



SESUG '04
Nashville

Loews Vanderbilt Hotel
Nashville, TN

12th Annual Conference

SouthEast SAS[®] Users Group

October 31 – November 2, 2004

Conference Co-Chairs:

Imelda Go

igo@sde.state.sc.us

Operations

Neil Howard

Neil.Howard@i3data.com

Academics

Conference Program



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WELCOME!

The SESUG 2004 committee wishes you a cordial welcome to the annual meeting of the Southeast SAS Users Group. We are excited that the conference is located at the Loews Vanderbilt Hotel – a four star facility so close to rockin' downtown Nashville. This is a perfect opportunity to experience a great city as we explore new SAS technology and coding techniques.

SESUG 2004 formally begins with the Opening Session and reception on Sunday evening in the Symphony Ballroom. Following an overview of the conference and introductions, **David Kelley** from SAS Institute will provide the keynote address entitled "Five Things Everyone Should Know About ODS". We will adjourn to a welcome reception and Halloween Party, complete with tricks and treats, and a costume contest!

Paper presentations and Hands-On Workshops begin on Monday morning and continue through midday on Tuesday. We're providing the best presenters, trainers, ideas, tips and techniques, including Version 9 topics. The Exhibit and Demo area will be open both days.

At the end of the day on Monday, the SAS Breakthrough Tour Reception will be held in the Demo room. Join SAS, our vendors, conference leaders, and fellow attendees for food, drink, fun, entertainment, and giveaways. Monday evening, our Nashville Nights Kickback Party will feature more fun, music, dancing, entertainment, and libations!

At lunchtime on Tuesday, you will have a chance to take your lunch to one of several "Meet the Presenters" opportunities or join the SESUG '05 Planning BOF. But stick around, the best is yet to come!

After lunch, friend of SESUG, SAS devotee, and former President of SAS North America **Barrett Joyner** will address the conference in his own inimitable style on "Business Results Through Relationships". This promises to be both entertaining and informative. We're very lucky to have him join us.

While in Nashville, make sure to take some time to experience southern hospitality, the country music scene, the many historic sites, shopping, and excellent restaurants. Your program includes many suggestions, and the hotel concierge can assist you with additional information and arrangements.

If you have any questions or concerns during the conference, please feel free to approach any member of the conference committee.

Thank you for attending SESUG 04! We hope you will find the conference both educational and enjoyable. Welcome to Nashville!

**Operations
Chair**



Imelda Go
South Carolina
Department
of Education

**Academic
Chair**



Neil Howard
i3 STATPROBE



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All pictures of Nashville courtesy of the Nashville Convention and Visitors Bureau.

LETTER FROM THE MAYOR



Metropolitan
Government of
Nashville and
Davidson
County

Bill Purcell Mayor

October 31, 2004

Dear Friends:

It is my pleasure to welcome the SouthEast SAS Users Group for the 12th Annual Conference being held on October 31- November 2, 2004. We are honored that you have chosen Nashville as the host city.

With its well-known hospitality and its wide variety of cultural activities and entertainment options, all of Nashville is primed to show you a great time, both during your work sessions and during your leisure hours. I am confident you will enjoy all the amenities Nashville has to offer during your convention— excellent restaurants, superior shopping, and, of course, the wealth of music and other entertainment that has established our city's reputation as a national treasure. Visitors and newcomers, will have the opportunity to experience our newest landmarks, the Frist Center for the Visual Arts, the new Country Music Hall of Fame, and our new Main Public Library. What's more, they'll be able to visit the Parthenon, one of our most beloved icons, newly refurbished and looking better than ever.

You have my every good wish for a productive, enjoyable stay in Nashville, the sort of experience that will make you want to come back again and again.

Thank you for visiting Nashville.

Sincerely,

A handwritten signature in blue ink that reads "Bill Purcell".

Bill Purcell
Mayor

Office of the Mayor
Metro City Hall
225 Polk Avenue
Nashville, Tennessee 37203
Phone: 615.862.6000
Fax: 615.862.6040
mayor@nashville.gov

LETTER FROM THE GOVERNOR



STATE OF TENNESSEE

PHIL BREDESEN
GOVERNOR

October 31, 2004

Ms. Imelda Go
SouthEast SAS Users Group
South Carolina Department of Education
1429 Senate Street
Columbia, South Carolina 29201

Dear Friends:

On behalf of the great State of Tennessee, I would like to extend a warm welcome to the participants and guests of the 12th Annual Conference of SouthEast SAS Users Group.

Tennessee is a state rich in heritage and tradition with much to offer participants and guests of SouthEast SAS Users Group. Tennesseans are famous for "southern hospitality" and all of us are eager to make your experience a memorable one. Nashville has many cultural activities, historic sites, and entertainment possibilities for people of all interests and tastes. As the former mayor of Nashville, I hope you will take time to enjoy our beautiful city and all it has to offer.

Please enjoy your stay in our great state. I offer you my best wishes for a productive conference.

Warmest regards,

A handwritten signature in blue ink that reads "Phil Bredesen".

Phil Bredesen

PB/cw

State Capitol, Nashville, Tennessee 37243-0001
(615) 741-2001



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CONFERENCE INFORMATION & HIGHLIGHTS

REGISTRATION & INFORMATION AREA

Location: Symphony Foyer

Time: Sunday 1:00-6:00 pm, Monday 7:00 am-6:00 pm, Tuesday 7:00 am-12:00 pm

Your **first** activity at SESUG '04 should be to pick up your registration materials (bag, Program, Proceedings, etc.). Registration staff will be on duty to answer your questions and distribute materials. **This is the place to go for information** such as: messages, lost and found, promotional items, registration materials, information about Nashville, and last-minute changes to the schedule of events.

PREVIEW OF SESUG '04

Location: Calhoun/Kirkland

Time: Sunday 5:00 pm-6:00 pm

Get started on the right foot for SESUG '04. Presented by the SESUG '05 conference co-chairs, you will learn all you need to know to make your conference experience successful. **This is a great session for newcomers and return attendees alike.** Conference planners have added new features as well as continuing with many others. We'll give you a quick tour of the many exciting events starting with the Opening Session right through the Closing Session which will be the kickoff for SESUG '05. One of the special features of a conference is the opportunity to network - and the Preview Session is the first such opportunity. So come to the SESUG '04 Preview Session to learn more about the conference itself, the conference leaders, and your fellow attendees. Questions about how things work at SESUG are also welcome.



OPENING SESSION & KEYNOTE ADDRESS

Location: Symphony III

Time: Sunday 7:30 pm-8:30 pm

The official start of the conference will be at the **Opening Session** on Sunday evening at the **Loews Vanderbilt Hotel**. Conference Chairs **Imelda Go** and **Neil Howard** will introduce some of the key conference planners and discuss some of the activities of the next 2 days. **The Opening Session falls on Halloween**, so we're hoping you'll get in the spirit of the evening and **come to the Opening Session in costume!**



We are honored to have **David Kelley** of SAS Institute as our **Keynote Speaker**. He'll be kicking off SESUG '04 in style with his presentation **"Five Things Everyone Should Know About ODS"**.

Since its introduction in SAS[®]8, the Output Delivery System (ODS) has been widely embraced by SAS users. ODS enables users to customize the content and style of their SAS output. Reports can be easily rendered into industry-standard formats such as RTF and PDF. Data from tables and graphs can be captured as SAS data sets. Best of all, ODS is Base SAS software, so it is available to every user.

If you are unfamiliar with ODS, this presentation will show you why you should be using it. If you are an experienced ODS user, this presentation will demonstrate new SAS 9 ODS features that give you even greater control over your output. Whatever your skill level, you will learn something to put to use at your work and impress your coworkers!



David Kelley is Software Manager of the group responsible for Base SAS² reporting and the Output Delivery System. He has supported PROC TABULATE since 1995. He is the author of PROC DOCUMENT, which was introduced in SAS 9. David is involved with other SAS 9 features such as the Business Intelligence platform and Enterprise Miner 5.0 PMML.

David has a B.S. in Computer Science from Furman University and a M.S. in Computer Science from Clemson University. He lives in Willow Springs, NC with his wife and three children.

WELCOME RECEPTION & HALLOWEEN PARTY



Location: Symphony III & Foyer

Time: Sunday 8:30 pm-11:00 pm

The Opening Session falls on Halloween, so we're hoping you'll get in the spirit of the evening in **costume!** There will be a Halloween party, a costume contest, and live entertainment at the Welcome Reception! **There will be a short set by songwriter and guitarist Felipe Fransioli.** Network with your fellow SAS associates while you enjoy complimentary food and drinks. Relax and get reacquainted with folks you haven't seen since last year's SESUG. Guest Program participants are welcome, too. Costume contest judging from 9:00 to 9:15 pm. **The Halloween Party is sponsored by SGI and SESUG.**

SESUG U.S. PRESIDENTIAL ELECTIONS

Since the last day of the conference falls on Election Day, **SESUG will hold its own election for President of the United States.** Cast your ballot during the conference, and the results will be announced at Closing Session on Tuesday.

As goes SESUG, so goes the nation!



DINING OUT FOR MONDAY LUNCH



Location: Area Restaurants

Time: Monday 12:00 pm-1:30 pm

The Loews Vanderbilt Hotel is within walking distance of **dozens** of restaurants (fast food, fine dining, and everything in between). You cannot ask for a better selection to suit every taste and budget. For weekends especially, reservations are highly recommended for restaurants that take them.

If you want to try out an area restaurant and don't want to go alone, **join your SESUG colleagues for lunch on Monday!** See the Registration Area

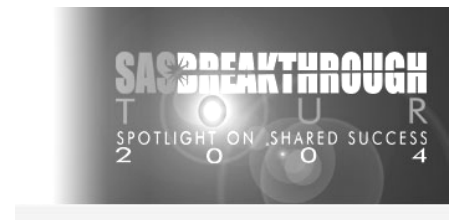
for restaurant locations and sign-up lists. Venture out for Monday lunch since we don't want you to go too far on Sunday and Monday night for dinner.

SAS BREAKTHROUGH TOUR RECEPTION

Location: Symphony I & II

Time: Monday 5:30 pm-7:00 pm

Join SAS and Intel for a reception as we celebrate our users and our continued shared successes. Mingle and relax with other SESUG attendees and enjoy food, drinks, entertainment and giveaways. We are hoping that this gathering will provide everyone a chance to mingle with the SAS Institute staff and the SESUG '04 Sponsors in a relaxing, comfortable environment. Plus, see what the SAS Breakthrough Tour 2004 is all about and find out how you can still be a part of it!



NASHVILLE NIGHTS



Location: Symphony III & Foyer

Time: Monday 7:30 pm-???

Immediately following the Breakthrough Tour Reception will be the **Nashville Nights Kickback Party** complete with DJ, line dance instructor, and dessert bar. **The Kickback Party is sponsored by SGI and SESUG. So put on your dancing shoes and be prepared to party!**

PAPER PRESENTATIONS

Location: Various Conference Rooms

Time: Monday 8:00 am-6:00 pm, Tuesday 8:00 am-12:00 pm

The most obvious and prevalent feature of the conference are the paper presentations. Papers are delivered in 50 or 20 minutes followed by time for questions and transition to the next speaker. Speakers usually request that questions be held until the end of the presentation. There are seven papers being presented simultaneously about different topics, or "sections." Feel free to switch sections as needed — **no advance signup is required.** Most papers are found in the Conference Proceedings. If a paper was not available, there will at least be an abstract, followed by contact information for the author should you want to follow up after the conference.



Refer to Conference Program pages 23-56 for a complete list of paper abstracts and author(s) biography(ies).

For a quick glimpse at what is going on when each day, see the **Schedule At A Glance** on pages 20-22.

POSTERS

Location: Skylight Foyer

Time: All Day Monday & Tuesday until Noon

Drop by the poster area to meet the Poster authors on Tuesday from 9:30-10:30 a.m.

People with more visually oriented presentations sometimes opt for Posters. These are on display in the Skylight Foyer. They are also printed in the Conference Proceedings. Refer to Conference Program pages 41-42 for a complete list of Poster abstracts.

HANDS-ON WORKSHOPS

Location: McTyeire

Time: Monday 8:00 am-5:00 pm, Tuesday 8:00 am-12:00 pm

SESUG '04 is proud to announce the availability of Hands-On Workshops. We will be offering six sessions of 80 minutes each on Monday and Tuesday, taught by well-known experts in the SAS community. Due to a limited number of machines, admission to Hands-On Workshops will be on a first-come, first-served basis. We will have additional seats in the back of the room on a space-available basis; these seats will be made available on a first-come, first-served basis prior to each Workshop.

Refer to Conference Program page 36-37 for a complete list of workshop abstracts and times.

“MEET THE PRESENTERS” OPPORTUNITY



Location: Various Conference Rooms

Time: Tuesday 12:15 pm-1:15 pm

We're pleased and proud to continue a SESUG tradition this year; that of the “Meet the Presenters”. It's a marvelous opportunity to discuss the papers further, and get to know some of our presenters a little better in a casual environment.

It's easier than ever before to take advantage of this Opportunity. **Just pick up your box lunch on Tuesday after 12:00 Noon in the Skylight Foyer** and come by one of the meeting rooms. **No tickets, no reservations, no need to sign up!** The list of presenters is below and where you pickup your box lunch. There will be Open Discussion tables setup in the Skylight Foyer for those who choice not to attend one of the presenters.

Presenter	Topic	Room	Floor
Mike Raithel	Indexes, Mainframe/PC transfers, systems	Carmichael	Mezzanine
John Bentley	Software testing	Skylight Foyer table	Mezzanine
Ron Fehd	Macros and arrays, program headers	Skylight Foyer table	Mezzanine
Lakshmi Pandey	Data Presentation – ODS and GMAP	Skylight Foyer table	Mezzanine
David Cassell	Statistics	Skylight Foyer table	Mezzanine
Mal Foley	merge, SAS log, mouse elbow	Branscomb	Mezzanine
Sean Gargan	SAS documentation	Gold	Lower level
Vince Del Gobbo	SAS and MS/Office	Platinum	Lower level
Jeff Lessenberry	MDDDB, internet apps	Foyer table (Gold/Platinum)	Lower level
Ed Heaton	Tutorials – system options	Foyer table (Gold/Platinum)	Lower level

FEATURED SPEAKER

Location: Symphony III

Time: Tuesday 1:30 pm-2:30 pm

We are pleased and proud to have Barrett Joyner help us close out SESUG '04 as our **Featured Speaker!** Barrett Joyner, Senior VP of Sales and Marketing, Mi-Co, also a giant in the SAS world, will address the conference on Tuesday after lunch, before the closing session, on **“Business Results Through Relationships”**.



