

Certificate course in SAS Programming Official SAS Curriculum Courses

Base SAS

- An overview of SAS foundation
- Working with SAS program syntax
- Examining SAS data sets
- Accessing SAS libraries
- Producing Detail Reports
- Sorting and grouping report data
- Enhancing reports
- Formatting Data Values
- Creating user-defined formats
- Reading SAS Data Sets
- Customizing a SAS data set
- Handling missing data
- Manipulating Data
- Combining SAS Data Sets
- Creating Summary Reports
- Controlling Input and Output
- Summarizing Data
- Reading Raw Data Files
- Data Transformations
- Debugging Techniques
- Using the PUTLOG statement
- Processing Data Iteratively
- Restructuring a Data Set
- Creating and Maintaining Permanent Formats

SAS Global Certification

SAS Certified Base Programmer

Advance SAS

SAS Macros

- Macro Variables
- Definitions
- Data Step and SQL Interfaces
- Macro Programs

Optional SAS SQL

- Basic Queries
- Sub-Queries
- Joins (SQL)
- Operators
- Creating Tables and Views
- Additional Proc SQL Features
- Managing Tables
- Accessing RDBMS

Advanced Techniques and Efficiencies

- Measuring Efficiencies
- Controlling I/O Processing and Memory
- Accessing Observation
- Using DATA Step Arrays
- Using DATA Step Hash and Hiter Objects
- Combining Data Horizontally
- Expert Programmer Techniques

Optional SAS Global Certification

SAS Certified Advanced Programmer

Querying Microsoft SQL Server

Microsoft Official Course 20461

- | | |
|---|---|
| <ul style="list-style-type: none"> • Introduction to Microsoft SQL Server 2014 • Introduction to T-SQL Querying • Writing SELECT Queries • Querying Multiple Tables • Sorting and Filtering Data • Working with SQL Server 2014 Data Types • Using DML to Modify Data • Using Built-In Functions • Grouping and Aggregating Data • Using Subqueries | <ul style="list-style-type: none"> • Using Table Expressions • Using Set Operators • Using Window Ranking, Offset, and Aggregate Functions • Pivoting and Grouping Sets • Executing Stored Procedures • Programming with T-SQL • Implementing Error Handling • Implementing Transactions • Improving Query Performance • Querying SQL Server Metadata |
|---|---|

Mapped to exam Microsoft SQL Server: 70-461

Banking/Financial Project

- SAS based fully functional financial project.
- Implement banking/financial analytics functions using Base SAS, SAS/SQL and SAS Macros.
- Programmatically translating the Underlying domain requirements to produce required reports.

Official SAS Curriculum Courses

SAS Reports

- Introduction to the Output delivery systems
 - Creating Summary Reports with TABULATE Procedure
 - Advance TABULATE Procedures
 - Creating Detailed Reports with REPORT Procedure
 - Summary Reports
 - Enhancing Reports with ODS
 - Defining and using group variables
 - Customizing break lines
 - Defining and using across variables
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Additional courses

Statistics

- Variables, Graphs & Frequency Distribution
- Measures of Central Tendency
- Measures of Dispersion
- Moments, Skewness and Kurtosis
- Probability
- Probability distributions
- Elementary sampling theory
- Estimation
- Testing Hypothesis – One Sample Tests & Two Sample Tests
- Chi Square Analysis
- Analysis of Variance
- Simple Regression & Correlation
- Multiple Regression

Specialization in SAS Programming on Clinical Trials Data

A. SAS Programming in the Pharmaceutical Industry by Jack Shostak

1. Clinical Trial Basics

(Chapter 2, 4 - **Clinical Datasets**)

(Phases of clinical trials, 21 CFR part 11 Regulation Process, SDLC(Development and Validation, FDA Submissions)

2. Statistical Analysis in Clinical Trials

(Tutorials, General, and Clinical Trials)

- a) Categorical - counts and frequencies
 - b) Continuous - descriptive statistics
 - c) Other statistics: confidence intervals
 - d) Modeling (p-value): t-test, chi-square, ANOVA, correlation, survival analysis etc.
 - e) Which statistical SAS Procedure to use?
- ##### **3. New Clinical SAS Programmer New Clinical Study Checklist**
- (Development, QC, SAP)
- SOPs - SAS Requirements
 - SAP - Statistical Analysis Plan, Template
 - CRF - Case Report Forms
 - TLGs Table Shells - Tables, Lists and Graphs

B. CDISC MAPPING

SDTM specification and ADaM Specification

DM/SUPPDM/ADSL

AE/SUPPAE/ADAE

LB/ADLB

QS/RELREC/Trial Design

QC Checklists/Tools

C. CLINICAL DATA PROJECT

- Create macros to read the mapping document and build the descriptor portion of datasets.
- Create user defined formats
- Create raw clinical datasets
- Create DM
- Create ADSL
- Create AE/ADAE
- Create LB (Lab Data)
- Create ADLB (Lab Data)
- Analysis and Reporting
- Generate Tables, Listings and Graphs.

AboutTrainer:

Mr. Sunil Gupta is a Mentor, CDISC consultant, Best Selling SAS Author and a SAS Global corporate trainer. He has 20+ years of experience on SAS across industries and most of his experience, mentoring has been in Clinical/Pharma domain. Also, he is founder of SASSavvy.com, recipient of SAS Circle of Excellence Award, SAS Programming Advisory Board for University of California, San Diego, Extension, with assistance from on site instructor.

