

## SAS Learning - Entry Level Training (100 hours of Lectures & Tutorials)

### 1. **Fundamentals of SAS (Part I) - 10 hours**

- Introduction to SAS and Getting Started with the SAS System
  - SAS Language
  - SAS Macros
  - Overview of frequently used SAS Procedures
  - Proc Print, Proc Means, Proc Univariate, Proc Freq, Proc Gchart, Proc Gplot, Proc Corr, Proc Reg, Proc GLM
- Running SAS programs in SAS Display Manager & Navigating among SAS Software Windows
  - Invoking SAS via a shortcut icon or Start Menu
  - Program Editor Window - Explaining SAS Syntax
  - Output Window - Examining program output
  - Log Window - Checking the SAS log for errors
  - Creating SAS code or Opening a SAS program
  - Running a program
  - Recalling Text
- Descriptive information and statistics
  - Run the program that contains Proc Means, Proc Univariate, Proc Summary, Proc Freq, Proc Gchart, Proc Gplot, Proc Corr, Proc Reg, and Proc GLM. Ask to look for By and Class statements, and List option.
- An overview of statistical tests in SAS (specially for candidates with statistics background)
  - Proc TTest, Proc Freq (Look for options CHISQ, EXACT), Proc Corr, Proc Reg, Proc GLM, Proc ANOVA
- Exploring data with graphics
  - Proc Gchart (vbar, hbar, pie statements), Proc Gplot, Customizing the Graphs

### 2. **Fundamentals of SAS (Part II) - 10 hours**

- Using where statement with SAS procedures
- Missing values in SAS
- Common SAS options
- Overview of SAS syntax of SAS procedures
- Common error messages in SAS

### 3. **Reading Raw Data into SAS - 10 hours**

- Reading raw data into SAS
- Reading dates into SAS, and using dates

### 4. **Basic Data Manipulation in SAS - 20 hours**

- Creating and recoding variables
- Using SAS functions for making/recoding variables
- Subsetting variables and observations
- Labeling data, variables and values
- Using Proc Sort and the By statement
- Making and using permanent SAS data files

### 5. **Classic Data Manipulation in SAS - 50 hours**

- Merging Data Files via Data Step
- Merging Data Files via Proc SQL
- Concatenating (stacking) SAS data files

- Working across variables
- Collapsing across observations in SAS via Proc Means
- Collapsing across observations in SAS via Proc SQL
- Collapsing across observations in SAS via Data Steps
- Reshaping data from wide to long via Proc Transpose
- Reshaping data from wide to long via Data Step
- Reshaping data from long to wide via Proc Transpose
- Reshaping data from long to wide via Data Steps

## SAS Programming Training - Eligibility

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### Eligibility

Candidates having data analytical aptitude and possessing at least a Bachelor degree in any discipline are encouraged for this training. A degree in Computer Science, BCA, MCA, BTech, Pharmacy, Commerce, Biotechnology, Life Sciences, or any related discipline will be an advantage. SAS Programmer jobs do not specifically require a degree in Computer Science.

#### 1. Entry Level Training:

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Knowledge of any computer programming language is necessary.