Barrett Joyner is Senior VP of Sales and Marketing for Mi-Co (www.mi-corporation.com), driving the customer engagement strategies for this digital writing mobile data capture company (Tablet PCs and Handwriting Recognition on Forms-Way Cool). Barrett has over two decades of leadership and management experience in enterprise software companies, including 16 years at SAS, the world's largest privately held software company. Barrett's positions at SAS included management positions in sales, marketing and executive management. For 8 years Barrett served as VP of Sales and Marketing and 2 years served as President of SAS North America. Barrett served as CEO of FullSeven Technologies, directing the company through the turbulent economic times of late 2001 and early 2002 as FullSeven increased its corporate customer base and put themselves in a position to be acquired. Additionally, Barrett served as Executive Vice President at SciQuest where he was responsible for e-information services, product marketing and corporate communications. Barrett frequently speaks and consults on the executive's role in building productive and fully aligned work teams with a "results through relationships" philosophy. He holds a BA in Political Science from the University of North Carolina, Chapel Hill. Barrett is extremely pleased with his life because his wife, Stephenie, says she still loves him and the kids, Matt and Kate, haven't been arrested lately.

SESUG '05 PLANNING SESSION

Location: Calhoun/Kirkland

Time: Tuesday 12:15 pm-1:15 pm



We want your ideas for next year!

Get involved in the planning of the 2005 conference. Meet the 2005 Conference Chairs, **Deb Cassidy and Jenine Eason**, and let them know what you would like to see happen in 2005. We will also be looking for volunteers for next year's conference, which is scheduled for **October 23rd to 25th** at the **Renaissance Portsmouth Hotel** in the Metropolitan Norfolk, VA area and only eight miles from the Norfolk International Airport. **So grab your lunch and join the planning!**



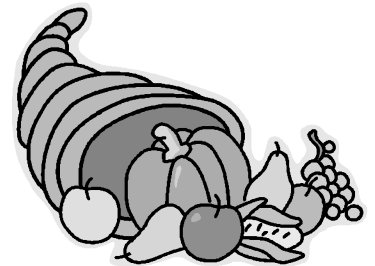
DON'T GO HUNGRY

Location: Skylight and Symphony Foyers and SAS Demo Room

Time: Continental Breakfast—Monday & Tuesday 7:00 am-8:00 am

Time: Breaks—Monday 9:30 am-10:30 am and 3:00 pm-4:00 pm, Tuesday 9:30 am-10:30 am

Plenty of food and drinks! To wake you up and get you started we will have a Continental Breakfast from 7:00 am-8:00 am on Monday and Tuesday in the Skylight and Symphony Foyers. Morning breaks from 9:30 am-10:30 am on Monday and Tuesday will be setup in the Skylight and Symphony Foyers and the SAS Demo Room. The afternoon break from 3:00 pm-4:00 pm on Monday will also be setup in the Skylight and Symphony Foyers and the SAS Demo Room. **Remember**—Beverages will be available all day Monday (7:00 am to 6:00 pm) and Tuesday (7:00 am to 1:30 pm) in the Skylight and Symphony Foyers and the SAS Demo Room.



PRE-CONFERENCE WORKSHOPS

Location: Various Conference Rooms

Time: Saturday 1:00 pm-5:00 pm, Sunday 8:00 am-5:00 pm

SESUG is pleased to offer extra-fee pre-conference training workshops before this year's conference. These sessions are given by **well-known SAS experts** selected by the SESUG conference leadership for their subject-matter knowledge and presentation skills, and provide a range of learning opportunities for SAS users at all experience levels. The discounted lodging rate at the Loews is available for attendees who want to arrive before the SESUG conference to attend these events.

Please note we have made changes this year to enable more attendees to take advantage of these in-depth workshops. We have **reduced the fees** and limited the workshops to Saturday afternoon and Sunday. Also new this year, we **will not cancel** a workshop except in the unlikely event the instructor is unable to attend the conference.

CLOSING SESSION

Location: Symphony III

Time: Tuesday 2:30 pm-3:00 pm

We've saved the best for last. As SESUG '04 comes to a close on Tuesday afternoon during the Closing Session, the **SESUG Dixie Chicks** (Mel and Neil) will say "goodbye and y'all come back now, ya hear!" The **SESUG '05 Chairs, Deb Cassidy and Jenine Eason**, will give us a preview of what to expect when we reconvene in Portsmouth, VA, October 23rd to 25th in 2005. PLUS, there will be **door prizes**, including great books and SAS paraphernalia from SAS Institute and a **free registration** to next year's conference. Most prizes require that the attendee be present at the Closing Session to win. **You don't want to miss this!**



VIRTUAL LEARNING CAFE

Location: Skylight Foyer

Time: Monday 8:00 am-6:00 pm, Tuesday 8:00 am-1:30 pm

Destiny Corporation is sponsoring the Virtual Learning Cafe. Users get to learn a variety of SAS topics, **free of charge**. Virtual Learning, brought to you by Destiny Corporation, brings the dynamic classroom environment to you. **This is a totally new and unique way to learn.** Experience the quality and benefits of 'Instructor Led' training from the comfort of your own PC, when you need it.

Individuals who use our environment advance their knowledge in SAS topics and increase their retention of those topics. There are several training paths and modules to choose from offered at this conference.

? Introduction to SAS	? Creating Graphs	? Using the Output
? Creating Reports	? Transforming Data	Delivery System
? Summarizing Data	? Creating Calculations	? And more

SAS DEMO ROOM AND SESUG SPONSORS

Location: Symphony I & II

Time: Monday 8:00 am-7:00 pm & Tuesday 8:00 am-12:00 pm

Be sure to visit the Demo Room, where you can:

- ✍ See demos of SAS software products.
- ✍ Register for valuable **giveaways**.
- ✍ Browse through new Institute documentation at the Publications Booth and order books at a special discount. The **Publications Booth** will be offering a **20% discount** on all SAS documentation ordered at SESUG '04 (certain restrictions apply).
- ✍ Stop by to meet **SAS developers** or ask questions of SAS service groups such as Publications, Technical Support, and Executive and User Events. **We welcome your feedback and input.**
- ✍ Visit the **General Customer Support** booth to explore ways to put the full range of SAS services and support to work for you. We can help you make sure you are getting the ultimate benefit from all of the services available to you as a SAS customer and that you are deriving maximum value from your SAS investment.
- ✍ Get ideas for building awareness of the value of SAS within your organization, assess the support needs of your SAS users, and more.
- ✍ **Meet with SESUG 2004 corporate sponsors.** Find out about their SAS related products and services.

Sponsorship of the SESUG conference is extremely important and appreciated! Several companies offering products and services that complement the SAS System have decided to be a part of SESUG '04. Most of these have elected to have a booth in the SAS Demo Room. Please see pages 13-17 of this Conference Program for their ads and visit them in the Demo Room and **thank them for supporting SESUG '04.**

CONFERENCE COURTESIES

In response to requests from attendees at other SAS conferences in previous years, SESUG '04 has been designated a **no smoking conference**. Please refrain from smoking in the foyer areas and meeting rooms. You may, of course, smoke in other areas of the Loew's Vanderbilt Hotel where smoking is permitted.

Please remember that you cannot record, tape, or photograph ANY portion of any presentation without the express permission of the presenter.

Finally, when you're listening to a paper; please, please remember that there are people all around you trying to listen and enjoy the presentation too. We ask that you turn off the ringers of all cell phones, beepers, and watch alarms; keep conversation low and to a minimum; and when you leave, please take your glass, cup, or plate with you.

THANKS!!

RIBBONS

Some attendees have ribbons attached to their name badges. These indicate their type of participation. The ribbons and their meanings are:

DARK GREEN	Conference Co-chairs: <i>Imelda Go & Neil Howard</i>
PURPLE	SESUG Executive Council: co-chairs of past, present & future conferences
ROYAL BLUE	Section Chairs: organizers of presentations and facilities
PINK	Volunteers: Session Coordinators, facilitators of presentations in at least one session per Section, and supporters in other activities like Registration
RED	Speakers: presenters of Invited (50 min.), Contributed (20 min.), or Coders' Corner (10 min.) papers, or of posters
SEA BLUE	SAS Institute participants: Invited presenters & SI "Demo" area support staff
BLACK	Vendors and Exhibitors
GOLD	Guests

The Conference Chairs and SESUG Executive Council members have been intimately involved with the planning of the conference. If you have any questions or comments about SESUG '04, look for the people with the Purple and Green ribbons and talk with them! Your input is essential to the continued success of the conference.

POSITION REFERRALS

We have made available a way for employers and job-seekers to connect at SESUG. At the Registration Desk, you will find books where you can post your resume or a fact sheet for prospective employers; and employers can post positions that are available. Remember, SESUG will not endorse people, positions, or companies in any way.

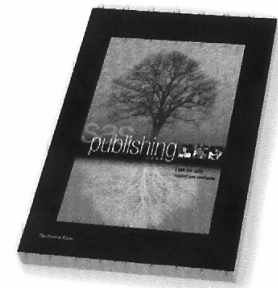
PROMOTIONAL ACTIVITY

Sales literature or product descriptions of a sales nature **may not** be displayed on bulletin boards or other public areas at the conference unless permission is received from the conference chairs. Some papers and poster presentations deal with a vendor's products or services. We have emphasized to these presenters that they should not discuss pricing or other sales-related issues in the presentation. **SESUG does not support or endorse the direct marketing efforts**, such as hospitality suites, of any vendor. See the **SESUG Guidelines** on page 63.

Save **20%** on SAS books while at the conference.*

Visit the SAS® Publishing Booth to learn more about...

- **New Books and New Upcoming Titles**
- **Books by Users™ Press** - users wrote them, users love them
- **SAS® Learning Edition** - discover the power of SAS and propel your career
- **SAS® Self-paced e-Learning** - bring SAS training directly to your desktop



SAS Publishing offers you a comprehensive library of documentation for every component of SAS software. Stop by the booth, place your order and receive a **20% discount** on your SAS documentation purchase. SAS staff will be on hand to answer any questions and to assist you with your order.

Enjoy the conference!



SAS Publishing

The Power to Know.

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COOL STUFF TO DO



Photo by Barry M. Winiker

Visual Arts

- ✂ The Parthenon
- ✂ Cheekwood Museum of Art
- ✂ Country Music Hall of Fame
- ✂ Frist Center for Visual Arts
- ✂ Vanderbilt Fine Arts Gallery
- ✂ Tennessee State Museum
- ✂ The Van Vechten Gallery at Fisk University
- ✂ Cumberland Museum and Science Center

Music City Fun

- ✂ General Jackson Showboat
- ✂ Nashville Zoo
- ✂ Tennessee Fox Trot Carousel
- ✂ Nashville Shores Water Park
- ✂ The Wave Pool
- ✂ Opry Mills Entertainment Complex
- ✂ Recreation World
- ✂ Centennial Sportsplex

Musical Nightlife

- ✂ **drink**, the lounge at Loews Vanderbilt
- ✂ Wildhorse Saloon
- ✂ Bluebird Café
- ✂ Station Inn
- ✂ Bluegrass Inn
- ✂ F. Scott's
- ✂ Legend's Corner
- ✂ Tootsie's Orchid Lounge
- ✂ Robert's Western World
- ✂ 12th and Porter
- ✂ Douglas Corner Café



Photo by Barry M. Winiker

Performing Arts

- ✂ Tennessee Performing Arts Center
- ✂ Ryman Auditorium
- ✂ Grand Ole Opry
- ✂ Tennessee Repertory Theatre
- ✂ Nashville Children's Theatre
- ✂ Nashville Opera Association
- ✂ Nashville Ballet Company
- ✂ Nashville Symphony
- ✂ Nashville Chamber Orchestra
- ✂ Great Performances at Vanderbilt
- ✂ Tennessee Dance Theatre

Sports & Games

- ✂ Tennessee Titans NFL Football
- ✂ Nashville Sounds Baseball
- ✂ Nashville Predators NHL Hockey
- ✂ Iroquois Memorial Steeplechase
- ✂ Nashville Speedway
- ✂ Music City Raceway



Photo by Gary Layda

Savvy Shopping

- ✂ **shop**, the boutique at Loews Vanderbilt
- ✂ The Mall at Green Hills
- ✂ Made in France
- ✂ Fleming's
- ✂ Jamie
- ✂ American Artisan
- ✂ Coco's
- ✂ Opry Mills
- ✂ Green Hills Antique Mall
- ✂ The Mall at Cool Springs

Historic Sites

- ✂ The Parthenon
- ✂ The Hermitage
- ✂ Belle Meade Plantation
- ✂ Cheekwood Botanical Gardens
- ✂ Ryman Auditorium
- ✂ Travellers Rest Plantation
- ✂ Two Rivers Mansion
- ✂ Fort Nashborough
- ✂ Tennessee State Capitol
- ✂ Bicentennial Mall State Park



Photo by Gary Layda

Golf

- ✂ The Legends Club
- ✂ McCabe Golf Course
- ✂ Harpeth Hills
- ✂ Percy Warner Golf Course
- ✂ Hermitage Golf Course
- ✂ Springhouse Golf Course

Nearby Dining

- ✂ **eat**, the restaurant at Loews Vanderbilt
- ✂ Jimmy Kelly's
- ✂ The Boundry
- ✂ Midtown Café
- ✂ Sunset Grill
- ✂ Blackstone Brewery and Pub
- ✂ Amerigo
- ✂ Hard Rock Café
- ✂ P.F. Chang's China Bistro
- ✂ Ruth's Chris Steakhouse
- ✂ Fleming's Steakhouse
- ✂ Kobe Steaks
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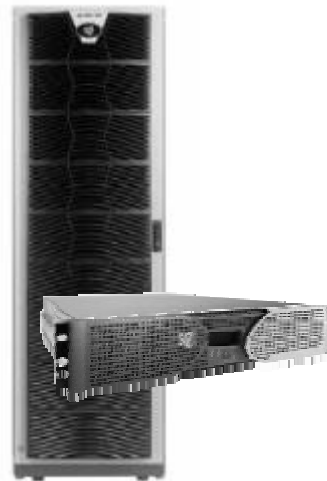
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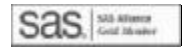
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CONFERENCE SCHEDULE

Here is the SESUG '04 general schedule. Please visit the Registration & Information Area if you have questions. The Registration & Information Desk will be closed for lunch from 12:00-1:00 pm Monday and Tuesday.

