Applications Development

David Chapman  
_U.S. Census Bureau_

Zul Habib  
_Habib Consultants Limited_

The Applications Development Section focuses on using SAS to develop complete applications to accomplish either single tasks or to develop SAS software tools for use in many applications, many uses, or by many people. It may involve techniques to integrate programs, macros, or utilities; to run faster, use fewer resources, or be easier to maintain. This section provides an opportunity to not only show what was developed, but also how it was developed, and how it all comes together in a new application. Share how you succeeded or what you learned when you didn’t. This section also includes developing applications that work with non-SAS products such as databases, Microsoft Office or other application software.

**Producing Listings and Reports using SAS® and Crystal Reports**  
Krishna (Balakrishna) Dandamudi, _PharmaNet_  

---

Fazal Davood, _Highmark Inc_  
Susan M. Jumper, _Highmark, Inc._

---

**Two Steps to LIBNAME-Free Coding: Use of Macro Parameters and AUTOEXEC.SAS**  
Zhengyi Fang, _Social & Scientific Systems, Inc._  
Paul Gorrell, _IMPAQ International, LLC_

---

**Accessing the power & functionality of the MS Windows API via the JMP LoadDll function**  
Matthew Flynn, _Travelers Insurance_

---

**An Introduction to Implementing Propensity Score Matching with SAS®**  
Kathy H. Fraeman, _UnitedBiosource Corporation_

---

**A Hercules of Programming— What is A Central Macro Library and Why**  
John He, _Teva Pharma_

---

**A SAS Application to Identify and Evaluate Outliers**  
Richard Hendra, _MDRC_  
Paulette W. Staum, _Paul Waldron Consulting_
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<thead>
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<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>AD08</td>
<td>Portfolio Backtesting: Using SAS to Generate Randomly Populated Portfolios for Investment Strategy Testing</td>
<td>Xuan Liu, WRDS(Wharton Research Data Services) Mark Keintz, Wharton Research Data Services</td>
<td></td>
</tr>
<tr>
<td>AD09</td>
<td>Using SAS® Output Delivery System (ODS) Markup to Generate Custom Pivot Tables and Pivot Charts</td>
<td>Chevell Parker, SAS</td>
<td></td>
</tr>
<tr>
<td>AD10</td>
<td>Educational Outcome Analysis Using Maine’s Wage Record Matching System</td>
<td>Bruce H. Peel, Maine Dept. of Labor/Center for Workforce Research and Information</td>
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<tr>
<td>AD12</td>
<td>Windows Application Using .NET and SAS® to Produce Custom Rater Reliability Reports</td>
<td>Sailesh Vezzu, Educational Testing Service</td>
<td></td>
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<tr>
<td>AD13</td>
<td>Acquisition and Management of Market Data for SAS® Risk Dimensions®</td>
<td>Shankar Yaddanapudi, Paradigm Infotech</td>
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<tr>
<td>AD15</td>
<td>SAS® Email Data Driven Application</td>
<td>Wenjie Wang, Sun Solutions Inc Jade Huang, Merck Simon Lin, Eisai Medical Research</td>
<td></td>
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</tbody>
</table>
The Coders’ Corner Section is the place to share knowledge and get new ideas in a shorter and less formal format than in other NESUG sections. Coders’ Corner papers are generally shorter than the “full-length” papers and presentations are only 10 minutes long. Topics include tips and tricks related to Data step programming, SAS procedures, ODS, Graphics and much more. Since presentations cover such a wide range of topics it is the perfect place for beginners as well as seasoned programmers.

Drivers Wanted: Zipping and Moving Along through SAS®
Marie Byrd Alexander, Westat
Sharon Avrunin-Becker, Westat

Happy Birthday! But... How Old Are You, Really?
Elizabeth Axelrod, Abt Associates Inc.

Variable List Shortcuts in PROC SQL
Ken Borowiak, PPD, Inc.

To FREQ, Perchance to MEANS
Christopher J. Bost, MDRC

Put Off By Writing Tedious PUT Statements? Automate It! Let SAS® Do It For You.
Dan Bretheim, Towers Watson

Normalizing SAS Datasets Using User Defined Formats
David D. Chapman, US CENSUS BUREAU

Table Lookups: Getting Started With Proc Format
John J. Cohen

Automation of LOG CHECKING: What to check and why?
Sridhar R. Dodlapati, i3 Statprobe
Kiran K. Karidi, Novartis Oncology
Mahipal R. Vanam, EMD Serono, Inc.

