

Programming II: Data Manipulation Using the Data Step

Duration: 3 units

CEUs: 1.8

AUDIENCE

This course is designed for SAS programmers who need an in depth understanding of the Data Step. It also provides the tools for programmers to perform various data transformations and summarizations, and read several types of data sources.

BENEFITS

This course focuses on how to manage SAS data, work with different data types, manipulate data, and create various reports. Upon completion of this course, you should be able to:

- ♦ *Read, create and combine SAS data sets*
- ♦ *Summarize data*
- ♦ *Manipulate and transform data*
- ♦ *Process data iteratively*
- ♦ *Create and use arrays*
- ♦ *Understand how the DATA step processes*
- ♦ *Create exception reports*

PREREQUISITES

Before attending this course, you should have completed the SAS Programming I. Specifically, you should be able to:

- ♦ *Understand file structures and write system commands to create and access files on your operating system*
- ♦ *Work with an editor*
- ♦ *Write DATA and PROC steps*
- ♦ *Understand error messages in the SAS log and debug your program*
- ♦ *Work with conditional logic such as AND/OR/IF/THEN*
- ♦ *Build SAS files from external data*
- ♦ *Use SAS software to access SAS data libraries*
- ♦ *Program TITLE and FOOTNOTE statements*
- ♦ *Read a SAS data set with a SET statement*
- ♦ *Perform a simple merge*
- ♦ *Understand how to DROP and KEEP variables*
- ♦ *Work with SAS date values*

COURSE TOPICS

Understanding the Data Step

- ♦ *Understanding the difference between compile and execute of the DATA Step*
- ♦ *Learning about Data Step storage areas*
- ♦ *Reading and creating multiple SAS data sets*

How to Debug Your Program

- ♦ *Learning to Dump the Input Buffer and Program Data Vector with the PUT statement*
- ♦ *Using the interactive debugger to understand program logic problems*

Reading External Data Types and Creating Flat Files

- ♦ *How to read flat files using delimiters*
- ♦ *How to read data from a relational database*
- ♦ *How to create user defined informats for special data*
- ♦ *How to create flat files in SAS*

Creating New Variables and Adding Value To Your Data

- ♦ *Cleaning existing data*
- ♦ *Understanding how to assign new character, numeric and date variables*
- ♦ *Using Picture Statements to create user defined formats*

Combining Data Files Using Match Merging and Interleaving

- ♦ *Match Merging multiple SAS data sets together*
- ♦ *Interleaving SAS data sets with the SET statement*
- ♦ *Changing variable types using the PUT and INPUT functions*

Summarizing Data Files

- ♦ *Summarizing data in the data step using Sum and Retain statements*
- ♦ *Creating group totals with First. and Last. processing*
- ♦ *Creating summary data sets with Proc Summary*
- ♦ *Selecting specification summarization hierarchies using the _TYPE_ variable*

Perform Iterative Processing on Data

- ♦ *Using DO loops for repetitive calculations and processing*
- ♦ *Using Arrays to process across an observation*
- ♦ *Using DO WHILE and DO UNTIL statements for conditional looping*
- ♦ *Creating a simple random sample*

Producing Exception Reports

- ♦ *Using a WHERE statement to subset data*
- ♦ *Using a contribution option to perform table lookups when merging files*
- ♦ *Identifying duplicate rows of data in a file*

Base SAS Software. SAS/ACCESS® Software is required if you will be accessing data in a relational database.