Refresh yourself – Beverages will be available all during the day in the Skylight and Symphony Foyers!

Saturday, October 30th, 2004

1:00 pm – 5:00 pm	Workshop: Pat Cerrito's <i>Using SAS[®]/Stat to Mine Data</i>	Neely
1:00 pm – 5:00 pm	Workshop: Steven First's <i>SAS[®] Efficiencies – Techniques for Improving Your Code</i>	Sarratt

Sunday, October 31st, 2004

8:00 am – 12:00 pm	Workshop: Steven First's <i>What's New in SAS[®] 9 - An Overview of a Few Hundred New Things</i>	Neely
8:00 am – 5:00 pm	Workshop: Frank Dilorio's <i>Building SAS[®] Utilities: Putting Dictionary Tables, SQL and the Macro Language to Work</i>	Kissam
8:00 am – 5:00 pm	Workshop: David Cassell's <i>Sampling with the SAS[®] System</i>	Sarratt
1:00 pm – 5:00 pm	Workshop: Mal Foley's <i>Merging, Combining and Subsetting Files (Tricks, Traps and Techniques)</i>	Neely
12:00 pm – 6:00 pm	Conference Registration & Information Area	Symphony Foyer
3:30 pm – 4:30 pm	Presenters & Volunteers Meeting	Calhoun/Kirkland
5:00 pm – 6:00 pm	Preview of SESUG '04	Calhoun/Kirkland
7:30 pm – 8:30 pm	Opening Session and Keynote Address: David Kelley, "Five Things Everyone Should Know About ODS"	Symphony III
8:30 pm – 11:00 pm	Welcome Reception & Halloween Party	Symphony III & Foyer

Monday, November 1st, 2004

7:00 am – 6:00 pm	Conference Registration & Information Area	Symphony Foyer
7:00 am – 8:00 am	Continental Breakfast	Skylight & Symphony Foyers
8:00 am – 12:00 pm	Concurrent Sessions	
	Application Development	Platinum
	Data Management	Sarratt
	Data Presentation	Kissam
	Hands-On Workshops	McTyeire
	Intro to SAS	Symphony III
	Posters	Skylight Foyer
	Serendipity	Carmichael
	Statistics and Data Analysis	Neely
	Tutorials	Calhoun/Kirkland
8:00 am – 7:00 pm	SAS Demo Room	Symphony I&II
9:30 am – 10:30 am	Morning Break	Skylight & Symphony Foyers
1:30 pm – 6:00 pm	Concurrent Sessions	
	Application Development	Platinum
	Data Management	Sarratt
	Data Presentation	Kissam
	Hands-On Workshops	McTyeire
	Intro to SAS	Symphony III
	Posters	Skylight Foyer
	Serendipity	Carmichael
	Statistics and Data Analysis	Neely
	Tutorials	Calhoun/Kirkland
3:00 pm – 4:00 pm	Afternoon Break	Skylight & Symphony Foyers
5:30 pm – 7:00 pm	SAS Breakthrough Tour Reception	Symphony I&II
7:30 pm – ???	Nashville Nights Kickback Party	Symphony III & Foyer

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CONFERENCE SCHEDULE

Here is the SESUG '04 general schedule. Please visit the Registration & Information Area if you have questions. The Registration & Information Desk will be closed for lunch from 12:00-1:00 pm Monday and Tuesday.

Refresh yourself – Beverages will be available all during the day in the Skylight and Symphony Foyers!

Tuesday, November 2nd, 2004

7:00 am – 12:00 pm	Conference Registration & Information Area	Symphony Foyer
7:00 am – 8:00 am	Continental Breakfast	Symphony & Skylight Foyers
8:00 am – 12:00 pm	Concurrent Sessions	
	Application Development	Platinum
	Coder's Corner	Gold
	Hands-On Workshops	McTyeire
	Intro to SAS	Symphony III
	Posters	Skylight Foyer
	Serendipity	Carmichael
	Tutorials	Calhoun/Kirkland
8:00 am – 12:00 pm	SAS Demo Room	Symphony I&II
9:30 am – 10:30 am	Morning Break	Skylight & Symphony Foyers
12:15 pm – 1:15 pm	"Meet the Presenters" Opportunity	Various Rooms (See p. 8)
12:15 pm – 1:15 pm	SESUG 05 Planning Session	Calhoun/Kirkland
1:30 pm – 2:30 pm	Featured Speaker: Barrett Joyner, "Business Results Through Relationships"	Symphony III
2:30 pm – 3:00 pm	Closing Session	Symphony III

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SCHEDULE AT A GLANCE

Monday Morning Schedule

7:00-8:00 AM, Continental Breakfast in the Skylight and Symphony Foyers.
 Registration & Information Area in the Symphony Foyer; Open 7:00 AM to 6:00 PM.
 (Closed for Lunch from 12:00 to 1:00 PM)

Refresh yourself – Beverages will be available all during the day in the Skylight and Symphony Foyers!

Section (Room)	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	
Applicatons Development (Platinum)	An Introduction to SAS/SHARE By Example <i>Altmayer B</i>		Software Testing Fundamentals--Concepts, Roles, and Terminology <i>Bentley</i>		Using SAS® at SAS: The Mining of SAS Technical Support <i>Sanders & DeVault</i>		Journeyman's Tools: Two Macros — ProgLst and PutMvars — to Show Calling ... <i>Fehd</i>		
Data Management (Sarrat)	Building Efficient State Transition Diagrams from Charges, Collection and Call Detail Transactional Feeds <i>Pepppe</i>		Using PROC COMPARE in a SAS/AF Application for Tracking Corrections made to SAS Datasets for a Clinical Trial <i>Mixon & Fowler</i>		No Fuss Hashing: Data Step's Built-in Hash Object <i>Secosky</i>		Using Different Methods for Accessing Non-SAS® Data to Build and Incrementally Update That Data Warehouse <i>Cochran</i>		
Data Presentation (Kissam)		Quality of Life Analysis for Patients Receiving Heart Implants <i>Petrou & Nfodjo</i>	A SAS Macro for Construction of Symbol Statements <i>Blum</i>		Using DDE to Customize Formatted Reports in Excel <i>Beal</i>		Statistical Analysis of Gene Expression Micro Arrays <i>Schwarz</i>		
Hands On Workshops (McTyeire)			An Introduction to Macros <i>Cassidy B</i>			Introduction to PROC SQL <i>First B</i>			
Intro to SAS (Symphony III)	The SAS Data Step: Where Your Input Matters <i>Eberhardt B</i>		Why the DATA Step Does What It Does <i>Howard B</i>		A Roadmap to SAS Documentation <i>Gargan & Moell B</i>		What's That Note/Warning/Error Mean & How Do I Fix it? <i>Cassidy B</i>		
Posters (Skylight Foyer)	Doing More with SAS/GRAPH GMAP: A New Look at an Old Procedure <i>Okerson</i> Matching SAS® Data Sets: If at First You Don't Succeed, Match, Match Again <i>Go</i> Installing SAS/IntrNet on Windows and Linux <i>Zhuang and Schiro</i> SAS-L: The Basics <i>Kelley</i> The Evolution of a SAS/GRAPH Application <i>Eason</i> SAS® Programs to Select Controls for Matched Case-Control Studies <i>Matthews & Brill</i>								
Statistics and Data Analysis (Neely)		Binary Logistic Regression Model Optimization <i>Musial</i>	Building and Analyzing Probabilistic Sampling Designs using SAS <i>Cassell BIA</i>		Crossover Designs and PROC Mixed in SAS <i>Yarandi</i>		Case Studies in Time Series <i>Dickey</i>		Simulation Study to Evaluate ANOVA and GEE for Comparing ... <i>Litaker & Ferris</i>
Serendipity (Carmichael)	Methods for Minimizing Errors in Address Data <i>Stojanovic I</i>	Where's The Match? <i>Waller & Brantley & Podolsky I</i>	Array: Construction and Usage of Arrays of Macro Variables <i>Fehd I</i>		Avoiding Mouse Elbow <i>Foley BIA</i>		Cutting the SAS® LOG down to size <i>Foley BIA</i>		Panel: Launching a Web Application <i>Tabladillo & Droogendyk & Eason & James & Vierhout BIA</i>
Tutorials (Calhoun/ Kirkland)	8 Characteristics of a Successful Data Warehouse <i>Brown</i>		A Gentle Introduction To SAS/GRAPH <i>Cochran B</i>		SAS® Macro Design Issues <i>Whitlock</i>		PICTURE Perfect: In depth look at the PICTURE format <i>Croghan</i>		

Level Indicator: **B** – Beginning **I** – Intermediate **A** – Advanced

Lunch on your own. See the Information Area for list of local restaurants.

Monday Afternoon Schedule

7:00-8:00 AM, Continental Breakfast in the Skylight and Symphony Foyers.
 Registration & Information Area in the Symphony Foyer; Open 7:00 AM to 6:00 PM.
 (Closed for Lunch from 12:00 to 1:00 PM)

Refresh yourself – Beverages will be available all during the day in the Skylight and Symphony Foyers!

Section (Room)	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30
Applications Development (Platinum)	A Hiker's Guide to Web Development <i>James</i>		A Quick and Dirty Query System using HTML, Proc SQL, and SAS/IntrNet <i>McGowan</i>		Building a SAS Application to Manage SAS Code <i>Michaels</i>		Generate a Metadata for Analysis <i>Paladines</i>		
Data Management (Sarrat)	Methods of Storing SAS® Data into Oracle Tables <i>Levin</i>	Using SAS® to Facilitate Data Comparisons <i>Thissen & Heath</i>		To MDDB or not to MDDB - That is the question <i>Lessenberry</i>		Finding Needles in the Documentation Haystack <i>Myers & Smarrella</i>	Sounding the Trumpet: Effective Failure Notification <i>Hopkins</i>		Text Miner Analysis to Compare Internet & Medline Info about AllergyMed <i>Battioui</i>
Data Presentation (Kissam)	Automated Data Collection Using SAS and FTP <i>Busby</i>		Building a Web Based EIS for Data Analysis <i>Confer</i>		Next Step in Data Visualization: ODS Graphics Template Language <i>Cartier</i>		ODS, Proc GMAP and SAS/Intrnet: MAP Your Own Response Data <i>Pandey</i>		
Hands On Workshops (McTyeire)	Version 9 ODS - Basics <i>Rafiee BI</i>			Version 9 Programming Enhancements <i>Fecht I</i>					
Intro to SAS (Symphony III)	How to Incorporate Old SAS Data into a New DATA Step, or "What is S-M-U?" <i>Kuligowski B</i>		(In)formats (In)decently Exposed <i>Droogendyk B</i>		When Bad Programs Happen to Good People : Shuffling, Shifting, ... <i>Schlegelmilch</i>	Here's the Data, Here's the Report I Want - How Do I Get There? <i>Buck B</i>		The Utter Simplicity and Power of the TABULATE Procedure <i>Bruns B</i>	
Posters (Skylight Foyer)	Doing More with SAS/GRAPH GMAP: A New Look at an Old Procedure <i>Okerson</i> Matching SAS® Data Sets: If at First You Don't Succeed, Match, Match Again Go Installing SAS/IntrNet on Windows and Linux <i>Zhuang and Schiro</i> SAS-L: The Basics <i>Kelley</i> The Evolution of a SAS/GRAPH Application <i>Eason</i> SAS® Programs to Select Controls for Matched Case-Control Studies <i>Matthews and Brill</i>								
Statistics and Data Analysis (Neely)	Using SAS to Make an Independent Assessment of Electronic Medical Records <i>Cerrito</i>		Mixed Models Analysis of Microarray Experiments Using ... <i>Blum & Liu</i>	Structural Equation Modelling Microarray Data <i>Tesfamicael</i>	Taking it Home and Putting it into Practice <i>Cunningham</i>		Mixed Model Influence Diagnostics <i>Schabenberger</i>		
Serendipity (Carmichael)	Fresh SAS Programming Tunes from Hashville <i>Dorfman & MartchenkoBIA</i>	Stata® for the Struggling SAS® Mind <i>Blanchette BIA</i>	44 Tricks with the 4mat Procedure <i>Cochran I</i>		SAS® Add-In for Microsoft Office – Leveraging SAS® Throughout the Org. from Microsoft® Office <i>Clegg & McDaniel</i>		The Perks of PRX... <i>Cassell I</i>		
Tutorials (Calhoun/Kirkland)	Case Studies in Time Series II - Periodic Behavior and Related Issues <i>Dickey</i>		An Overview of Non-parametric Tests in SAS: When, Why and How <i>Pappas & Depuy</i>		Dictionary Tables and Views: Essential Tools for Serious Applications <i>Dilorio & Abolafia</i>		Speaking Klingon: The Power TABULATE <i>Rhodes B</i>	Losing the Fat: One Application's Journey to the Internet <i>Lessenberry</i>	

Level Indicator: B – Beginning I – Intermediate A – Advanced

5:30 pm-7:00 pm, SAS Breakthrough Tour Reception in Demo Room (Symphony I&II)

7:30 pm-???, Nashville Nights Kickback Party (Symphony III & Foyer)

Tuesday Morning Schedule

7:00-8:00 AM, Continental Breakfast in the Skylight and Symphony Foyers.

Registration & Information Area in the Symphony Foyer; Open 7:00 AM to 12:30 PM.

Refresh yourself – Beverages will be available all during the day in the Skylight and Symphony Foyers!