Monitoring Dataset Quality Using Proc Format and A Reference File
Hanadi Eltahir, US Census Bureau
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<th>Page</th>
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<td>Using Fillable PDF together with SAS for Questionnaire Data</td>
<td>Donald Evans, IRS</td>
<td>CC10</td>
</tr>
<tr>
<td>Using <code>%SYMEXIST</code> for eliminating repetitive words in a SAS macro string - no data steps, no procedures.</td>
<td>Alexander Feigin, Alex Feigin, Inc.</td>
<td>CC11</td>
</tr>
<tr>
<td>Let SAS® Write and Execute Your Data-Driven SAS Code</td>
<td>Kathy H. Fraeman, UnitedBiosource Corporation</td>
<td>CC12</td>
</tr>
<tr>
<td>Making an RTF file Out of a Text File, With a Single Datastep</td>
<td>David Franklin, Independent SAS Consultant</td>
<td>CC13</td>
</tr>
<tr>
<td>PROC PRESENT: Write Your Presentation in SAS in as Few as Five Easy Steps</td>
<td>Louise S. Hadden, Abt Associates Inc.</td>
<td>CC14</td>
</tr>
<tr>
<td>Ordering PROC FREQ around</td>
<td>Jonathan Kerman, Johns Hopkins University</td>
<td>CC16</td>
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<td>An Animated guide: Suggestions for coding standards</td>
<td>Russ M. Lavery, Self</td>
<td>CC17</td>
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<tr>
<td>An Exercise Using PROC SURVEYREG and NYC HANES: Examining Social Support as a Predictor of Body Mass Index in New York City</td>
<td>Jackie Lee, Columbia University</td>
<td>CC18</td>
</tr>
<tr>
<td>Creating Trellis Graph Using SAS</td>
<td>Jane X. Liao, Merck &amp; CO., Inc</td>
<td>CC19</td>
</tr>
<tr>
<td>Get Connected - Attach To Your Data Sources Using SAS/ACCESS</td>
<td>Laura G. Liotus, Community Care Behavioral Health</td>
<td>CC20</td>
</tr>
<tr>
<td>Challenge! Reading Mainframe Hex Delimited Flat File Where Each Line Has Different Layout</td>
<td>Anjan Matlapudi, PerformRx, James D. Knapp, PerformRx</td>
<td>CC21</td>
</tr>
<tr>
<td>Please Don’t Lag Behind LAG !</td>
<td>Anjan Matlapudi, PerformRx, James D. Knapp, PerformRx</td>
<td>CC22</td>
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<tr>
<td>Impact Analysis - The Smart Way</td>
<td>George G. Mendoza, CIGNA Corporation</td>
<td>CC23</td>
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**Modifying Datasets and Documenting Changes in SAS**  
GIRISH K. NARAYANDAS, *Health Dialog Inc.*

**By Your Command: Executing Windows DLLs in SAS Enterprise Guide**  
Darryl Putnam, *CACI, Inc.*

**The Tips and Tricks: Using Greek Font and Hexadecimal code to get Special Characters in SAS/Graph Output in RTF**  
Amos Shu, *INC Research, Inc.*

**Using SAS/GRAPH® Annotate and ODS to Create Customized Control Charts**  
Sailesh Vezzu, *Educational Testing Service*

**# or ## - how to reference SQL server temporary tables**  
Xiaoqiang Wang, *University of Pittsburgh*

**Make it robust and easier to maintain**  
Mindy Wang, *The CDM Group*

**Macros and Conventional Macro Variables: Effective Tools for Customizing Tabular Output in SAS® ODS**  
Perry Watts, *Independent Consultant*

**Are We There Yet?**  
Nat Wooding, *Dominion*

**Know What You Are Missing: How to Catalogue and Manage Missing Pieces of Historical Data**  
Shankar Yaddanapudi, *Paradigm Infotech*

**Passing date ranges to Oracle® made simple using SAS® picture formats**  
Santosh Kothamasu, *Presenter*  
Jonas V. Bilenas

