

# SAS PROGRAMMING

**CDT350**

This course will familiarize the student with the fundamentals of SAS programming. Emphasis is on the DATA step and the PRINT, FREQ, MEANS, FORMAT and CONTENT procs. PROC TABULATE is also introduced. Students will gain experience working with temporary and permanent SAS data sets. Although simple statistics are shown (for example, MEAN, MIN, and MAX) statistics is not the emphasis of this course. *This course can be taught on using mainframe SAS or PC SAS.*

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## **Audience**

- Programmers and non-programmers who need to use SAS to produce reports.

## **Prerequisites**

- If this is a mainframe course, experience with TSO/ISPF is essential.
- If this is a PC course, experience with Windows is essential.

## **Course Length**

- Three days

## **Learning Objectives**

- Be able to write and maintain SAS programs which produce reports.
- Be able to read and write temporary and permanent SAS datasets.
- Be able to use PRINT, FREQ, MEANS, FORMAT and CONTENT procs.

## **Teaching Methods**

- Lecture with examples
- Hands-on exercises
- Comprehensive hands-on case studies

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## **Course Outline**

QB2

### **Getting Started**

- JCL requirements (mainframe SAS only)
- The DATA step and PROC PRINT
- Reading free-form data
- SAS Options
- Simple reporting
- FORMAT
- Summing by rows
- Summing by columns

### **A Closer Look at the DATA Step**

- Reading fixed format data
- Reading data from external files
- Reading delimited files
- Improving efficiency with linehold
- IF
- DO blocks
- DROP vs. DELETE
- Subsetting IF
- Recoding records
- Concatenation
- LABEL
- ATTRIB
- Reading packed decimal fields
- Reading stripped packed fields
- Reading binary fields

### **A Closer Look at PROC PRINT**

- Printing groups with BY, ID, and PAGEBY
- Printing subtotals with SUM
- Printing selected records with WHERE
- Printing multiple reports

### **Other Reports**

- Producing a frequency distribution
- Producing descriptive statistics
- Producing a crosstab

### **Permanent SAS Data Sets**

- Creating a permanent SAS data set
- Obtaining information about a permanent SAS data set with PROC CONTENTS
- Reading a permanent SAS data set
- SET, KEEP, and DROP
- Creating a new data set from a permanent SAS data set
- Using LENGTH to save space