SAS
(Statistical Analysis Software/System)

Clinical SAS:-

Learning SAS:

Getting Started with SAS

- Basic overview about SAS software
- Basic about programming

Working with SAS syntax

- Fundamental concepts
- Characteristics of SAS statements
- Explain SAS syntax rules

Getting Familiar with SAS dataset

- Descriptor & Data portions
- Accessing SAS libraries

Reading SAS datasets

- How to read data in SAS
- SAS data as input
- Observations & variables

Reading SAS datasets

- Descriptor & Data portions

Reading Excel worksheets

- Overview about importing Excel file

Reading Delimited Raw data files

- How to read raw data
- Compilation & Execution phases of Data step

Validating and cleaning data

- Procedures for validating data
- Techniques for cleaning data

Manipulating data

- Variable creation
- Sub setting Observation

Combining SAS Datasets

- Appending, concatenating dataset
- Merging the SAS dataset

Enhancing Report (ODS systems)

- Global statements
- Format & Label Statement
- User Defined formats
- Sending output to external files (HTML,PDF,RTF)

Summary Reports

- FREQ Procedure
- MEANS Procedure

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- How to use procedures in Clinical trials

Controlling Input and Output

- Outputting multiple Observation
- Writing to Multiple SAS Datasets
- Selecting Variables & Observations

Summarizing Data

- Creating an Accumulating Total variable

Reading Raw Data Files

Data Transformations

- Manipulating character & numeric variables
- Converting Variable type

Processing Data iteratively

- Do loop processing
- SAS Arrays

Restructuring a Data set

TRANSPOSE Procedure

Learning Excel:

The Basics

- Creating a New Workbook
- Navigating in Excel
- Moving the Cell Pointer
- Using Excel Menus
- Using Excel Toolbars: Hiding, Displaying, and Moving Toolbars
- Entering Values in a Worksheet and Selecting a Cell Range
- Previewing and Printing a Worksheet
- Getting Help from the Office Assistant
- Saving a Workbook & Re-opening a saved workbook

Formatting a Worksheet

- Creating Headers, Footers, and Page Numbers
- Adjusting Page Margins and Orientation
- Adding Print Titles and Gridlines, rows to repeat at top of each page
- Formatting Fonts & Values
- Adjusting Row Height and Column Width
- Changing Cell Alignment
- Adding Borders
- Applying Colors and Patterns
- Using the Format Painter
- Using AutoFormat
- Merging Cells, Rotating Text, and using AutoFit
- Using AutoFill

Managing your workbooks

- Switching Between Sheets in a Workbook
- Inserting and Deleting Worksheets
- Renaming and Moving Worksheets
- Protecting a Workbook
- Hiding Columns, Rows and Sheets
- Splitting and Freezing a Window

- Inserting Page Breaks
- Advanced Printing Options

Editing a Workbook

- Entering Date Values and using AutoComplete
- Editing, Clearing, and Replacing Cell Contents
- Cutting, Copying, and Pasting Cells
- Moving and Copying Cells with Drag and Drop
- Collecting and Pasting Multiple Items
- Using the Paste Special Command
- Inserting and Deleting Cells, Rows, and Columns
- Using Undo, Redo, and Repeat
- Checking Your Spelling
- Finding and Replacing Information
- Inserting Cell Comments

Formulas

- Creating a basic Formula
- Calculating Value Totals with AutoSum
- Editing & Copying Formulas
- Fixing Errors in Your Formulas
- Formulas with Several Operators and Cell Ranges

Working with the Forms Menu

- Sorting, Subtotaling & Filtering Data
- Copy & Paste Filtered Records
- Using Data Validation

Creating & Working with Charts

- Creating a Chart
- Moving and Resizing a Chart
- Formatting and Editing Objects in a Chart
- Changing a Chart's Source Data
- Changing a Chart Type and Working with Pie Charts
- Adding Titles, Gridlines, and a Data Table
- Formatting a Data Series and Chart Axis
- Annotating a Chart
- Working with 3-D Charts
- Selecting and Saving a Custom Chart
- Using Fill Effects
- Mapping Data
- Modifying a Map

Data Analysis & Pivot Tables

- Creating a PivotTable
- Specifying the Data a PivotTable Analysis
- Changing a PivotTable's Calculation
- Selecting What Appears in a PivotTable
- Grouping Dates in a PivotTable
- Updating a PivotTable
- Formatting and Charting a PivotTable

Lookup table

- Lookup()

- Vlookup()
- Hlookup()
- Application of exact match and approximate match
- Creating an order form using vlookup function

Statistics with Excel

- Annova: Single Factor
- Annova: Two Factor with Replication
- Annova: Two Factor without Replication
- Correlation
- Covarience
- Descriptive Statistics
- Exponential Smoothing
- F-Test Two-sample for variances
- Fourier analysis
- Histogram
- Moving Average
- Random Number generation
- Rank and Percentile
- Regression
- Sampling
- T-test: paired two sample for means
- T-test: two-sample assuming equal variances
- T-test: two-sample assuming equal variances
- Z-test: two-sample for means

SQL Procedure:

Introduction to SQL procedure

- What is SQL and components of SQL?

Basic Queries

- Overview of the SQL procedure
- Specifying Columns & Rows

Displaying Query Results

- Presenting Data
- Summarizing Data

Sub queries

- Correlated Queries
- Non correlated Queries

SQL Joins

- Introduction to SQL joins

Set Operators

- EXCEPT Operator
- INTERSECT Operator
- UNION Operator
- OUTER UNION Operator

Creating Tables and views

- Creating view with SQL procedure

Interfacing SQL with Macro Language

Managing Tables

Use of SQL in Clinical Trials

Macro language (SAS Macro):

Macro Variables

- Introduction to Macro Variables
- Automatic macro variables
- Macro variable References
- User Defined Macro variables
- Macro Functions

Macro definitions

- Defining and Calling a macro
- Macro parameters & Storage

Data Step and SQL Procedure

- Creating Macro variables in the Data step
- Indirect References to Macro Variables
- Creating Macro Variables in SQL

Macro Programs

- Conditional processing
- Global and Local macro variables

Use of Macro language

Clinical Trial Project (SAS):-

Clinical Research-Clinical Trials

- Basics of Clinical Research
- ICH GCP Guidelines
- Good programming Practices
- Use of SAS in Clinical Research
- Demo project for Clinical trial study

CDISC SDTM Overview:

- Introduction to CDISC Data Models
- Understanding CDISC - SDTM
- Understanding CDISC – ADaM
- Understanding CDISC – SEND
- Introduction to Protocol, SAP & CRF
- Study Populations, Study Day Calculation
- SAS Programming Guidelines
- Creating listings
- Creating Baseline Characteristic Table - 1
- Creating Baseline Characteristic Table - 2
- Creating Safety Table-1
- Creating Safety Table-2
- Creating Safety (Shift) Table-3
- TLF & TLC