**A side of Hash for you to dig into**  
Shan Rasul, *indigo books and music inc*

**Table Lookup in SAS**  
Weili Yang, *Merck*  
Fang Chen, *Merck*  
Liping Zhang, *Merck*  
Wenyu Hu, *Merck*
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**Expanding PROC EXPAND**  
Bruce F. Gilsen, *Federal Reserve Board*  
CC38

**Using Data Set Labels and Format Descriptions to Simplify Application Debugging**  
Rob Russell, *The Hartford*  
CC39
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## Foundations and Fundamentals

Joseph Guido  
*University of Rochester Medical Center*  
Dalia Kahane  
*Westat*

The Foundations and Fundamentals Section provides an overview of tools and core concepts which are quite useful in building a solid understanding of SAS® programming. This section includes learning opportunities for newer SAS users as well as best practices appealing to those with more experience. Presentation topics may include Data Step processing, macros and macro coding, SQL, ODS, SAS Formats, SAS Procedures and moving data between SAS and Microsoft Excel or other external databases.

### Automatically Converting Character Variables That Store Numbers to Numeric Variables

Christopher J. Bost, *MDRC*  
FF01

### Reading MORE Difficult Raw Data

Matthew Cohen, *Wharton Research Data Services*  
FF02

### Building the Better Macro: Best Practices for the Design of Reliable, Effective Tools

Frank DiIorio, *CodeCrafters, Inc*  
FF03

### Non Printable & Special Characters: Problems and how to overcome them

Sridhar R. Dodlapati, *i3 Statprobe*  
Praveen Lakkaraju, *Bristol Myers Squibb*  
Naresh Tulluru, *Neumeric Technologies Corp*  
Zemin Zeng, *Forest Lab*  
FF04

### Super Simple Macros to Make a Statistician’s Life Simpler

Peter L. Flom, *Peter Flom Consulting, Inc*  
FF05

### Introduction to Character String Functions

FF06

### SAS® Code and Macros: How They Interact

Bruce F. Gilsen, *Federal Reserve Board*  
FF07

### SAS® Enhanced Editor: Efficient Techniques

Kathy Harkins, *Merck and Company*  
FF08
# Table of Contents

**SAS® System Options: The True Heroes of Macro Debugging**  
Kevin Russell, SAS  
Russ Tyndall, SAS

**How to Think Through the SAS® DATA Step**  
Ian Whitlock, *Whitlock Consulting*

**PROC COMPARE - Worth Another Look!**  
Christianna S. Williams, *Independent Consultant*

**Using the SAS Explorer Window**  
Nat Wooding, *Hallsboro Systems Consulting*

**How to Create an XML Map with the XML Mapper**  
Wendi L. Wright, *CTB McGraw-Hill*

**Using SAS/AF® to Create an Interactive Interface for Entering and Analyzing Data**  
William 'Gui' Zupko II, *US Census Bureau*

**The Systems Development Life Cycle (SDLC) as a Standard: Beyond the Documentation**  
Dianne Louise Rhodes, *Connect, International*
The Graphics and Visualization section features presentations that highlight techniques for presenting data in innovative, effective and aesthetically appealing ways. Over the years SAS has made significant advances in the tools available for information dissemination and a variety of those tools are covered in section presentations. Topics range from introductory papers aimed at new users of SAS/GRAPH to papers that feature some of the more recent advances in data presentation with SAS, including ODS statistical graphics, the graphics template language, and ODS layout for RTF documents. Creating maps with SAS/GRAPH is also covered, showing users how to integrate various features of Google maps with map creation. New, intermediate, and advanced users of SAS should be able to learn from the various presentations in Graphics and Visualization.