Section (Room)	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
Applicatons Development (Platinum)	SAS® Macros: Tips, Techniques, and Examples <i>Traldi</i>		Exceptional Exception Reports <i>McQuown</i>		Creating Meaningful Data from Web Logs Using Base SAS® <i>Eason & Johannesen</i>			
Coder's Corner (Gold)	8:00 am-Tips of Installing SAS/IntrNet on Linux <i>Zhuang & Schiro</i> 8:15 am-SAS Dating Tips - A Beginner's Guide to SAS Dates <i>Larsen</i> 8:30 am-%WINDOW: SAS' Diamond In the Rough <i>Mann</i> 8:45 am-Transferring Your Mainframe SAS Programs to Your PC in Three Easy Steps <i>Raithel</i> 9:00 am-Using Acting Techniques to Create a Successful Presentation <i>Levin</i> 9:30 am-Tip: How to Use a 'quoted' SAS Macro Variable to Select Observations <i>Moore</i> 9:45 am-Double Your Pleasure, Double Your Words... <i>Cassell</i> 10:00 am-Faster Flat File Sampling <i>Bentley</i> 10:15 am-Tools to Transfer Data between SAS® and Stata® <i>Blanchette</i> 10:45 am-Quick and Easy Visualization of Longitudinal data with the WEBFRAME graphics device <i>Delaney</i> 11:00 am-Programatic Handling of Varying Report Requirements <i>Snider</i> 11:15 am-Data Set Options - What Comes First? <i>Snider B</i> 11:30 am-Journeymen's Tools: The Writing for Reading and Reuse Program Header or Everything You Ever Wanted to Know About a Program but Were Afraid to Ask Fehd 11:45 am-Merging: Avoid the Cones <i>Bonow</i>							
Hands On Workshops (McTyeire)			Moving Data and Analytical Results between SAS® and Microsoft® Office <i>DelGobbo</i>		Creating and Exploiting SAS Indexes <i>Raithel BI</i>			
Intro to SAS (Symphony III)			ODS: What is it, Why would you use it, What can you do with it? <i>Kelley</i>					
Posters (Skylight Foyer)	Doing More with SAS/GRAPH GMAP: A New Look at an Old Procedure <i>Okerson</i> Matching SAS® Data Sets: If at First You Don't Succeed, Match, Match Again <i>Go</i> Installing SAS/IntrNet on Windows and Linux <i>Zhuang and Schiro</i> SAS-L: The Basics <i>Kelley</i> The Evolution of a SAS/GRAPH Application <i>Eason</i> SAS® Programs to Select Controls for Matched Case-Control Studies <i>Matthews and Brill</i>							
Serendipity (Carmichael)	SAS Application for Human Health Risk Assessment for Hazardous Waste Combustion Facilities <i>Beal & etal I</i>	Bring the Data Warehouse to the Office with SAS® Integrations <i>Eberhardt I</i>	A Different Approach to Learning SAS® Software <i>Stojanovic BI</i>		Rules for Tools - The SAS Utility Primer <i>Dilorio IA</i>		Spatial Statistics Using the SAS Bridge to ESRI <i>Cerrito & Hanchette & Barne & Dakan & Forbes I</i>	
Tutorials (Calhoun/Kirkland)	SAS System Options are your Friends <i>Heaton</i>		Pretty Dates All in a Row <i>Rhodes</i>		A Second Look at SAS Macro Design Issues <i>Whitlock</i>		Toward Object-Oriented Macros in SAS® A Second Look at SAS Macro Design Issues <i>Tabladillo</i>	

Level Indicator: **B** – Beginning **I** – Intermediate **A** – Advanced

12:15 pm- 1:15 pm, "Meet The Presenters" Opportunity

(Pickup Box Lunch in Skylight Foyer)

(Presenters in Various Meeting Rooms; See page 8 and Information Area for list)

12:00 pm- 1:30 pm, SESUG 05 Planning Session (Calhoun/Kirkland)

1:30 pm-2:30 pm, Featured Speaker – Barrett Joyner (Symphony III)

"Business Results Through Relationships"

2:30 pm-3:00 pm, Closing Session (Symphony III)

PAPERS AND PRESENTATIONS

This section lists the abstracts and author(s) biography(ies) for the over 100 papers and presentations for SESUG '04. To the left of the title is the presentation time. To the left of the name(s) of author(s) is the paper number (so you can match it up with the paper in the Conference Proceedings). To the left of the abstract is the paper level (B for Basic; I for Intermediate; A for Advanced) if known.

- ✍ All Sections are presented in alphabetical order.
- ✍ Papers and presentations are arranged in order of presentation (by day, room, and time) for all sections except Posters.
- ✍ An overall layout of presentation times and locations is found in the **"Schedule At A Glance"** on pages 20-22.

Below is a brief description of each section that is on the following pages. The section abbreviation in parenthesis is used as the first part of the paper number.

Application Development (AD)

The Applications Development section recognizes the role of SAS® software as a basis for the development of strategic applications and provides overviews of the application's code and the techniques used in its development. Presentations in this section deal with both the process and productivity tools used in the design, development, implementation and integration of enterprise solutions running in single or multi-platform environments. Presentations may include Web-enabled applications, object-oriented applications, modular applications or applications that integrate SAS software with other software products.

Coders' Corner (CC)

10-minute tutorials (1-2 pages) and 'how-to' talks on tips and techniques while using the SAS system. These brief tutorials on helpful hints in SAS can be the priceless gem you have been looking for to solve that pesky problem back at the office.

Data Management (DM)

Papers that tell how to deal with that pile of data. Topics will run the gamut of: collection and input, structure, validation, maintaining integrity, archiving, conversion between forms, warehousing and tracking of data.

Data Presentation (DP)

Papers for this section involve discussions of a variety of SAS tools and techniques for visually displaying your data, whether it's graphical output or a customized report. Topics in this section are geared toward conveying meaningful data in a visually effective manner, which clearly and concisely communicates information to the intended audience using tools such as SAS/GRAPH®, SAS/INSIGHT, the TABULATE and REPORT procedures, and the Output Delivery System (ODS).

Hands On Workshops (HW)

Features SAS software experts to give workshop-style tutorials and provide the opportunity for attendees to practice using SAS software. These workshops are presented by well-known SAS experts and have been chosen based upon their knowledge and experience at conducting hands on type workshops/courses.

Intro to SAS (IN)

This is a one-day section designed to sequentially guide new SAS users through the basics of SAS programming. Presentations introduce the basic concepts of using DATA and PROC steps. All presentations are given by experienced users with expertise in the specific area being presented.

Posters (PS)

The Posters section is about any and all uses of SAS software. It is different from other sections in that the medium for presentation is a visual display rather than a formal lecture. The Posters section is presentations that include graphics or source code or that can best be summarized in a few main points. Posters are on display throughout the conference with a presentation period for authors to discuss their works on a one-to-one basis with conference attendees.

Serendipity (SY)

Papers that do not fit well into the other categories, but are interesting and informative nonetheless. Presentations will encompass a variety of subjects and promise to entertain and enlighten. Remember that feeling of discovering something that will solve that SAS problem? Webster's Dictionary calls it Serendipity!

Statistics and Data Analysis (SD)

Presentations in Statistics and Data Analysis cover statistical and data analysis techniques, including statistical procedures, methodologies and techniques for efficient data manipulation and preparation using the SAS System. Papers from many different industries are represented in this section and are geared toward a variety of audiences with a wide array of experience using the SAS System, from the beginner to the more advanced. Traditional DATA step programmers, statistical programmers, and statisticians, as well as others, will find topics of interest here.

Tutorials (TU)

In-depth explanations of a wide range of topics within the SAS System. Papers are designed to provide users at all levels of expertise with specific "how-to" tools presented in a step-by-step approach. Papers focus on one procedure or functional area or provide an initiation to some aspect of the SAS System. From the tutorial, attendees will gain a fundamental understanding of the topic and be able to immediately apply what they have learned to their jobs.

APPLICATIONS DEVELOPMENT

Section Chairs: Gary Schlegelmilch
US Bureau of the Census
Washington, DC

Robert McCurdy
Independent Consultant
Waynesboro, PA

Monday Morning -- Platinum

8:00 am-
9:00 am

An Introduction to SAS/SHARE By Example

AD01 Larry Altmayer, *U.S. Census Bureau, Washington DC*

B

SAS/SHARE software is a useful tool for allowing several users to access and edit the same data set at the same time in their individual SAS sessions. Without this software, data sets are only available for simultaneous use if the data set is set to browse mode in the properties window of a SAS frame application. With the software, if the data set properties are set to an edit mode, different users can edit different rows of the same table at the same time.

This paper gives an introduction to using SAS/SHARE to access and edit a variation of the HOUSES SAS data set in a small SAS/AF application to be used by several users at the same time. We demonstrate how to start and stop a SAS/SHARE server, and assign a libname to the server. We also show how the application works while different users are simultaneously editing the data. From the software viewpoint, we touch on the requirement for having the server name in the /etc/services file. Finally, we look at SAS/SHARE macros as a way to condense code.

Larry Altmayer has been with the Bureau of the Census for twenty-six years, and is an information technology specialist. He has fifteen years SAS programming experience. He has processed National Crime Victimization Survey data. Most recently, he joined the Bureau's StEPS Team, which develops a batch and SAS/AF system for economic surveys. He has a B.A. in Statistics from the Univ. at Buffalo, and Master of Applied Statistics from Ohio State University.

9:00 am-
10:00 am

Software Testing Fundamentals--Concepts, Roles, and Terminology

AD02 John E. Bentley, *Wachovia Bank, Charlotte NC*

SAS® provides a complete set of application development tools for building stand-alone, client-server, and Internet-enabled applications, and SAS Institute provides excellent training in using their software. But making it easy to build applications can be a two-edged sword. Not only can developers build powerful, sophisticated applications, but they can also build applications that frustrate users, waste computer resources, and damage the credibility of both the developer and SAS software. SAS Institute offers little guidance related to the software development life-cycle, and this author is concerned that complex SAS applications may be released and deployed without proper testing. For those unfamiliar with the topic, this paper can serve as a primer or first step in learning about a more formal, rigorous approach to software testing. The paper does not address any specific SAS product and may be appropriate for even experienced application developers.

Since 1987 John Bentley has used SAS in the healthcare, insurance, and banking industries. He is currently an Assistant Vice President with Wachovia Bank's Corporate Data Management Group where he supports the Bank's data warehouse and data marts. John is a SAS Certified Advanced Programmer, has been a Section Chair at both SUGI and SESUG, and is the 2003-2004 President of the Charlotte Area Wachovia In-House SAS Users Group. His current professional interests are automating SAS programs and parallel computing. John has a Masters degree in Political Science with a Concentration in Southeast Asian Politics and is currently enrolled in a Masters of Information Systems program.

10:00 am-
11:00 am

Using SAS® at SAS: The Mining of SAS Technical Support

AD03 Annette Sanders, *SAS, Cary NC*
Craig DeVault, *SAS, Cary NC*

Over the last decade, the amount of data that has been collected and stored has increased dramatically. Statistical methods have been, and continue to be, refined and perfected to yield valuable answers to business problems and goals using standard qualitative and quantitative data analysis methods. However, an overwhelming portion of all data collected is actually unstructured text. The evaluation of textual data is a relatively new focus area of statistics. Classical methods that generate answers to business problems can be enhanced effectively by coordinating the analysis of textual data with SAS® Enterprise Miner™ and SAS® Text.

The Technical Support Division at SAS has not escaped this deluge of data. Although we collect data for every question or problem that we receive in order to manage the delivery of answers and solutions, we have never used the data as a tool for discovering underlying behavior or patterns of software and support issues -- until now.

(Biography not available at time of printing.)

11:00 am-12:00 pm **Journeyman's Tools: Two Macros — ProgList and PutMvars — to Show Calling Sequence and Parameters of Routines**

AD05 Ronald Fehd, *Centers for Disease Control and Prevention, Atlanta GA*

A program that is a job may define parameters for and call other programs which are routines. SAS routines and subroutines may be implemented as %includes or macros. Routines call other routines and subroutines. When testing or debugging multi-level %includes, it is difficult to determine which parameter in which routine or subroutine produced an error or warning message in the log.

This paper discusses options used for testing, provides a new option, shows subroutine control using session constants, and illustrates two macros to show parameters and calling sequence of routines. Expected audience is intermediate to advanced programmers with experience using %includes with parameters.

Ron Fehd SAS-L's macro maven

Monday Afternoon – Platinum

1:30 pm-2:30 pm **A Hiker's Guide to Web Development**

AD06 Steve James, *Centers for Disease Control and Prevention, Atlanta Ga*

Building web applications using SAS/IntrNet® Application Dispatcher is a lot like hiking. At first, it is hard. You struggle getting used to your equipment and the new terrain. Then it gets easy as you settle into a pace you like and get into a rhythm. Then it gets hard again as you tire and have to make that final push towards the finish. However, once you get there you can sit back, relax and enjoy having completed the task.

If all that is true, then how should you do it? What can you expect along the way? What kind of equipment do you need and whom should you take with you? This paper is a trail guide for developing web applications with Application Dispatcher and describes the process, pitfalls and practical issues that you can expect to encounter. Specific topics that are covered include system analysis and design, learning Application Dispatcher, coding issues, usability, security, and final deployment.

This paper is designed for users at all skill levels working on all operating systems.

Steve James currently is working as an IT Specialist at the Centers for Disease Control and Prevention in Atlanta Ga. He's been using the SAS System as a programmer for nearly 20 years. He's been developing web applications using Application Dispatcher for the last five years, and he particularly enjoys the challenges from writing macros and using PROC REPORT.

2:30 pm-3:30 pm **A Quick and Dirty Query System using HTML, Proc SQL, and SAS/IntrNet**

AD07 Kevin McGowan, *Constella Group, Inc., Durham NC*

Every SAS programmer needs ad hoc queries to help with debugging or to give results to others. Usually programmers will either write a new program or take an existing program and modify it to generate the report or data they need. This is time consuming and can lead to errors. The system described in this paper allows any user to query a database or SAS dataset without writing a SAS program. The system uses basic HTML, proc sql, SAS Macros, and SAS IntrNet to provide programmers and end users with an interactive web page that allows them to enter various parameters to query a database or dataset. The output format can be raw data, data listings (by using proc print) or frequency counts (by using proc freq.)

(Biography not available at time of printing)

3:30 pm-4:30 pm **Building a SAS Application to Manage SAS Code**

AD08 Phillip Michaels, *P&Ls, Saint Louis MO*

In spite of SAS's power and flexibility, it is rarely used for anything more than extracting, analyzing, and reporting. IT professionals are resistant to using SAS for major corporate applications because of its lack of structure for managing complex application development and maintenance. This paper discusses how to create this structure, addressing such questions as:

- ? How can IT manage the running of regular nightly/weekly/monthly SAS jobs?
- ? What must be included in SAS applications to monitor IT operator-run SAS programs for failure.
- ? Why should each line of the SAS code be put into a SAS accessible database?
- ? How is SAS uniquely positioned to document the integration of data and programs in an application?

A specialist in creating low-cost, step-by-step processes to assure quick, effective movement of information and product through a business. Has used the power of SAS since 1982 to leverage disparate information inside numerous businesses into business cases for change. Clients include both large and small businesses. Work experience includes

hands-on experience in almost every business function from accounting, finance and marketing to logistics, engineering, and warehousing.

