



...Maximizing your investment in the SAS® System...
and those in your organization who use it...

This one-day seminar shows you the tools and techniques that reduce the time and effort it takes to obtain the results you need from applying the SAS System to your data.

After taking this seminar you will be able to:

- Control the process by which the SAS System creates a data set.
- Reduce the amount of time it takes for SAS to process large files
- Apply SAS Procedures which avoid tedious and unnecessary Data Step coding
- Apply SAS Data Set Options that reduce program completion time
- Measure computer resource utilization using SAS System Options
- Avoid unnecessary Data Step processing
- Understand when, and when not to, apply indexes to the variables in SAS data sets
- Speed the extraction of subsets using SAS' Indexing capabilities
- Reduce the size of your data sets
- Take advantage of SAS programming language functions that simplify data step programming
- Use SAS Formats as efficiency tools which reduce coding and processing time

One Day Seminar from Sierra Information Services

SAS® System Programming Efficiencies: Tips & Techniques

Overview

This one day seminar shows you how to improve the efficiency of your SAS System programs and applications. You will see dozens of "before and after" examples of ways to reduce CPU utilization, eliminate unnecessary coding, apply little-known SAS procedures that eliminate the need for tedious Data Step coding, and many other ways to work efficiently when using the SAS System. The seminar is appropriate for all SAS users regardless of operating system or platform.

Intended Audience

This session is designed to be a successful educational experience for attendees who already have at least six months to a year of hands-on use of the SAS System as a data management, preparation and reporting tool. The materials presented assume you are already familiar with how to write, save and submit a SAS program, review the output, and read the messages generated in the SASLOG. It is also anticipated that you already understand core SAS concepts such as data and procedure step, label, format, data set descriptor portion, variable, observation and function.

Seminar Topics:

General Considerations

- SAS Systems Tools for Measuring Resource Utilization and Efficiency
- Tuning Considerations: Human vs. Machine Efficiencies

Data Step Efficiencies

- How the SAS System creates a SAS Data Set
- The Data Step: Getting started with Programming Efficiency
- Reading Raw Data Selectively
- Using only the variables you need from a SAS Data Set
- Selecting Observations Using the WHERE Clause Data Set Option
- Data Set Options that Reduce Programming Time, Ensure Accurate Calculations and Save CPU
- Working Efficiently in the Program Data Vector
- Creating Multiple SAS Data Sets in a Single Data Step

SAS Data Set Efficiencies

- Staying out of the Data Step Unless Otherwise Necessary
- Creating SAS Data Sets
- Tools to Reduce Data Set Size
- Determining the byte lengths of character variables in a SAS Data Set
- Byte Length Requirements for Representation of Numeric Variables by the SAS System
- Creating a compressed SAS Data Set: How, Why and Why Not
- Appending Data Sets using PROC DATASETS
- Other Data Set Management Tools Available in PROC DATASETS
- Match-Merging Data Sets
- Other Programming Language Efficiency Tips
 - Programming Language Functions
 - SAS Data Set Options
 - Formats vs. the Data Step
 - The ARRAY Statement

Contact Sierra Information Services For More Information:

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About the Instructor

This seminar is written and presented by Andrew Karp, who started his own SAS Software consulting and training firm, Sierra Information Services, in 1994. Prior to starting Sierra he used SAS Software to manage and analyze data while holding positions with PriceWaterhouseCoopers, Federal Express Corporation, Pacific Gas & Electric Company and Kaiser Foundation Health Plan. A 24-year SAS user, Andrew is a SAS Certified Professional™ who has presented this, and other, training seminars to SAS users in the United States, England, Scotland, Belgium, Australia, New Zealand and the People's Republic of China.

He has served on the technical review teams for seven books published by SAS Institute and has been an invited speaker at twelve consecutive SAS Global Forum/SAS User Group International conferences, as well as other events for SAS users in seven countries. Andrew earned undergraduate and graduate degrees from The George Washington University and taught SAS classes for UC Berkeley's Extension Division from 1989 to 1995. He has also been a visiting lecturer in the Dept. of Experimental Statistics at Louisiana State University and at the University of Auckland in New Zealand.

About Sierra Information Services

Sierra Information Services is a **leading independent provider of SAS Software** consulting and training services. Our firm is based in the California Wine Country region north of San Francisco but travel both domestically and internationally to work with clients and present training seminars. Sierra offers clients a wide range of support, including SAS programming, data analysis/data mining with SAS tools, as well as the design and delivery of customized SAS Software training solutions tailored to the client's individual needs. Since its inception in 1994 Sierra has provided consulting and/or training services to, among others, Wells Fargo Bank, Bear Creek Corporation, Limited Brands, IBM, American Honda Motor Company, Lloyd's Bank/TSB, Capitol One Financial Services, Inc., Discover Financial Services, Inc., the US Department of Commerce and the US Federal Communications Commission. We have also provided consulting and training for numerous public and private sector entities in the United Kingdom, Belgium, Australia and New Zealand.

In addition to training solutions developed by Sierra's founder, Andrew Karp (see instructor's bio above), Sierra also works with other leading SAS experts to offer their training seminars around the United States. Sierra is proud to have well-known experts such as Art Carpenter, Dr. Paul Allison, and David Cassell present their training seminars under our auspices.

For the most current list of our public seminars, or to learn more about how Sierra can assist you and your organization, please visit our web site at www.SierraInformation.com or call us a (707) 996 7380. We look forward to hearing from you soon!



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