**ODS Layout for RTF - A custom tagset**
Richard A. DeVenezia, *Independent Consultant*  
GR02

**An efficient way to create graphs in SAS 9.2: Utilizing SG procedures and GTL**
Yunzhi Ling, *Sanofi-Aventis*  
GR04

**Google Maps and SAS/GRAPH®**
Darrell Massengill, *SAS*  
GR05

**Creating Graphs Simply Using SAS or R**
John R. O’Leary, *Yale University*  
Jaclyn A. Scholl, *VA Cooperative Studies Program*  
GR06

**Introduction to Statistical Graphics Procedures**
Selvaratnam Sridharma, *Census Bureau*  
GR07

**Facilitating Genetic Analysis: SAS®, the NHLBI and CARE**
Taylor Young, *The Broad Institute of Harvard and MIT*  
GR08

**SAS/GRAPH for the Absolute Beginner... and Hockey Fans!**
Jonathan Bartlett, *American College of Radiology*  
George Obsekov, *American College of Radiology*  
GR09

**Tiptoe Through The Templates**
Cynthia L. Zender, *SAS*  
GR10
The Hands-On Workshops Section focuses on learning by doing. Computers are provided for attendees so that they can reinforce their understanding of presentation content by accompanying the instructor through exercises and examples.

Traffic Lighting Your Multi-Sheet Microsoft Excel Workbooks the Easy Way with SAS®
Vince DelGobbo, SAS

SAS® Enterprise Guide®: It’s for Programmers Too!
Rupinder Dhillon, Dhillon Consulting Inc
Marje Fecht, Prowerks Consulting

HoW to DoW
Paul M. Dorfman, Red Buffalo, Inc.

PROC TABULATE - Building Tables With Style
Michael Eberhart, Philadelphia Department of Public Health

PROC SQL: Tips and Translations
Gail Jorgensen, Palisades Research Inc
Susan P. Marcella, ExxonMobil Biomedical Sciences, Inc

SGPANEL: Telling the Story Better
Charles Kincaid, COMSYS

The Quest for Causation: An Introduction to Correlation and Regression Analysis
Ian Stockwell, CHPDM / UMBC

Macro - How and Why
Ian Whitlock, Whitlock Consulting

Improving a Graph Using PROC GPLOT and the GOOptions Statement
Wendi L. Wright, CTB McGraw-Hill
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Health Care and Life Sciences

Ken Borowiak
PPD Inc.

The Health Care and Life Sciences Section is devoted to presentations on using SAS technologies and solutions within the Health Care and Life Sciences industries. This section shares experiences from health insurers who have benefited from SAS strategies for insurance rating, providing real-time analyses, monitoring quality, or for partnering with providers to develop effective disease and case management strategies.

Modeling healthcare expenditures using PROC QUANTREG
Klaus Lemke, Johns Hopkins University
HL01

After SAS Performs the Surgery, Excel Applies the Make-Up: Making Healthcare Data Look Pretty
Andrea E. Scott, CareFirst Blue Cross BlueShield
HL04

Amos Shu, INC Research, Inc.
HL05

Counting Drug Exposure in SAS with Interval Graph Modeling
Xiaoqiang Wang, University of Pittsburgh
HL06

Sensitivity, Specificity, Accuracy, Associated Confidence Interval And ROC Analysis With Practical SAS Implementations
Ning Wang, Octagon Research Solution
Nancy N. Zeng, Octagon Research Solutions, Inc.
Wen Zhu, K&L consulting services
HL07

Modifying Insurance Rating Territories via Clustering
Quncai Zou, New Jersey Manufacturers Insurance Company
Christianna S. Williams, Independent Consultant
Louise S. Hadden, Abt Associates Inc.
Edward Mortimore, Centers for Medicare and Medicaid Services
Frank Nagy, Centers for Medicare and Medicaid Services
Michael Plotzke, Abt Associates Inc.
Alan White, Abt Associates Inc.
HL08
The Management, Administration, and Support Section covers a wide range of topics focused on how to get higher productivity from our people, processes, projects, and products that are a part of every operation using SAS Software. Papers address a management perspective or instead offer the outlook of an individual contributor. In part this results from evolving business models including increased globalization, standardization, out-sourcing or off-shoring, and telecommuting. Employees must continue to be highly productive and efficient and managers must be adept to managing in many of these situations. Compounded by the current economic distress, these arrangements are affecting the day to day operations and changing the scope of career paths for SAS programmers, statisticians and SAS consultants. To add to this, employees must continue to develop their skills and grow professionally. Topics in this section range from optimizing operations in these evolving business models to training, SAS conferences, SAS certification programs and other SAS administrative and support facilities.