**4:30 pm-
5:30 pm**

Generate a Metadata for Analysis

AD09

Maria-Alexandra Paladines, *School District of Palm Beach County, West Palm Beach FL*

If you are working in a big organization has been evolving in analyzing, designing and implementing a data warehouse, let SAS macros and SQL make that easier for you. This paper describes SAS macros that can be used to generate metadata for analysis purposes to help the database administrator (DBA) with the challenge of organizing and cleaning tables and fields.

The metadata repository gives the DBA the information about the library name, data set name, field name, type and value of selected elements in a SQL database. In the School District of Palm Beach County, our metadata includes more than 385,554 variables gathered from different tables.

This program generates a table containing the values of selected columns in all tables in a database in which that column occurs. For example, let us say that the column "YEAR" is used in many tables in a SQL database. When run, this program creates an output table, which gives the table name, data type, and values of "YEAR" for all tables in which the column "YEAR" appears.

Maria-Alexandra Paladines worked with SAS for two years since May 2000 until May 2002. She earned a Bachelor's degree as a System Analyst from ESPOL (Highest Polytechnic University) Ecuador 1984. She studied one year on a Post Graduated System Analysis Program at Sheridan College, Toronto Canada in 1987, and earned a Master's Degree in Business Administration (MBA) from ESPOL Ecuador in 1998. From 1997 to 2000 she was Project Manager for Developed Applications Systems the Ecuador Soccer Federation, Guayaquil Water Management and the School of Medicine at Guayaquil University, she also served as General Manager of SERVIESPOL. She was Project Director for the automation of the Clerk of Court in Guayaquil. The application developed for them, 'SINTER-REG', received an award for the best Software for a Clerk of the Court in South America.

Maria-Alexandra also was a Dean of Computer Department at ESPOL from 1994 to 1999. She also founded "Nueva Era" Magazine in 1999 and directed it for three years. She has lectured at Chihuahua Technologic Institute, Mexico in October 27 1997. She has written some articles for newspapers and magazines. She made business visit to Buenos Aires Argentina, Bogotá Colombia, San José Costa Rica, Cuba and Santiago de Chile.

Maria-Alexandra is currently an Applications Systems Specialist and Powerplay Transformer Team Leader at the School District of Palm Beach County in Florida.

Tuesday Morning – Platinum

**8:00 am-
9:00 am**

SAS® Macros: Tips, Techniques, and Examples

AD10

Andrew M. Traldi, *Cingular Wireless, Alpharetta GA*

Most SAS users are aware that SAS has a macro facility but might be unsure of how they can use it or are fearful that macros are too difficult. Although macros can be complex, they can be very helpful in writing general-purpose SAS programs; in some instances, they are absolutely critical to an application.

Andrew Traldi has been working with SAS for over 15 years. After many years as an independent consultant, he recently joined the Marketing Information Services department at Cingular Wireless.

**9:00 am-
10:00 am**

Exceptional Exception Reports

AD11

Gary M. McQuown, *Data and Analytic Solutions Inc., Fairfax VA*

This paper presents an overview of exception reports for data quality control and describes how they can be assembled from pieces and parts of fairly common SAS® code. Topics include exceptional exception reports vs. simple exception reports, the reasons to use exception reports as frequently as possible, the application of logic in the reports and issues that may cause problems. An example of the general use exception report can be downloaded and used as is or modified to meet your requirements.

Gary McQuown is a co-owner of Data and Analytic Solutions, Inc, a SAS Alliance Partner, located in Fairfax, Virginia. He has programmed in SAS long enough to learn the difference between a programmer and a developer. He provides SAS solutions for large and small firms in the US and Europe. He has previously presented at SUGI, NESUG, SESUG, SSU and MWSUG and can be contacted at mcquown@dasconsultants.com.

**10:00 am-
11:00 am**

Creating Meaningful Data from Web Logs Using Base SAS®

AD04

Jenine Eason, *Autotrader.com, Peachtree City GA*
Jerry Johannesen, *Autotrader.com, Peachtree City GA*

Analyzing web logs can bring very valuable information to your company. Not only can data collected from web logs give insight to management about what is happening on a web site, it also provides exact data for trending that sales can use to increase profitability. Without using a pre-packaged tool, base SAS can be utilized to read and evaluate web logs. The greatest challenge is dissecting a web log and parsing its values.

This paper will bring understanding to web logs by identifying its different pieces and how best to collect them. We'll explore some of the basic reporting metrics utilizing transformed web logs.

Jenine is a seasoned SAS programmer working in many industries, currently working for Autotrader.com. She has spoken many times at SESUG and as an Invited speaker for SUGI. She has been section chair for SESUG for several years, will co-chair SESUG05', and is a member of the SESUG Executive Committee.

CODER'S CORNER

Section Chairs:	Gary McQuown Data and Analytic Solutions Fairfax, VA	Kevin Delaney Centers for Disease Control Atlanta, GA
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Tuesday Morning -- Gold

8:00 am-
8:15 am

Tips of Installing SAS/IntrNet on Linux

CC01

Xiao Zhuang, *University of North Carolina-Chapel Hill, Chapel Hill NC*

Sharon Schiro, *University of North Carolina-Chapel Hill, Chapel Hill NC*

SAS supports all major operating systems including Windows, UNIX, Linux, mainframe, Macintosh, and OpenVMS. Although Windows is SAS largest operating platform, Linux is widely used and tested by users worldwide, and more and more users are attracted to its open source and rapid growth. The North Carolina Trauma Registry initially developed ISSAC (Information System for State Trauma Advisory Committee) as a SAS/IntrNet application in a Windows environment, and then transferred it to the Linux operating system due to its reliability and ease of use.

In contrast to most SAS installations, SAS/IntrNet is rather complicated. This paper covers tips on SAS/IntrNet Installation on Linux.

Sharon Schiro is a faculty member in the Department of Surgery at University of North Carolina in Chapel Hill. She is the Director of the North Carolina Trauma Registry, responsible for, among other things, database administration, quality control, data processing and analysis, and web-based reporting interface development. She has a PhD in Bioengineering, over 12 years of experience using SAS, and many years of programming experience using other languages.

Xiao (Michelle) Zhuang works as a computing consult at Academic Technology and Networks (ATN) of University of North Carolina at Chapel Hill (UNC-CH). She provides statistical computing support and training on campus. Previously, she worked as a SAS programmer for more than 2 years at Surgery Department at UNC-CH. Michelle received her M.S. in computer engineering from North Carolina State University and an M.S. in environment from Duke University.

8:15 am-
8:30 am

SAS Dating Tips - A Beginner's Guide to SAS Dates

CC13

Erik S. Larsen, *Independent Consultant, Charleston SC*

Do you want to be the life of the party at SESUG 2004? Being proficient at using SAS dates and times may not make you instantly popular, but it will make your programs work better and allow you to use the power of SAS dates to manipulate data and make your reports and graphs look more professional. We will explore the basics of how SAS stores dates and times internally and how you can use them to calculate values in terms of days, weeks and years. Finally we will explore some date functions and formats to make your reports look so good you will never want to look at a Microsoft Excel® spreadsheet again.

Erik Larsen has been a SAS user for over 13 years in the financial, pharmaceutical, market research, healthcare, insurance and legal industries. He has written several papers for SUGI, SESUG and NESUG and was the conference chair at NESUG 2000. He holds a master's degree in Applied Statistics from Villanova University and a bachelors degree in Computer Science from Penn State University.

8:30 am-
8:45 am

%WINDOW: SAS Diamond In the Rough

CC14

Alan R. Mann, *Independent Consultant, Martinsburg WV*

The purpose of this presentation is to show the effectiveness of %WINDOW as an interactive testing interface, and how it has similarities to static web pages with interactive links that are used to pass parameters from the page to the analytic software. The limitations and best applications of %WINDOW are discussed in brief, in order to stimulate discussion in the remainder of the session.

Highlights of the presentation:

- ? Basics of %WINDOW in SAS Macro Language;
- ? Applications of the interface;
- ? Limitations, such as linkage with compiled macro code as the only way to use % WINDOW;
- ? Uses as a laboratory interface;
- ? Uses as a testing interface for future web-enabled applications;

? Comparison with a simple web page;

Alan Mann has worked in the IT industry since 1984, and has been a SAS programmer/analyst/consultant since 1989. In the past 15 years, Alan has worked with major corporate and government enterprises, including DuPont, US Airways, ARCO Chemical, MCI, US Department of Commerce, US Department of Veterans Affairs, PJM Interconnection, US Social Security Administration, and Freddie Mac.

Originally from Wilmington, DE, Alan now calls Martinsburg, WV home, just north of the Baltimore/Washington corridor. He is married to Louise, a high school drama teacher and Shakespeare expert, and currently pursuing a Master of Science degree in IT from the University of Liverpool.

8:45 am-
9:00 am

Transferring Your Mainframe SAS Programs to Your PC in Three Easy Steps

CC04 Michael A. Raithel, *Westat, Rockville MD*

You have built up quite a collection of useful SAS programs in your many years of using the SAS System on mainframe computers under MVS. Now that you find yourself doing more and more work in PC SAS, it seems a shame to write new programs entirely from scratch. Wouldn't it be more helpful to port your mainframe Partitioned Data Set (PDS) of SAS programs to a file on your PC? Then, you could reuse your mature SAS code on the desktop by making simple modifications to suit it to its new environment and to the particular task at hand.

This paper illustrates an easy way to transfer a PDS of SAS programs from the mainframe to the PC in three easy steps.

*Michael A. Raithel has worked with Information Systems in the commercial and government sectors since 1980. An internationally recognized expert in the use of SAS software in mainframe environments, he is the author of over a dozen SAS technical papers and is a popular lecturer at SUGI and at regional SAS conferences. Michael has been a section chair at SUGI, SESUG, and NESUG, and he co-chaired NESUG in 1995. He has been a mainframe computer performance analyst for Marriott International and for the U.S. Customs Service, as well as an independent consultant specializing in mainframe and Unix performance issues. He now works as a Senior Analyst for Westat. A copy of the first edition of this book, entitled *Tuning SAS Applications in the MVS Environment*, resides in the Smithsonian Institution of American History's Permanent Research Collection of Information Technology.*

9:00 am-
9:30 am

Using Acting Techniques to Create a Successful Presentation

CC12 Lois Levin, *Independent Consultant, Bethesda MD*

When you make a presentation at a User's Group conference or to any group anywhere, it is important to find the best way to communicate your information. A paper presents your ideas in writing, but a presentation is always a performance. The best performers are actors and they know many techniques for creating an effective performance. This paper will discuss a few of those techniques that can be adopted to make your technical presentation an interesting and enlightening performance. The corresponding presentation will, of course, be far more dramatic!

Lois Levin has been using SAS for about 20 years on the mainframe, Unix, and PC platforms. She has a Masters' degree in mathematics from Purdue University and is currently working as an independent consultant. She has spoken at several SAS User Group meetings and won Best Presentation and Honorable Mention at SUGI. In her spare time she does (non-performing) volunteer work at local professional theaters.

9:30 am-
9:45 am

Tip: How to Use a 'quoted' SAS Macro Variable to Select Observations

CC10 Gary W. Moore, *Arkansas Foundation for Medical Care, Little Rock AR*

Often times we would like to repeat some process on a variable subset of a data set's observations. One way to derive a given subset is to use the SAS data step 'where' clause with the 'like' operator, e.g., "where upcase(drug) like '%ADVIL%'". Here we are using the wildcard character '%' to select all observations where the drug name variable contains the Advil drug label name. Rather than repeating the process' data step(s), etc., each time with a different drug name it would be desirable to form a looping construct in a macro program using a macro variable to derive the subset. In other words, it would be desirable to use a 'where' clause formed something like "where upcase(drug_name) like '%%upcase(&drug_name)%'". This statement doesn't work (for more than one reason). This paper describes different approaches on how to modify the 'where' clause so that it will be interpreted properly.

(Biography not available at time of printing)

9:45 am-
10:00 am

Double Your Pleasure, Double Your Words...

CC07 David L. Cassell, *Design Pathways, Corvallis OR*

Now that SAS® 9 has Perl regular expressions in the DATA step, there are new capabilities in it. A common editing problem, finding doubled words in a text, can be tackled using Perl regular expressions. But the structure of the DATA step when using the PRX... functions and CALL routines can be simplified by using the Whitlock DO-loop in conjunction with the PRX functions. We illustrate this, showing how to build a simple

Perl regular expression, and how to use the Whitlock DO-loop with the PRX... functions to find doubled words in lines of text.

David L. Cassell is a mathematical statistician in private consulting, as well as performing contract work for the U.S. Environmental Protection Agency. He is a member of the SAS-L Hall of Fame, and has won awards for his presentations at SUGI and regional SUGs. He has been programming in SAS since 1978, and has been programming in Perl for well over a decade.

10:00 am-
10:15 am

Faster Flat File Sampling

CC11 John E Bentley, *Wachovia Bank, Charlotte NC*

When doing data discovery for a new database project, we often have a flat file whose contents we know something about, such as the valid values for specific fields, but for one reason or another we want to look at only a sample of the data. When the file is small, using SAS® to pull the sample is easy and fast to do. But when the file has a record length of thousands of bytes, contains millions of records each with dozens of fields, and has over a dozen values for our sampling by-group, we can expect lengthy processing times if we use brute force to do the job. This tip will show one easy-to-code approach that dramatically reduces processing time.

Since 1987 John Bentley has used SAS in the healthcare, insurance, and banking industries. He is currently an Assistant Vice President with Wachovia Bank's Corporate Data Management Group where he supports the Bank's data warehouse and data marts. John is a SAS Certified Advanced Programmer, has been a Section Chair at both SUGI and SESUG, and is the 2003-2004 President of the Charlotte Area Wachovia In-House SAS Users Group. John has a Masters degree in Political Science with a Concentration in Southeast Asian Politics and is currently enrolled in a Masters of Information Systems program.

10:15 am-
10:45 am

Tools to Transfer Data between SAS® and Stata®

CC05 Dan Blanchette, *University of North Carolina-Chapel Hill, Chapel Hill NC*

This paper demonstrates how to transfer data between SAS and Stata by running Stata from within SAS or SAS from within Stata using any of the following programs I have written:

- SAVASTATA: SAS macro to save a SAS data set as a Stata data set
- SAVASAS: Stata program to save a Stata data set as a SAS data set
- USESAS: Stata program to use a SAS data set while in Stata
- SAVAS (c-shell) script: Invoked at a Unix or Linux prompt makes a Stata data file copy of a SAS data file or a SAS data file copy of a Stata data file.

