence intervals, p-values, population parameters and their estimates, slope and intercept, dependent and independent variables in regression, etc. will enhance the value you will receive from attending this seminar.