Clinical Trials Analysis & Reporting Performance Metrics
Ellen L. Asam, Merck
Donna Usavage, Merck

SAS Beyond Measure
James Baker, Millennium

U.S. ENERGY INFORMATION ADMINISTRATION: THE MOVE TO SAS 9.2
Michael Bretz, Chenega Government Consulting

The Philadelphia Story (Or the LUG at the RUG)
John J. Cohen
Robert Schechter, Independent SAS Consultant

Techniques for Managing Projects Outsourced to Offshore CRO
Margaret M. Coughlin, Merck & Co., Inc.
Hong Qi, Merck & Co. Inc.

Scheduling Programming Activities and Johnson’s Algorithm
Allan Glaser, Octagon Research Solutions, Inc.
Meenal Sinha, Octagon Research Solutions Inc
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A Benchmarking Technique to Identify Best Practices in SAS  
Tony Pisegna, *ICON Clinical Research*  

If You Have Programming Standards, Please Raise Your Hand: An Everyman’s Guide  
Dianne Louise Rhodes, *Connect, International*  

While You Were Sleeping, SAS Was Hard At Work  
Andrea Wainwright-Zimmerman, *Capital One*  

*SAS® Abbreviations Are Your Friends; Use a Template Method to Code!*  
Elizabeth Ceranowski, *SAS*
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Pharmaceutical Applications

Ken Borowiak  
PPD Inc.

This Pharmaceutical Applications Section is devoted to presentations on using SAS technologies and solutions within the Pharmaceutical and Biotech industries. Topics include the many facets of clinical trials, from CRF development and data collection to reporting results to regulatory submissions and the impact emerging and evolving standards have on the industries.

ClinicalTrials.gov: Creating an XML upload from SAS®  
Daniel J. Boisvert, Genzyme Corporation  
Andy Illidge, Genzyme Corporation  
Troy A. Ruth, Dataceutics, Inc.  
PH01

Outsourced Data Integration Project with CDISC SDTM and ADaM Deliverables  
Margaret M. Coughlin, Merck & Co., Inc.  
Christine Teng, Merck Research Laboratories  
PH02

Automating SDTM File Creation: Metadata Files Speeding the Process  
Daphne Ewing, Auxilium Pharmaceuticals, Inc.  
PH03

SAS and open source tools for CDISC SDTM compliance checks for regulatory submissions  
Sandeep Kottam, Eisai Pharmaceuticals  
Peter Loonan, Smith Hanley Consulting  
Sree Lakshmi Kalyani Tripuraneni, Contractor at Purdue Pharma  
PH04

The 5 Biggest Challenges of ADaM  
Terek Peterson, Octagon Research Solutions  
David C. Izard, Shire  
PH05

Creating an Input Dataset to Produce Incidence and Exposure Adjusted Adverse Events  
Pushpa Saranadasa, MERCK Inc.  
PH06

Tips of Efficient Programming for Integrated Summary of Safety and Efficacy  
Changhong Shi, Merck & Co.  
Qing Xue, Merck Sharp & Dohme Corp.  
PH07
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**The 5 Most Important Clinical SAS Programming Validation Steps**  
Brian C. Shilling, *Octagon Research Solutions, Inc*  
PH08

**TRACKING DATASET DEPENDENCIES IN CLINICAL TRIALS REPORTING**  
Binoy Varghese, *Cybrid Inc*  
Satyanarayana Mogallapu, *IT America Inc*  
PH09

**Delivering a Simple Randomization list using RTF**  
MinJung Yoon, *Cubist Pharmaceuticals*  
PH10

**Date Conversions in SDTM and ADaM Datasets**  
Lily Zhang, *Merck Sharp & Dohme Corp.*  
PH11

**The Past, Present, and Future of Clinical Data Standards**  
Chris Decker, *d-Wise Technologies*  
PH13
Posters

Sara Hickson  
Howard Schreier  
Brigham and Women’s Hospital

In the Posters Section a hard-copy display can be used to convey virtually any material, but is especially well suited to complex visual concepts. Viewers will have the opportunity to examine the material at their own pace and revisit it, as well as a scheduled time to meet the presenters.