Since SAVASTATA runs during a SAS session and SAVASAS runs during a Stata session, you may choose to save only the converted file avoiding the unnecessary creation of a data file just to run through a conversion software program. USESAS simply allows you to open a SAS data set into Stata. Space is saved, file management is decreased, and documentation of the creation of the converted file is saved in the log of your program. User-defined formats are saved as value labels in Stata and vice-versa. Special missing data (.a - .z) are maintained.

These programs are free and can be downloaded from the internet:

http://www.cpc.unc.edu/services/computer/presentations/sas_to_stata

Dan Blanchette graduated UNC-CH with a BA in 1988 and has been an applications programmer at the Carolina Population Center at UNC-CH for about 10 years. He started out only programming in SAS, but about 5 years ago had to learn Stata as well.

10:45 am-
11:00 am

Quick and Easy Visualization of Longitudinal data with the WEBFRAME graphics device

CC06 Kevin Payton Delaney, *Centers for Disease Control and Prevention, Atlanta GA*

Data Visualization is an important step in getting to know your data. This is particularly true when you have longitudinal data, repeated measurements on the same subjects over time. A useful tool in visualization of longitudinal data is the "Trellis graph" a graph of the data separated into multiple graphs by a conditional variable. In the case of longitudinal data, this conditional variable is often the individual participant. Several SAS competitors have made the ability to visualize data using "Trellis graphs" an important selling point for their product. Trying to do something similar with traditional SAS/GRAPH methods is not easily done. However, Version 8 of SAS brought us the little known WEBFRAME graphics device which can be used to create a modified version of the Trellis graph with ease. We take a quick look at this device as a simple way to get look at your data, with particular attention to longitudinal data. Although there is a complicated PROC GREPLAY included as an example, the purpose of this presentation is to show you how refreshingly easy the WEBFRAME graphics device is to use, even for a SAS/GRAPH novice.

Kevin Delaney took his first SAS class while working towards his Master of Public Health Degree in Epidemiology from the University at Albany School of Public Health. In addition to his day to day duties as an Epidemiologist at the US Centers for Disease Control and Prevention, Kevin has taught SAS classes for both CDC contractors and other Federal

employees. Kevin has presented at Sesug, Nesug and Sugi, and this year is a Co-Chair of the Coder's Corner Section Here at Sesug.

11:00 am-
11:15 am

Programatic Handling of Varying Report Requirements

CC08

Jim Snider, *AmSouth Bank, Hoover AL*

In this presentation I will focus on how to handle varying requirements for report production. However, the concepts should be applicable to any programming challenge where there is uncertainty in regard to the input data and a desire to provide a solution that eliminates manual intervention.

The presentation will use, as an example, a reporting requirement that may entail the production of up to 51 separate reports, but could be much fewer. The results should be affected only by the input data and not by special parameters or manual intervention.

Hopefully, this presentation of a simple example will allow you to identify programming opportunities that could benefit from similar coding.

Risk Analyst, AmSouth Bank

Number of Years as SAS User: 10

Number of Years programming: 20

13 years experience in Insurance industry, 7 years experience in Banking.

Previously employed at American Express in Phoenix.

11:15 am-
11:30 am

Data Set Options - What Comes First?

CC09

Jim Snider, *AmSouth Bank, Hoover AL*

B

If you have ever used multiple data set options on a SET statement, chances are you've probably encountered a frustrating SAS error that looks like this:

? Variable var2 is not on file WORK.TDATA.

? Invalid DROP, KEEP, or RENAME option on file WORK.TDATA.

Since you are certain that var2 is in the TDATA file, this error can easily leave you completely flummoxed. Eventually, you realize that you should have referenced the old variable name on your keep= option rather than the new name.

Because this is such a common occurrence, I've created a handy reference guide that addresses this question for both data options and data statements as well as combinations of the two.

Risk Analyst, AmSouth Bank

Number of Years as SAS User: 10

Number of Years programming: 20

13 years experience in Insurance industry, 7 years experience in Banking.

Previously employed at American Express in Phoenix.

11:30 am-
11:45 am

Journeyman's Tools: The Writing for Reading and Reuse Program Header or Everything You Ever Wanted to Know About a Program but Were Afraid to Ask

CC02

Ronald Fehd, *Centers for Disease Control and Prevention, Atlanta GA*

Information is the difference that makes a difference. The difference between a program with documentation and one without is the cost of development. A program with documentation is more likely to be easily understood and therefore more likely to be reused thus saving the effort and expense of reinvention. This paper proposes a model program header which, like this paper, contains a title, abstract, and introduction that are designed to communicate clearly program intent and usefulness. Expected audience is intermediate to advanced users and programmers.

Ronald Fehd, the "Macro Maven", is a frequent SAS presenter at SUGI and regional SAS Conferences, and a regular contributor to the mailing list SAS-L.

11:45 am-
12:00 pm

Merging: Avoid the Cones

CC03

Jessica Bonow, *Arkansas Foundation for Medical Care, Little Rock AR*

Travelers around the United States drive through many construction zones. Informational road signs tell drivers what to expect as they approach the work area. One of the signs may read, "Right Lane Closed, Merge Now". In this illustration, the two lanes of the road become one. It is the same with data sets that SAS® users work with. They want to combine observations from two or more data sets to form one single observation in a new data set. This can be accomplished by using the match-merge method, one of four ways to combine data sets. The match-merge method may have some cones that the SAS user has to avoid in order to produce the desired results that are needed. This paper describes the basics of the match-merge method, examines some of the cones users may drive into, and gives solutions to avoid the cones.

The SAS tools used throughout the paper are in BASE SAS. The operating system used is PC SAS, but

could be used with any operating system to achieve similar results. A beginner's skill level should be considered for this paper.

I am a statistician and the HEDIS Team Leader for the Arkansas Foundation for Medical Care, a quality improvement organization. Asthma, prenatal care, and cardiovascular disease prevention and care are some of the projects I have had the opportunity to research and analyze the data. I have been a SAS user for 5 years and attended some of the regional SAS user group conferences as well as SUGI 28 in Seattle.

DATA MANAGEMENT

Section Chairs: **Steve Noga**
Rho, Inc.
Chapel Hill, NC

Pam Reading
Rho, Inc.
Chapel Hill, NC

Monday Morning -- Sarrat

8:00 am-9:00 am **Building Efficient State Transition Diagrams from Charges, Collection and Call Detail Transactional Feeds**

DM04 **Brett C Peppe, Independent Consultant, Redmond WA**

This paper describes three efficient (constant memory, linear time) techniques to collect and process state information from transactional feeds of arbitrary size and complexity. These techniques are:

- Singular-State Vector Collector
- State-Transition (S,T) Collector
- Synthetic Key Collection and Lookup

Transactional systems are designed to track the state of individual customer interaction events as they occur. However, Marketing, Demand Analysis and Risk Portfolio groups often need to determine the impact or effect of these customer events over time. This implies that they are interested in tracking change between transactions, i.e. the set of transitions for each customer represents the opportunity or risk. State Transition Diagrams are a powerful analysis paradigm for tracking the paths of change in or between transactional systems.

Brett Peppe has used SAS extensively since 1980 to support medical research, clinical trials, credit card, banking, utility, marketing, reliability, risk and web commerce projects. His current interests include complex event-driven systems, web services, predictive analytics and VLDB data warehousing.

9:00 am-10:00 am **Using PROC COMPARE in a SAS/AF Application for Tracking Corrections made to SAS Datasets for a Clinical Trial**

DM03 **Emily Mixon, University of Alabama at Birmingham, Birmingham AL**
Karen Fowler, University of Alabama at Birmingham, Birmingham AL

Maintaining a record of data corrections added to existing data sets is an important data management activity for clinical studies. As part of a clinical trial at The University of Alabama at Birmingham, we have created a SAS/AF application for entering and correcting the data obtained during the trial. When corrections are made to the data the correction operator ID, the date and time the correction was made, the type of error, and the reason for the correction are recorded in the data set. Once corrections are made for the day, the user saves the data sets using an icon on the main menu of the application. The SCL behind the frame renames the data sets adding the date they were modified to the end of the original data set name and then the data sets are saved. The user then goes to the comparison portion of the application where the PROC COMPARE procedure in the SCL of the frame compares the two user selected data sets and generates output for review.

Karen Fowler is a Research Associate Professor in Pediatrics, Epidemiology, and Maternal and Child Health. She oversees the data management of several NIH sponsored research projects in the Department of Pediatrics at UAB. She has been a SAS software user for 16 years.

Emily Mixon is a Clinical Data Analyst in the Department of Pediatrics at UAB. She is involved with the data management for research projects within the Division of Pediatric Infectious Diseases at UAB. Emily has a BA in psychology from Agnes Scott College and a MPH in Epidemiology from the School of Public Health at UAB. She has been a SAS software user for 7 years

10:00 am-11:00 am **No Fuss Hashing: Data Step's Built-in Hash Object**

DM09 **Jason Secosky, SAS, Cary NC**

(Abstract not available at time of printing)

Jason Secosky is a Senior Software Developer responsible for extending and maintaining the DATA step compiler and run-time environment. Jason has been at SAS for seven years and has a B.S. in Computer Engineering from the

University of California, San Diego and a M.S. in Computer Science from the University of Washington.

When not in front of a computer, you can find Jason in the kitchen working with the freshest ingredients of the season.

11:00 am-12:00 pm Using Different Methods for Accessing Non-SAS® Data to Build and Incrementally Update That Data Warehouse

DM01 Ben T. Cochran, *The Bedford Group, Raleigh NC*

Often SAS users need to access data from non-SAS sources. This is especially true when constructing a SAS data warehouse from other vendors' databases. While this task is not too difficult, sometimes unforeseen challenges can arise, especially when dealing with date values. This tutorial initially takes a look at several methods for accessing different kinds of data to do the initial load of the data warehouse. Then attention is given to various ways of doing incremental updates and how to overcome some potential problems.

This paper follows the tasks that were involved in a specific retail application and how a certain organization faced and overcame the challenges that accompany building and updating a data warehouse.

After more than 11 years with SAS Institute in the Professional Services and Marketing Departments, Ben Cochran left to start his own consulting and SAS Training business in the fall of 1996 – The Bedford Group - an affiliate members of SAS Institute's Alliance Partner Program. He has extensive expertise with SAS/EIS in building front-end menuing systems. Ben was the marketing manager for this product for over three years and worked with numerous SAS Institute customers in meeting their application development needs. He also developed the SAS/EIS demo that shipped with the SAS System for Release 6.11. Ben has extensive experience in training SAS users in many areas of SAS. Since 1986, he taught over 250 SAS courses to over 2,500 SAS users across North America. He developed the first Release 6.11 SAS/EIS course and taught it for SAS Institute. His course notes were the draft for the book Getting Started with SAS/EIS, 2nd Edition.

Ben has been an invited speaker at SUGI and many Regional User Group conferences since 1988.

Monday Afternoon -- Sarrat

1:30 pm-2:00 pm Methods of Storing SAS® Data into Oracle Tables

DM02 Lois Levin, *Independent Consultant, Bethesda MD*

There are several ways to create a DBMS table from a SAS dataset. This paper will discuss the SAS methods that may be used to perform loads or updates, a comparison of times elapsed, and the INSERTBUFF option and the BULKLOAD option that can be used to perform multiple row inserts and direct path loads to optimize performance.

Lois Levin has been using SAS for about 20 years on the mainframe, Unix, and PC platforms. She has a Masters' degree in mathematics from Purdue University and is currently working as an independent consultant.

2:00 pm-3:00 pm Using SAS® to Facilitate Data Comparisons

DM07 Elizabeth Heath, *RTI International, Durham NC*
M. Rita Thissen, *RTI International, Durham NC*

As part of a longitudinal survey of children, we collected data about the primary subjects and their caregivers. Identifying information for many of the caregivers changed from one wave of interviewing to the next as the children moved from family settings to foster homes or other living situations. In retrospect, we needed to determine if the caregiver had changed or had remained the same. We used SAS to match caregivers by case ID and perform a logical comparison of selected identifier information, assigning each caregiver a value for a flag variable which denoted whether the caregiver was the same or different from the previous interview, or if the comparison was ambiguous.

In order to increase the usefulness of the flag variable, project staff manually reviewed data for each ambiguous case, to determine if the caregiver was the same, different, or if it was still ambiguous. Due to typographical errors in collected data, changes in caregiver marital status and family name, or information that was provided at one interview but not in the other, there were a number of interviews that appeared ambiguous to the programmed logic of variable comparisons, but which were quickly resolved as same or different caregivers by the human reviewers.

We used SAS code to pre-clean the data, assign rating values, select cases which remained ambiguous, export comparison and identity data to Excel® spreadsheets for review, and finally to incorporate the human ratings back into the original data set. The data management and file handling capabilities of SAS allowed the process to proceed in a reproducible and productive manner. We will review how we used SAS to handle data and prepare for manual review.

Elizabeth Heath is a survey support programmer in the Research Computing Division of RTI International. At RTI since 1992, she has worked in the fields of survey data management, distributed systems support, and environmental chemistry. In survey data management, she works with SAS, SQL, and Visual Basic.

M. Rita Thissen is a senior research programmer/analyst at RTI International, in Research Triangle Park, North Carolina.

She has worked there for the past 9 years in the field of data acquisition and dissemination, using SAS, SQL, Visual Basic and other languages. Prior to that position, she worked with clinical trials data and in the areas of public policy and business research.

3:00 pm-
4:00 pm

To MDDB or not to MDDB - That is the question

DM10

Jeff Lessenberry, *Jeff Lessenberry Consulting Group, Simpsonville SC*

The struggle to find the right presentation tool in today's global market may seem like a scene from a Shakespearian play. The MDDB has played a large role as a data discovery tool but with a changing work environment is it still the best tool for the job? The decision whether to use MDDBs has come down to some fundamental choices in how and where the client will be presenting the data. With the interface of choice becoming the internet browser, do MDDBs have a place in this new world environment or will they go the way of the horse drawn carriage? This paper will look at how MDDBs are used in a fat-client environment, their evolution to a thin-client environment, and the pros and cons of both.

I have been a contractor for 15 years.

I have been to 5 Sugi conferences and 3 Sesug conferences.

I have presented papers at 3 Sugi conferences.

