Collin College - Continuing Education
Course Syllabus

Course Title: SAS Intermediate Programming – the Macro Facility
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Course Description:
• This course is for experienced SAS programmers who want to expand their programming skills with the use of the macro facility.

Course Prerequisites:
• SAS Programming Fundamentals or have equivalent experience. Specifically, you should be able to:
  o use a DATA step to read from or write to a SAS data set or external file
  o Use SET and MERGE statements
  o use DATA step programming statements such as IF-THEN/ELSE, DO WHILE, DO UNTIL, and iterative DO
  o use SAS data set options such as DROP=, KEEP=, and OBS=
  o use character functions such as SUBSTR, SCAN, INDEX, PUT, and UPCASE
  o form subsets of data using the WHERE clause
  o create and use SAS date values and constants
  o use SAS procedures such as SORT, PRINT, CONTENTS, MEANS, and FREQ

Course Objectives:
• Upon completion, you will be able to
  o Define and use user macro variables
  o Define and call a macro program with parameters
  o Describe what the macro processor does and how it interfaces with the compiler
  o Write macro programs that use conditional and iterative processing
  o Create macro variables in a data step or PROC SQL
  o Use macro language functions
  o Understand global vs. local variables
  o Understand %INCLUDE and AUTOCALL facilities

Textbook(s): none

Next Class Possibilities:
• SAS Intermediate Programming: the SQL procedure

Topics covered:
• Introduction to macros
  o purpose of the macro facility
  o program flow
• Macro Variables
  o introduction to macro variables
  o automatic macro variables
  o macro variable references
  o user-defined macro variables
  o delimiting macro variable references

• Macro Definitions
  o defining and calling a macro
  o macro parameters

• Under the covers
  o The word scanner
  o The macro processor

• Macro Programs
  o conditional processing
  o iterative processing
  o global and local symbol tables

• Macro Language functions
  o SAS functions vs. macro functions
  o Character functions
  o Evaluation functions
  o %SYSFUNC

• DATA Step and SQL Interfaces
  o creating macro variables in the DATA step
  o creating macro variables in SQL

• Source Libraries
  o %INCLUDE
  o AUTOCALL