



Business and Technology Consulting <sup>SM</sup>  
Education Solutions

## Advanced Macros

**Course Length:** 1 day **CEUs** 0.6

**Format:** Hands on Training

### AUDIENCE

SAS Programmers and Analysts who use macros

### BENEFITS

This course is designed to take attendees to the next level of macro understanding in SAS<sup>®</sup> software. This course demonstrates the use of macros in everyday business situations, which enhance productivity and efficiency in not only processing, but time to build programs. The creation of dynamic code based on data values and the set up of generic, reusable code libraries will be discussed. Macros as they apply to SAS/CONNECT, SAS/STAT, SAS/GRAPH and other modules of SAS will be taught. This course will also cover the use of autocall libraries, data step function calls and debugging techniques.

### PREREQUISITES

Macro Processing in SAS Software or equivalent experience

### COURSE TOPICS

Web based formatting macros

Nesting and recursive macros

The use of quoting functions

Using macros with your operating system

Macro return codes

Compiled macro libraries

Statement and Command style macros

Macro Do Loops

Proc SQL creation of macro values

The RESOLVE function

Evaluation Functions

- %EVAL
- %SYSEVALF

## Advanced Macros

### Data Step Functions

- %SYSFUNC
- %QSYSFUNC
- %SYSCALL
- ATTRN

### Macro Routines and Utilities

Moving members and data between locations

Working with System Dates and Times

Examining Operating System permissions

Automated reading and filtering of data

Automated analysis of values found in any set of columns

Determining the existence of

- a macro variable
- a data set

Understanding the SAS supplied macro utilities

Macro arrays

Efficiency techniques and tips

Sampling with macros

Execution time macro processing