Nashville -<http://www2.sas.com/proceedings/sugi23/Appdevel/p2.pdf>

Miami -<http://www2.sas.com/proceedings/sugi24/AppDevel/p24-24.pdf>

Indianapolis (invited) -<http://www2.sas.com/proceedings/sugi25/25/aa/25p011.pdf>

(submitted) -<http://www2.sas.com/proceedings/sugi25/25/sy/25p286.pdf>

I also have the following certifications:

- ? SAS Certified Developer V6
- ? SAS Certified Professional - Application Development V6
- ? SAS Certified Professional - Business Intelligence V6
- ? SAS Certified Professional - Data Management V6
- ? SAS Certified Professional V6
- ? SAS Certified Professional V8

4:00 pm-
4:30 pm

Finding Needles in the Documentation Haystack

DM05

Susan Myers, *RTI International,, RTP NC*

David Smarrella, *RTI International, RTP NC*

Large complex data structures regularly require substantial documentation. Data from surveys released for public use typically promise confidentiality. Often this leads to certain confidential data being dropped or recoded. Commonly, documentation for the public use data will be based on the documentation for the original file. If the original documentation uses consistent terminology and notation with reference to the confidential data items, then an automatic search to locate areas of the documentation where changes are needed would be useful. We illustrate this by using Base SASRX pattern matching functions to detect keywords and assure correctly documented data files.

Susan Myers has been a Programmer/Analyst at RTI International for 8 years, primarily on a large household survey. Her work at RTI has provided extensive experience with large datafiles and SAS macro processing. With the migration to SQL Server databases in recent years, her SAS skills have expanded to interfacing SAS with SQL.

David Smarrella, a Programmer/Analyst, has been with RTI International for 6 years. He is responsible for programming and data analyses for a large household survey. He is experienced in developing, maintaining, and enhancing SAS programs to edit and analyze large module-specific data sets. He is also experienced in SQL and Visual Basic.

4:30 pm-
5:30 pm

Sounding the Trumpet: Effective Failure Notification

DM06

Don Hopkins, *Ursa Logic Corporation, Durham NC*

A typical data management system is a complex collection of manual and computerized procedures. Operational dependencies among the various parts are often intricate, and there are many things that can go wrong. When something does go wrong, it is often essential to catch the failure quickly to avoid a cascade of costly downstream problems. In a system that employs SAS programs, one way to find out about system failures is to scan the SAS log window after a program executes. Manual scanning of the SAS log may be all that's needed for a simple program, but as a system grows in complexity, manual scanning may cease to be a reliable or efficient technique for noticing problems. Scanning is a vigilance task—something humans are not particularly good at—and the probability of overlooking a critical failure message increases when programs are long and complex, when they are executed as part of a routine sequence, or when they are executed in batch mode with no one in attendance. Fortunately, there are alternatives to manual scanning. This paper describes programmatic techniques that are useful for capturing failures in SAS programs and alerting those who need to know about them.

Don Hopkins is the president of Ursa Logic Corporation, a firm specializing in software development, software validation, and procedure development for IT organizations.

Prior to founding *Ursa Logic*, Don directed software development groups at a university and a clinical research organization. He has been developing software professionally for over twenty years, and has specialized in the SAS development environment for the last fifteen. Don presented a paper on "Data-driven Validation Rules" at SESUG 2003. He was also an invited speaker at recent conferences of the Society for Clinical Trials and the Drug Information Association.

In addition to his software development background, Don has a Ph.D. in psychology from the University of North Carolina at Chapel Hill. He has taught undergraduate courses in both computer science and psychology. In the commercial world he has developed training programs and created standard procedures for small businesses and multinational corporations.

Don divides his time between Durham, North Carolina and Doylestown, Pennsylvania. He is a fan of cryptic crossword puzzles.

5:30 pm-
6:00 pm

A Text Miner Analysis to Compare Internet and Medline Information about Allergy Medications

DM08

Chakib Battioui, *University of Louisville, Louisville KY*

Recently, the internet has become the primary resource for consumers seeking medical information. Pharmaceutical companies are marketing directly to consumers. An important concern for many physicians is the quality of health information online. The purpose of this paper is to examine the issue of internet marketing using SAS text mining software. The specific objective is to examine information about allergy medications from Medline and from the internet.

The search term "Allergy Medications" was used in Medline through the Ovid search engine. A total of 115 papers were returned. A similar search was performed using the search engine Google. A total of 100 sites were selected. The two data sets were combined and analyzed using SAS Text Miner 9.1. The analysis clearly shows a difference between the information contained on the internet compared to that contained in medical journals. Most of the medical information online is about the type of allergy drugs and what those drugs are for, while that information is almost completely absent in Medline. On the other hand, most of the medical journals contain information about clinical studies and research. Only a little of this information was found online.

(Biography not available at time of printing)

DATA PRESENTATION

Section Chairs:

Erik Larsen
Independent Consultant
Charleston, SC

Tom Fuchs
LG&E Energy Corp.
Louisville, KY

Monday Morning -- Kissam

8:30 am-
9:30 am

Quality of Life Analysis for Patients Receiving Heart Implants

DP01

David Nfodjo, *University of Louisville, Louisville KY*

Christiana Petrou, *University of Louisville, Louisville KY*

Objective: To investigate the quality of life for heart patients using data mining techniques.

Method: A quality of life questionnaire was used and given to patients at each follow up visit at baseline and at 3, 6, 12, 18 months after the implantation of a pacemaker. It was the aim to compare the scores to severity, the different prescribing habits for various physicians and to examine the quality of life by time since the implantation through the responses of selected questions from the questionnaires. Kernel density estimation and least squares estimation were used to analyze the data using SAS software.

Results: Statistically significant results were obtained by comparing the change in severity between male and female patients. Prescribing habits by different physicians proved to be statistically noteworthy, since different doctors have different prescribing habits. Furthermore, the quality of life questionnaire responses provided a range of statistical results that change as time progresses.

Conclusion: The relationship between severity ranking of medications, prescribing habits of physicians and quality of life is statistically significant. Patients' quality of life responses fluctuate over time.

(Biographies not available at time of printing)

9:30 am-
10:30 am

A SAS Macro for Construction of Symbol Statements

DP02

James E. Blum, *University of North Carolina-Wilmington, Wilmington NC*

This paper focuses on the construction of a SAS Macro that allows the user to define a number of SYMBOL statements (up to the maximum of 255 permitted by SAS) without explicitly writing each. The design allows for significant control and flexibility for the user; they may input lists of parameters to define options, a data set where these parameters are defined, or both. Provisions are made to allow the user to save their

specifications so that they may be reused with a simple two parameter macro call. A series of pre-defined parameter sets are included.

(Biography not available at time of printing)

10:30 am-
11:00 am

Using Dynamic Data Exchange to Customize Formatted Reports in Microsoft® Excel

DP03

Dennis J. Beal, *Science Applications International Corporation, Oak Ridge TN*

Dynamic data exchange (DDE) is a powerful tool within SAS® that programmers can use to send data stored in SAS data sets directly into formatted Microsoft Excel tables. This process both reduces human error because the data are not hand entered into Excel where numerical precision can be lost and saves time since the user need not format the table manually. This paper presents SAS code and macros for advanced SAS users that can be used to open Excel from SAS; center table titles across specified cells; bold, superscript, underline or italicize specific characters within individual cells; present numerical data in multiple formats such as scientific notation, commas or rounded to a specific precision; inserting "page x of y" and the creation date into the footer of the table; putting borders around any column or row; dynamically assigning rows and columns to insert data headings into the body of the table; loading both numeric and character data into the same Excel column; specifying font size and type; specifying page setup options such as portrait, landscape and margins; autofit specific columns; and create multiple worksheets within a single Excel file in a specified order with sheet names specified by the user.

Dennis Beal is a statistician and risk scientist for Science Applications International Corporation (SAIC) in Oak Ridge, Tennessee. Mr. Beal earned a B.A. degree in mathematics from Carson-Newman College, M.S. degree in applied mathematics from Virginia Tech and a M.S. degree in statistics from the University of Tennessee in Knoxville, Tennessee. Mr. Beal currently is pursuing a Ph.D. in statistics and management science from the University of Tennessee. Mr. Beal has over 15 years of experience using SAS applying statistics for various U.S. Department of Energy projects, primarily in environmental applications. Mr. Beal also uses SAS for quantifying risk assessments for various U.S. government installations including the Department of Defense.

11:00 am-
12:00 pm

Statistical Analysis of Gene Expression Micro Arrays

DP04

John Schwarz, *University of Louisville, Louisville KY*

Advancements in genetic research have led to increased amounts of data often without efficient analysis techniques. One such area of genetics that has developed a great deal in the past several years has been micro arrays. One area of micro array experimentation is that of gene expression. Gene expression uses arrays of thousands of genes with one to two targeted strands of DNA that are fluorescently tagged and used to identify which genes are expressed. This experiment can identify which conditions cause certain genes to be activated in different cells. It can also be used to track certain cellular changes through the expression of genes.

The data gathered from the micro array experimentation is contained in a large matrix containing the data results from gene expression analysis on a micro array plate. Some of the standard analysis techniques and programs can be inefficient and inconclusive. The purpose of this analysis is to arrive at conclusive results with efficient methods. The primary statistical software used in the analysis was SAS/Stat system version 8.2. A series of statistical tests was applied to the data set to determine the meaningfulness of the results and the efficiency of the tests.

(Biography not available at time of printing)

Monday Afternoon -- Kissam

1:30 pm-
2:30 pm

Automated Data Collection Using SAS and FTP

DP05

Phillip Busby, *Live Data Systems, Inc., Chapel Hill NC*

This paper discusses several coding techniques and considerations in using the FTP file access method from SAS to gather data from a remote server. The examples shown are from an application developed by a large financial company in Minneapolis to automate the collection of financial data from the Bloomberg server in New York. Issues discussed include request file preparation, reply file parsing, and error handling.

Phil Busby was born in Winston-Salem in 1949. He attended UNC Chapel Hill for his undergraduate and graduate studies. Phil worked at SAS Institute over ten years. He was the first SAS/AF Product Manager. He left SAS to start his own software consulting company in 1993. Phil has recorded eight albums, holds 14 copyrights, and has published 11 SUGI/SESUG papers.

2:30 pm-
3:30 pm**Building a Web Based EIS for Data Analysis**DP06 Ed Confer, *KGC Programming Solutions*

Web based reporting has enhanced the ability of management to interface with data in a point and click architecture. In order to build an effective front-end, a structural framework design must be built on flexibility and efficiency. The data to be extracted should be stored as a collection table, to ensure that timely and accurate data can be extracted from a single source. The program should be written so that any number of parameters can be filtered in the extraction. The Web and SAS Software can deliver this reporting capability to management. Utilizing SAS Software as the data extraction tool, the user can select any number of data conditions based on reporting requirements. The data can be presented in multiple methods, such as a graph depicting data points over time, or a tabular report based on summary data. The reporting tool can be designed to provide to the user a variety of reporting capabilities and data filters. Although the focus of this paper is the SAS Software code used in developing this reporting tool, other components of the development of a Web based query tool such as Java Script and HTML will also be discussed.

Ed Confer, President of KGC Programming Solutions, has been programming with SAS Software for 13 years. KGC Programming has provided Reporting and Development to a wide array of industries, including Banking/Finance, Secondary Mortgage Markets, Pharmaceutical, Telecommunications/Web Hosting and Data Warehousing developmen

3:30 pm-
4:30 pm**Next Step in Data Visualization: ODS Graphics Template Language**DP07 Jeff Cartier, *SAS, Cary NC*

(Abstract not available at time of printing)

Jeff Cartier is a Senior Systems Developer with the Data Visualization R&D department at the SAS Institute in Cary. Jeff has been with the SAS Institute for 21 years. Currently, he is working on projects involving creating graphics using SAS's Output Delivery System with both SAS/Graph and SAS/Stat procedures.

4:30 pm-
5:30 pm**ODS, Proc GMAP and SAS/Intrnet: MAP Your Own Response Data**DP08 Lakshmi Pandey, *Georgia State University, Statesboro GA*

In recent years, there has been added interest in geographic information analysis and there are several commercially available products, which can provide means and tools to do spatial data analysis, but most of these products have learning curves and also come at great expense. However, Proc GMAP combined with ODS and SAS/Intrnet provides one of the best and easiest way to analyze and visualize spatial data and render output to endusers web browser without having SAS or any other software installed on client computer and also end-users do not need to know any technical details. In this paper, we will demonstrate how to build the dynamic web pages where users can enter or cut and paste their own response geo-data to be mapped. Furthermore, it will allow users to drill down to lower geography to bring some of the census information.

(Biography not available at time of printing)

HANDS ON WORKSHOPS

Section Chairs:

Debbie Buck
D. B. & P. Associates
Houston, TX

Jenine Eason
Autotrader.com
Atlanta, GA

Monday Morning -- McTyeire9:00 am-
10:30 am**An Introduction to Macros**HW03 Deb Cassidy, *Cardinal Health, Dublin OH*

B

A search in the proceedings for SUGI 24-28 for the word "macro" had over 1,000 hits. Why are macros so popular? A quick glance through the papers showed many were titled in the form "A Macro to ... ". These macros were developed to write complex code once and then use it over and over again with different datasets. Macros are also useful for writing code conditionally. For example, if your data meets Condition X, then run Part A of the program. Otherwise, run Part B of the program. Without macros, you'll need to submit a program, manually check the results and then submit the correct second program.

However, macro code often looks like hieroglyphics to many people. Others have trouble understanding the difference between macro code and other SAS code. This hands-on workshop is intended to give you the basics of macros so you can figure out what &&i&j really does and why %IF and IF are not the same.

Deb Cassidy has used SAS for over 20 years. She has presented numerous papers at international, regional and local user group conferences. Deb is chairing the Pre-Conference Workshops section for SESUG '04 and will co-chair the '05 conference in Virginia

10:30 am-12:00 pm Introduction to PROC SQL

HW02 Steven First, *Systems Seminar Consultants, Madison WI*

B

PROC SQL is a powerful Base SAS7 Procedure that combines the functionality of DATA and PROC steps into a single step.

PROC SQL can sort, summarize, subset, join (merge), and concatenate datasets, create new variables, and print the results or create a new table or view all in one step!

PROC SQL can be used to retrieve, update, and report on information from SAS data sets or other database products. This paper will concentrate on SQL's syntax and how to access information from existing SAS data sets. Some of the topics covered in this brief introduction include:

- ? Write SQL code using various styles of the SELECT statement.
- ? Dynamically create new variables on the SELECT statement.
- ? Use CASE/WHEN clauses for conditionally processing the data.
- ? Joining data from two or more data sets (like a MERGE!).
- ? Concatenating query results together.

