

SAS

Base SAS

Introduction

- Overview of Foundation SAS
- SAS syntax review
- Navigating the SAS windowing environment

Getting Started with SAS

- Introduction to SAS programs
- Submitting a SAS program

Getting Familiar with SAS Data Sets

- Examining descriptor and data portions
- Accessing SAS data libraries
- Accessing relational databases

Reading SAS Data Sets

- Introduction to reading data
- Using SAS data as input
- Subsetting observations and variables
- Adding permanent attributes

Reading Excel Worksheets

- Using Excel data as input
- Doing more with Excel worksheets (Practice)

Reading Delimited Raw Data Files

- Using standard delimited data as input
- Using nonstandard delimited data as input

Validating and Cleaning Data

- Introduction to validating and cleaning data
- Examining data errors when reading raw data files
- Validating data with the PRINT and FREQ procedures
- Cleaning invalid data

Manipulating Data

- Creating variables
- Creating variables conditionally
- Subsetting observations

Combining SAS Data Sets

- Introduction to combining data sets
- Concatenating data sets
- Merging data sets

Controlling Input and Output

- Outputting multiple observations
- Writing to multiple SAS data sets
- Selecting variables and observations

Enhancing Reports

- Using ODS
- Adding labels and formats
- Creating user-defined formats
- Subsetting and grouping observations
- Directing output to external files

Introduction to Graphics Using SAS/GRAPH

- Creating bar and pie charts
- Creating plots
- Enhancing output

Processing Data Iteratively

- DO-loop processing
- Using SAS arrays

Advance SAS

SAS SQL

- Introduction to SQL.
- Creating tables using SQL.
- Inserting data into tables.
- Retrieving the Data.
- Summary functions
- Inner Joins and Outer Joins and Self Joins.
- Sub queries.

SAS macro language

- What is a macro?
- SAS Macro overview
- Macro statements
- Macro process flow
- Macro variables
- Automatic macro variables
- Difference ways of creating macro variables
- Macro debugging options

Overview of Training Session

Module 1 - Base SAS		Hours
Data Structures	Introduction to SAS interface and library structure and definition	6
	Reading data using Datalines and importing and exporting datasets	
	Infiles statement - reading raw data	
	Formats and Informats	
	Variable attributes and data modification using Data and Set statements	
Data Management	Using conditional statements to modify data - Where, If and Nested IF	10
	Appending and Merging datasets	
	SAS Functions for data manipulation	
	Loops and Arrays in SAS	
Report Generation	Basic Proc steps - like Proc Contents	10
	Proc Format, Proc Report and Proc Tabulate	
	Proc steps for basic statistics - like Proc Univariate and Proc Means	

Module 2 - Advanced SAS		Hours
Proc SQL	Introduction to SQL - basic DBMS and RDBMS concepts	10
	Using SQL Procedures in SAS	
	Using conditional statements in SQL and aggregate functions	
	Data manipulation using Proc SQL	
SAS Macros	Introduction to Macros	6
	Local and Global declarations	
	Using built-in macro procedures and functions	