The Nitty-Gritty of FDA Electronic Submission: A Programmer's Perspective  
Sandeep N. Beniwal, Independent Consultant

Using the WinZip Command Line Utility in SAS®  
Ken Borowiak, PPD, Inc.  
Mike Kwee, PPD, Inc.

What Were We Talking About at Those SAS® Conferences, or Let’s Make Some Tag Clouds  
Chang Y. Chung, Princeton University  
John H. King, Ouachita Clinical Data Services, Inc.

Multiple Methods in JMP® to Interact with R  
Matthew Flynn, Travelers Insurance

You Want the Program to Run on the PC in New York, Unix in London, and That Nutty System in Manchester, without Modification??  
David Franklin, Independent SAS Consultant

Process Monitoring and Control of Semiconductor Production Tools Using JMP®  
Peter Frankwicz, National Semiconductor  
Don Scipione, National Semiconductor  
Steven Coleman, National Semiconductor  
John Devlin, National Semiconductor

Interactively Make Uniform and Reorganize Variables in a SAS® Library  
Jay Garacani, AstraZeneca
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**ZIP Code 411: Decoding SASHELP.ZIPCODE and Other SAS® Maps Online Mysteries**  
Mike S. Zdeb, *University@Albany School of Public Health*

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**Macro for Computing Complier-Average Causal Effect of Treatment (CACE) Using Instrumental Variable Method**  
Patricia R. Houck, *University of Pittsburgh Medical Center*  
Sati Mazumdar, *University of Pittsburgh*  
Benoit H. Mulsant, *University of Pittsburgh*

---

**Revealing the Structure of Item Dependency with SAS® CLUSTER and TREE Procedures in Educational Testing and Measurement**  
Yung-chen Hsu, *American Council on Education*

---

**Presentation Quality Bulleted Lists Using ODS in SAS® 9.2**  
Karl M. Kilgore, *Cetus Group, LLC*

---

**What Drives the Consumer Price Index?**  
Joshua Klick, *Bureau of Labor Statistics*

---

**Automating Comparison of Integrated Studies vs. Individual Studies**  
Sandeep Kottam, *Eisai Pharmaceuticals*  
Sree Lakshmi Kalyani Tripuraneni, *Contractor at Purdue Pharma*

---

**A Practical Approach to Process Improvement Using Parallel Processing**  
Viraj R. Kumbhakarna, *Cognizant Technology Solutions, Pvt. Ltd*

---

**A Macro to Make Table Templates**  
Mark J. Mihalyo, *Community Care Behavioral Health Organization*

---

**Simulating Time Series Analysis Using SAS®, Part III: Error Correction Model (ECM)**  
Ismail E. Mohamed, *L3-STRATIS / U.S. Department of Housing & Urban Development*

---

**Using SAS® for Design of Experiments: An Unbalanced Incomplete Block Design**  
Burhan Ogut, *American Institutes for Research*

---

**See All, Know All: Using PROC DOCUMENT to Produce Integrated Data Set Documentation**  
Jyothi Pabbaraju, *Westat*
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Get Multi-sheet Excel Workbook with STYLE using ODS
Niraj J. Pandya, Independent Consultant
PO24

A Few Quick and Efficient Ways to Compare Data
Abraham T. Pulavarti, Icon Clinical Research
PO27

Binomial Reliability Using DATA Step Calculations
Elizabeth A. Schreiber, IRS
PO28

Learn SAS in 50 minutes
Subhashree Singh, The Hartford
PO29

Using SAS Enterprise Guide to Create Standalone Programs
Michael Todd, Nth Analytics
PO30

Applying Metadata Attributes in Analysis Data Sets Using Macro Variables and Proc SQL in SAS®
Rita Tsang, Averion International Corporation
PO31

Fancy Arrays: Fun and Useful for Analytical Data Marts
Val Volovik, Affinion Group
PO33

Functional Data Analysis on SAS system
Le Yin, Lehigh University
PO35

Visualizing Bi-partite Network Data using SAS® Visualization Tools
John Zheng
PO36

Using Simple Code to Enter Complex Data from Base SAS to SAS/AF®
William 'Gui' Zupko II, US Census Bureau
PO38

Standardization of Reporting Digits: Significant Vs. Rounding
Vikash Jain, eClinical Solutions
PO39