Program highlights:

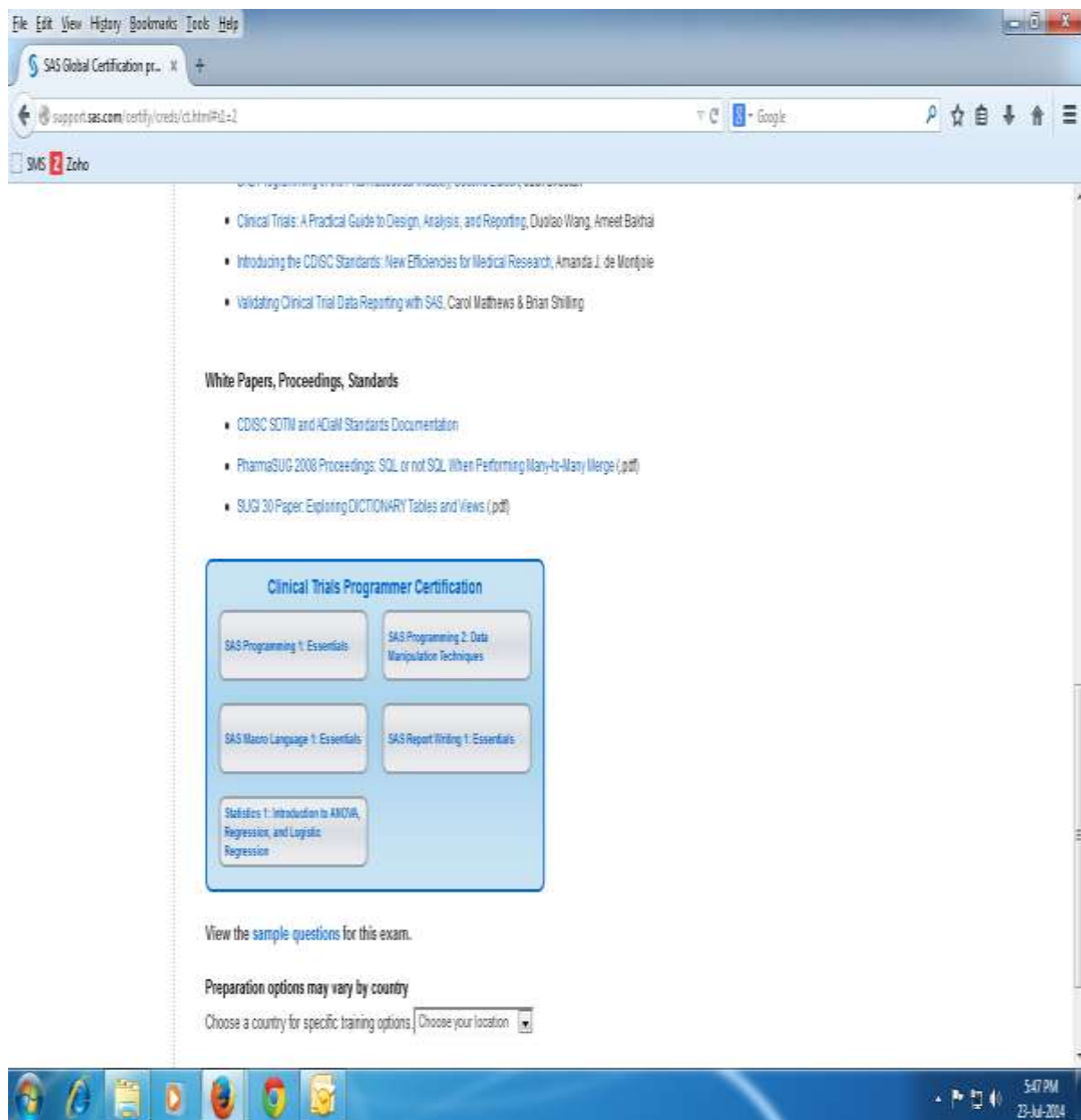
- Takes participant s through entire book: SAS Programming in the Pharmaceutical Industry by Jack Shostak
- Exclusively, offered jointly by Lodestone Learning and SASSavvy, CA, USA.
- 10 weeks in depth course on fundamentals of concepts in SAS Programming on Clinical Trials
- Data with Hands on Projects on Clinical Trials Data sets.
- Grading and reviews of assignments and hands on projects.
- Membership of SASSavvy.com for program duration. Access to extensive resources on SAS Programming with focus on Pharmaceutical industry.
- Joint certification on course completion.

Exam preparation requisites for SAS Certified Clinical Trials Programmer Using SAS 9.

<http://support.sas.com/certify/creds/ct.html#s1=2>

SAS Global Certification :

SAS Certified Clinical Trial Programmer



The screenshot shows a web browser window displaying the SAS Global Certification page for Clinical Trials Programmer Certification. The page includes a list of books, white papers, and a section for exam topics.

Books:

- Clinical Trials: A Practical Guide to Design, Analysis, and Reporting, Duoqiao Wang, Ameet Bathia
- Introducing the CDISC Standards: New Efficiencies for Medical Research, Amanda J. de Montjoye
- Validating Clinical Trial Data Reporting with SAS, Carol Matthews & Brian Shilling

White Papers, Proceedings, Standards

- CDISC SDTM and ADaM Standards Documentation
- PharmaSUG 2008 Proceedings: SQL or not SQL When Performing Many-to-Many Merge (.pdf)
- SUGI 30 Paper: Exploring DICTIONARY Tables and Views (.pdf)

Clinical Trials Programmer Certification

SAS Programming 1: Essentials	SAS Programming 2: Data Manipulation Techniques
SAS Macro Language 1: Essentials	SAS Report Writing 1: Essentials
Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression	

View the [sample questions](#) for this exam.

Preparation options may vary by country

Choose a country for specific training options: