Base SAS Programming

1. SAS Programming 1: Essentials

Duration: 2.5 Days

This course is for users who want to learn how to write SAS programs to access, explore, prepare, and analyze data. It is the entry point to learning SAS programming for data science, machine learning, and artificial intelligence. It is a prerequisite to many other SAS courses.

Learn how to

- use SAS Studio and SAS Enterprise Guide to write and submit SAS programs
- access SAS, Microsoft Excel, and text data
- explore and validate data
- prepare data by subsetting rows and computing new columns
- analyze and report on data
- export data and results to Excel, PDF, and other formats
- use SQL in SAS to query and join tables.

Who should attend
Anyone starting to write SAS programs

Prerequisites
Before attending this course, you should have experience using computer software. Specifically, you should be able to

- understand file structures and system commands on your operating systems
- access data files on your operating systems.

No prior SAS experience is needed.

Course Contents

Essentials

- the SAS programming process
- using SAS programming tools
- understanding SAS syntax

Accessing Data

- understanding SAS data
- accessing data through libraries

- importing data into SAS

Exploring and Validating Data

- exploring data
- filtering rows
- formatting columns
- sorting data and removing duplicates

Preparing Data

- reading and filtering data
- computing new columns
- conditional processing

Analyzing and Reporting on Data

- enhancing reports with titles, footnotes, and labels
- creating frequency reports
- creating summary statistics reports

Exporting Results

- exporting data
- exporting reports

Using SQL in SAS

- using Structured Query Language in SAS
- joining tables using SQL in SAS

2. SAS Programming 2: Data Manipulation Techniques

Duration: 2.5 Days

This course is for those who need to learn data manipulation techniques using the SAS DATA step and procedures to access, transform, and summarize data. The course builds on the concepts that are presented in the *SAS Programming 1: Essentials* course and is not recommended for beginning SAS software users.

Learn how to

- understand and control DATA step processing
- create an accumulating column and process data in groups

- manipulate data with functions
- convert column type
- create custom formats
- concatenate and merge tables
- process repetitive code
- restructure tables.

Who should attend
Business analysts and SAS programmers

Prerequisites
Before attending this course, you should be able to do the following:

- write DATA step code to subset rows and columns, compute new columns, and process data conditionally
- sort tables using the SORT procedure
- apply SAS formats

Course Contents

Controlling DATA Step Processing

- setting up for this course
- understanding DATA step processing
- directing DATA step output

Summarizing Data

- creating an accumulating column
- processing data in groups

Manipulating Data with Functions

- understanding SAS functions and CALL routines
- using numeric and date functions
- using character functions
- using special functions to convert column type

Creating Custom Formats

- creating and using custom formats
- creating custom formats from tables

Combining Tables

- concatenating tables

- merging tables
- identifying matching and nonmatching rows

Processing Repetitive Code

- using iterative DO loops
- using conditional DO loops

Restructuring Tables

- restructuring data with the DATA step
- restructuring data with the TRANSPOSE procedure