Using RTF codes in ODS RTF outputs
Vardhan Rachabattulasriharsha, Covance Inc
PO40
The Programming Beyond the Basics Section is focused on going beyond the basics in a wide range of more advanced uses of SAS programming techniques and products. Topics include new features available in SAS 9.2, innovative uses of the macro language, writing high performance programs, using ODS to format your output, ensuring the quality of your programs, and other useful advanced SAS coding techniques. See how to use Google and Google maps with SAS. Learn how to take advantage of the hash objects both to handle large data sets and to make your programs faster. Increase your understanding of ODS templates and tagsets. The practical examples will provide the knowledge you need to implement enhanced techniques and take your SAS skills to a higher level.

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<td>BB01</td>
<td>Find() the power of Hash - How, Why and When to use the SAS Hash Object</td>
<td>John Blackwell</td>
<td>The Nature Conservancy</td>
</tr>
<tr>
<td>BB02</td>
<td>%whatChanged: A Tool for the Well-Behaved Macro</td>
<td>Frank DiIorio</td>
<td>CodeCrafters, Inc</td>
</tr>
<tr>
<td>BB03</td>
<td>Black Belt Hashigana</td>
<td>Paul M. Dorfman, Marina Fridman</td>
<td>Red Buffalo, Inc. GlaxoSmithKline</td>
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<tr>
<td>BB04</td>
<td>A View Toward Performance</td>
<td>Edward Heaton</td>
<td>Data &amp; Analytic Solutions, Inc.</td>
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<td>BB05</td>
<td>Using A DATA Step to Create Bar Charts: The ODS Report Writing Interface</td>
<td>Randy D. Herbison</td>
<td>Westat</td>
</tr>
<tr>
<td>BB06</td>
<td>Condensed and Sparse Indexes for Sorted SAS Datasets</td>
<td>Mark Keintz</td>
<td>Wharton Research Data Services</td>
</tr>
<tr>
<td>BB07</td>
<td>ExcelXP on Steroids: Adding Custom Options To The ExcelXP Tagset</td>
<td>Mike Molter</td>
<td>D-Wise Technologies</td>
</tr>
<tr>
<td>BB08</td>
<td>Misquoting Jane Austen in the Name of Quality Assurance</td>
<td>Deborah Posner</td>
<td>Westat</td>
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<tr>
<td>BB09</td>
<td>A Mass Symphony: Directing the Program Logs, Lists, and Outputs</td>
<td>Thomas Santopoli</td>
<td>Octagon Research Solutions</td>
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**Leverage Your Programming with Code Generation**  
Paulette W. Staum, *Paul Waldron Consulting*  

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**Take a Whirlwind Tour Around SAS 9.2**  
Diane Hatcher, SAS  
Robert Craige, SAS  

---

**Using Google to Solve SAS Problems**  
Michael Todd, *Nth Analytics*  

---

**Using Recursion to Trace Lineages in the SAS® ODS Styles.Default Template**  
Perry Watts, *Independent Consultant*  

---

**SAS® Style Templates: Always in Fashion**  
Cynthia L. Zender, SAS  

---

**A Serious Look Macro Quoting**  
Ian Whitlock, *Whitlock Consulting*
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### Statistics and Analysis

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<tr>
<td>The Statistics and Analysis section will cover SAS procedures for</td>
<td>Jonas Bilenas</td>
<td>Farm Service Agency, USDA</td>
<td></td>
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<tr>
<td>data analysis across a wide variety of industries, such as</td>
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<td>healthcare, education, military, marketing, financial, and</td>
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<td>insurance. Papers will focus on survey analysis, generalized</td>
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<td>additive models, clustering and segmentation methods, factor</td>
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<td>analysis, and many regression procedures (Poisson regression,</td>
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<td>multinomial and ordinal logistic regression, and nonparametric</td>
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<td>model validation). We will also get a peek at the major</td>
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<td>enhancements to statistical procedures in SAS/STAT 9.22.</td>
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<td><strong>Using Generalized Additive Models in Marketing Mix Modeling</strong></td>
<td>Patralekha Bhattacharya, Thinkalytics</td>
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<td>Jose A. Ramirez, US Army G-1</td>
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<td>Mark Zais, US Army</td>
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