SAS Clinical Course Content

Overview of the SAS Clinical

- Introduction:

Section: 1

- What is SAS?
- History of SAS
- SAS System architecture and functionalities
- Features of SAS
- Various domains and Modules of SAS
- Introduction to clinical trials
- Where does SAS fit into Clinical and
- pharmaceutical industry?
- Why only SAS, why not other reporting tools?
- Drug design life cycle
- SAS statements and syntax rules
- SAS variables, data set names & terminology
- SAS windows
- SAS data sets & SAS comments
- Parts of SAS program
- Reading multiple observations & global statements
- Reading raw data with infile statements with options
- Input styles
- Set statement & data set options
- Operators and operands
- Conditional statements and logical statements
- Where statement
- If- then else statement
- Creating & redefining variables
- Updating master data set
- Logical variable and Automatic variables
- Behind the screens (How SAS Process the Code).
- Select statement
- Do loops
- Creating multiple data sets using output statement
- Merging the datasets horizontally and vertically.
- Different types of merging
- Retain statement and goto statement
- Stop and error statements

SAS functions

- Character function
- Date time functions
- Numeric functions
- Modifying and combining datasets

Formats

- Formats and informats
- System defined and user defined
- Character, numeric and datetime formats
- Deleting and finding out duplicate id's
- Put statement
- Array's and Dim function
- Local options and global options
- Difference between options and statements
- Libname and filename
- Key board macros, add abbreviations and
- display manager commands

Analysis Procedures

- Proc summary
- Proc means
- Proc freq
- Proc Tabulate
- Proc rank

Base SAS BASE/SAS PROCEDURES

- Formats and informats
- Proc sort
- Proc copy
- Proc datasets
- Proc contents
- Difference between contents procedure and
- contents statement in proc datasets
- Proc delete
- Proc compare
- Proc append
- Proc options
- Proc format
- Proc import
- Proc export
- Proc setinit
- Proc Transpose
- Proc Cport and Cimport

Reporting Procedures

- Proc print
- Proc Report
- Proc plot
- Proc chart
- Proc printto
- Proc template

SAS/SQL

- Introduction to sas/sql
- Features, uses and terminology
- Data types, keywords & operators
- Functions, predicates
- Formatting output
- Order by clause
- Group by clause
- Having clause
- Case expression and conditional logic
- Creating, populating, deleting rows & dropping tables
- Alter table command (updating & changing column's length)
- Changing columns's formats
- Renaming a table & columns
- Joins and views
- Integrity constraints
- Nested queries

SAS/REPORTS AND SAS/TABULATIONS

- Frequency report
- One-way frequency report
- Cross tabular frequency report
- Customized reports
- Create user defined template
- Creating a list report
- Define statement
- Order usage and group
- Printing grand totals
- Rbreak statement
- Tabulate procedure
- One-dimensional tables
- Two-dimensional tables
- Obtaining a total
- Analysis variables with options
- Summary statistics

SAS/GRAPHS AND SAS/PLOTS

- Gchart procedure
- Vertical, horizontal, pie & donut
- Discrete, sumvar and type options
- Group, subgroups
- Title and footnote statements
- Gooptions
- Gplot procedure & g3d procedure
- Multiple plots & overlay
- Symbol statements & interpolation options

SAS/MACROS

- Macro Facilities Overeview
- Why do we use macros
- How SAS process the macro
- macro Language concepts & advantages
- Components of Macro language
- macros and macro variables
- Macro statements and Macro functions
- Macro expressions and constant text
- creating modular code with macros
- invoking a macro
- Creating Macro Variables (global and local)
- Resolving macro variables
- adding parameters to macros
- writing macros with conditional logic
- using various procedures in macros
- external macros & automatic macro variables
- nesting of macros
- multiple and multi-level macros
- Ways to debug the Macro

SAS/ODS

- creating pdf file
- creating html file
- creating rtf file
- Creating Excel
- ODS Tagsets

SAS/STAT

- proc univariate
- proc corr
- proc reg
- proc anova and anacova

Section: 2

SAS in Clinical trials

- Introduction to Clinical trials
- Drug design Process flow.
- Types of clinical trials
- Phases of clinical trials
- Types of study designs
- Introduction of protocol and SAP
- Roles of SAP In clinical trials
- Different therapeutic areas
- Clinical trial terminology for SAS Programmers
- CDISC Standards and terminology
- Implementation of CDISC standards
- SDTM and ADAM Mapping
- Overview of SDTM Implementation Guide
- Different domains across different Therapeutic areas
- Brief about LAB and ECG domain
- Overview of PKPD
- Safety and efficacy reports
- QC of datasets
- Validation checks
- Good programming practice
- Baseline calculation