Steven First is the President and owner of Systems Seminar Consultants, Inc. SSC is a Madison, Wisconsin based SAS consulting and training firm. Steve has been a SAS user, trainer, and consultant since 1976. He has worked as an application programmer, systems analyst, systems programmer, and systems trainer, and now specializes only in SAS software and interfaces related to SAS software.

Monday Afternoon -- McTyeire

1:30 pm-3:00 pm Version 9 ODS - Basics

HW05 Dana Rafiee, *Destiny Corp, Rocky Hill CT*

BI

This Hands on Workshop is designed to introduce the Basics of programming in ODS under Version 9.

Dana Rafiee is the U.S. Director of Destiny Corporation, a Business and Technology Consulting organization specializing in the application of SAS Software for seventeen years. He teaches over sixty courses in SAS and is the primary instructor on the vDestiny Virtual Learning CDs.

3:00 pm-4:30 pm Version 9 Programming Enhancements

HW01 Marje Fecht, *Prowerk Consulting LLC, Cape Coral FL*

I

Performance improvements are the well-publicized enhancement to Version 9, but what else has changed that impacts your "SAS programs"? This Hands On Workshop explores many new Version 9 features including:

- new functions that may eliminate the need for complex expressions
- changes and additions to informat and format
- interface additions and improvements
- new Export capabilities
- procedure enhancements
- and more. . .

This workshop is beneficial for Version 8 SAS users who are getting started with Version 9.

Marje is a Senior Partner with Prowerk Consulting, and has been a SAS software user since 1979. For sixteen years, she developed and taught a broad curriculum of courses for SAS Institute including Applications Development, Data Management and Access, Graphics, Reporting, Macros, and Statistics. Most recently, she has worked with major financial organizations to develop efficient systems for database access, reporting, and analysis.

Marje enjoys presenting at SUGI, NESUG, and SESUG and is looking forward to her role as Academic Conference Chair for SESUG 2006. In her spare time, she enjoys kayaking and unicycling.

Tuesday Morning -- McTyeire

9:00 am-
10:30 am

Moving Data and Analytical Results between SAS® and Microsoft® Office

HW06

Vincent DeIGobbo, SAS, Cary NC

You often need to incorporate SAS® data and analytical results in Microsoft® Excel or Word, or import Excel worksheet data into SAS in order to perform analyses. But transferring data between SAS and the Office applications can be difficult, especially when SAS is installed on a non-Windows® platform, such as OpenVMS™, UNIX® or z/OS®. After reading this paper you should be able to incorporate just about any output from your SAS code into a Microsoft Excel or Word document. The use of new XML support features in BASE SAS 9.1 to read and create multi-sheet Excel workbooks will also be discussed. The techniques described utilize only BASE SAS, and work regardless of the platform on which SAS software is installed.

Vince DeIGobbo is a Senior Systems Developer in the Web Tools group at SAS. The Web Tools group is responsible for developing the SAS/IntrNet Application Dispatcher, SAS Stored Processes and other new Web- and server-based technologies. He is the developer for the HTML Formatting Tools and the SAS Design-Time Controls, and is currently part of the team developing other new Web- and server-based technologies. Vince has been a SAS Software user since 1982, and joined SAS in 1992.

10:30 am-
12:00 pm

Creating and Exploiting SAS Indexes

HW04

Michael A. Raithel, Westat, Rockville MD

BI

SAS indexes can drastically improve the performance of programs that access small subsets of observations from large SAS data sets. Yet, many SAS programmers never use them. In this workshop, you will learn how to create simple and composite SAS indexes, determine which variables make good index key variables, discover when creating and using indexes is appropriate, learn about centiles, and find out how to generate index usage messages. You will see—first hand—how indexes can improve processing when subsetting and/or updating a large SAS data set. To be successful in this workshop, you should have base SAS knowledge, including creating and updating permanent SAS data sets. You will leave this fun-filled 75-minute workshop with a practical knowledge of how to create and exploit SAS indexes.

*Michael A. Raithel has worked with Information Systems in the commercial and government sectors since 1980. An internationally recognized expert in the use of SAS software in mainframe environments, he is the author of over a dozen SAS technical papers and is a popular lecturer at SUGI and at regional SAS conferences. Michael has been a section chair at SUGI, SESUG, and NESUG, and he co-chaired NESUG in 1995. He has been a mainframe computer performance analyst for Marriott International and for the U.S. Customs Service, as well as an independent consultant specializing in mainframe and Unix performance issues. He now works as a Senior Analyst for Westat. A copy of the first edition of this book, entitled *Tuning SAS Applications in the MVS Environment*, resides in the Smithsonian Institution of American History's Permanent Research Collection of Information Technology.*

INTRO TO SAS

Section Chair:

Marje Fecht
Prowerk Consulting
Cape Coral, FL

Monday Morning – Symphony III

8:00 am-
9:00 am

The SAS Data Step: Where Your Input Matters

IN01

Peter Eberhardt, Fernwood Consulting Group Inc., Toronto ON

B

Before the warehouse is stocked, before the stats are computed and the reports run, before all the fun things we do with SAS can be done, the data need to be read into SAS. A simple statement, INPUT, and its close cousins FILENAME and INFILE, do a lot. This paper will show you how to define your input file and how to read through it, whether you have a simple flat file or a more complex formatted file.

Peter is a long time SAS consultant. V8 certified and a SAS Alliance Partner, Peter knows less than he thinks he does and more than is good for him.

9:00 am-
10:00 am

Why the DATA Step Does What It Does

IN02

Neil Howard, i3 Statprobe, Basking Ridge NJ

B

The DATA step is the most powerful tool in the SAS system. Understanding the internals of DATA step processing, what is happening and why, is crucial in mastering code and output. Concepts covered:

✍ Logical Program Data Vector (LPDV or PDV),

- ✍ automatic SAS variables and how they are used,
- ✍ the importance of understanding the internals of DATA step processing,
- ✍ what happens at program compile time,
- ✍ what's happening at execution time,
- ✍ how variable attributes are captured and stored, and
- ✍ handling processing defaults, data defaults, data conversions, and missing values.

This paper focuses on techniques that capitalize on the power of the DATA step and working with (and around) the default actions. By understanding DATA step processing, you can debug your programs and interpret your results with confidence.

Neil Howard is Manager of Statistical Programming at i3 Data Services in Basking Ridge, NJ; she was with Pfizer previously. A SAS user for more than twenty years, Neil has been an invited speaker since 1983 on such topics as: efficiency techniques, DATA step processing and internals, advanced DATA step techniques, testing and validation, graphics, effective presentations, and interviewing/hiring SAS programmers. She was a contract instructor for SAS Institute for seven years teaching fundamentals, programming, macro, report writing, graphics and the annotate facility. She has been a member of the SUGI Executive Committee since 1993 and was proud to chair SUGI 20 in Orlando. She is our Academic Conference Chair here in Nashville.

**10:00 am-
11:00 am**

A Roadmap to SAS Documentation

IN03 Pat Moell, SAS, Cary NC
Sean Gargan, SAS, Cary NC

B

Having trouble finding information? Here's a road map. This paper focuses on all the ways that SAS delivers software user documentation, how the system of documentation is organized, how to easily find out what documentation is where, how to find out what's new, the differences in the documentation provided for different software releases (Version 8, Release 8.2, and SAS 9, for example), how to find related documentation, and how to search to find exactly the information that you are seeking.

As Director of SAS Publishing, Sean is responsible for SAS Learning Edition, the BBU program and Self-paced e-Learning. In addition, SAS Publishing has Sales, Marketing and Business Development/Operations responsibilities for the Publications Division. Sean is a graduate of Colorado State University and has worked at SAS since 1986.

**11:00 am-
12:00 pm**

What's That Note/Warning/Error Mean and How Do I Fix it?

IN04 Deb Cassidy, Cardinal Health, Dublin OH

B

The SAS System provides lots of notes, warnings and error messages in the log. Some messages are very clear but others can leave you wondering why it appeared. In most cases, you have to resolve the error message to get your program to run. However, your program can run with notes and warnings. What many new users - and even a few experienced users - may not realize is that they could be getting wrong results. This presentation will cover some common notes, warnings and error messages by showing examples of what could have caused the message. You'll also learn some ways to help you determine if you are getting wrong results.

Deb Cassidy has used SAS for over 20 years. She has presented numerous papers at international, regional and local user group conferences. Deb is chairing the Pre-Conference Workshops section for SESUG '04 and will co-chair the '05 conference in Virginia

Monday Afternoon -- Symphony III

**1:30 pm-
2:30 pm**

How to Incorporate Old SAS Data into a New DATA Step, or "What is S-M-U?"

IN05 Andrew T. Kuligowski, Neilsen Media Research, Dunedin FL

B

S-M-U. Some people will see these three letters and immediately think of the abbreviation for a private university and associated football team in Texas. Others might treat them as a three-letter word, and recall a whimsical cartoon character created by Al Capp many years ago. However, in the world of the SAS® user, these three letters represent the building blocks for processing SAS datasets through the SAS DATA step. S, M, and U are first letters in the words SET, MERGE, and UPDATE – the 3 commands used to introduce SAS data into a DATA step.

This presentation will discuss the syntax for the SET, MERGE, and UPDATE commands. It will compare and contrast these 3 commands. Finally, it will provide appropriate uses for each command, along with basic examples that will illustrate the main points of the presentation.

Andrew T. Kuligowski has been a SAS user for over 20 years. He has shared his professional coding experiences in the petrochemical and media research industries by speaking at SESUG, SUGI, and many other SAS conferences and user group meetings. Andrew serves on the Executive Council of the SouthEast SAS Users Group, and was conference co-chair for SESUG '97 in Jacksonville and for Tennessee SAS Users Day in Knoxville. In his spare time, Andrew can also

be found volunteering at the Florida Aquarium in Tampa.

2:30 pm-
3:30 pm

(In)formats (In)decently Exposed

IN06

Harry Droogendyk, *Stratia Consulting Inc., Lynden ON*

B

If you've pulled data into SAS or pushed it out the other end you have used SAS informats and formats, really. Didn't hurt a bit did it? There's nothing to be afraid of, formats are really quite helpful little beasts.

If you've been intimidated or confused by SAS formats, come along for a revealing ride as the shadowy side of data formatting is decently exposed. Learn how many data conversion and presentation issues are easily handled, whether the data be dates, times, numbers or strings. Don't avert your eyes, discover the power, efficiency and freedom of SAS formats, you'll never be the same.

Harry Droogendyk has been a computer professional for 18 years, the last 9 years as an independent consultant. He has been using SAS almost exclusively for the last 6 years with particular interests in SAS/Intrnet, SAS/Connect, SAS/Access, Base and almost obsessively so, Macro. Harry has worked in various sectors of the manufacturing and finance industries including steel, agriculture, leasing, banking and insurance. In real life, Harry is a happy husband and proud father, active in his church and enjoys interacting with teenagers.

3:30 pm-
4:00 pm

When Bad Programs Happen to Good People: Shuffling, Shifting, and Structuring an Inherited SAS Program

IN07

Gary E. Schlegelmilch, *US Bureau of the Census, Woodbridge VA*

B

Invariably, when we go to a SAS programming class, we are taught the basics of how the language works, and ways to lay out a program. The problem is, once we leave an academic arena and into the professional one - we don't always write programs from scratch. Often, as jobs change, personnel change, and requirements change; we are often called upon to take an old program, and update it for new requirements. In this paper, we'll discuss some of the basic tools available within SAS, and how to use them effectively to update outmoded, unstructured, and just generally bad coding.

Gary Schlegelmilch has been enthusiastically working in SAS for a little over seven years. His current position with the Census Bureau finds him developing software for various economic surveys, primarily using Base SAS, SAS/CONNECT, and Macros on UNIX and VMS. His programming career spans four decades, and has used and informally taught several computer languages. He has presented papers to local, regional, and international SAS conferences. Last year, he was co-chair of the SouthEast SAS Users Group conference in St. Pete Beach, Florida; this year, he is chairing SESUG's Applications Development section.

4:00 pm-
5:00 pm

Here's the Data, Here's the Report I Want - How Do I Get There?

IN08

Deborah Babcock Buck, *D. B. & P. Associates, Houston TX*

B

SAS® programmers are often given a set of data and asked to generate a specific report. This can be a daunting task, especially for a relatively new SAS user. Where to start? This process involves two separate, but related phases. Phase one concerns the data itself. What form are the data in - is it raw data, an existing SAS data set or sets, or data from another software program? Also, does the data need to be manipulated, restructured, or summarized to provide the information needed for the SAS procedure? Phase two involves determining which PROC will provide the output in the desired form. Knowing whether the report needs a specific layout, customized information, or statistics is essential in deciding on the most appropriate PROC. This paper will present some guidelines to follow for producing the desired report in a logical and organized manner using Base SAS.

Debbie Buck has been programming in SAS for over 25 years and has been an independent consultant in Statistical Consulting and SAS Programming for over 18 years, primarily in the Pharmaceutical and Medical Device fields. She has written and presented papers at SUGI, regional, and local SAS user group conferences. Debbie chaired the SCSUG 1997 Conference and co-chaired SSU 2001, the Joint Conference of the SouthEast SAS Users Group and South Central SAS Users Group. She is active on the Executive Committees of both SESUG and SCSUG, and is a Section Chair at SUGI. Debbie is also a Contract Instructor for the SAS Institute.

5:00 pm-
6:00 pm

The Utter Simplicity and Power of the TABULATE Procedure

IN09

Dan Bruns, *Tennessee Valley Authority, Chattanooga TN*

B

When I first started using SAS in a university environment in 1972, I was very excited about how much SAS could help me. As I learned more and more and moved to the real world of the employed I needed more flexibility in my reporting - PROC PRINT had some and PROC MEANS and FREQ had basically none. And SUMMARY needed too much DATA step manipulation. What I needed was a marriage of all these with the flexibility to control what I wanted where and how! Thank the Gods for PROC TABULATE!! I was able to produce reports from massive amounts of data in practically any way I needed! The power of being able to simply rearrange a few variable names and change the complete look of the report was great. This Tutorial will give the basics of TABULATE you will need to start discovering its true simplicity and power.

Dan Bruns is a Senior Systems Programmer for the Tennessee Valley Authority (TVA) in Chattanooga, TN, and

responsible for the installation, customization, and support of several products on the z/OS IBM mainframes since 1986. He is the SAS Software Site Rep for all platforms at TVA (z/OS, Windows, Sun, and HP), and has been responsible for the installation and support of the SAS System since 1981. He has been a SAS user since 1972. He has presented several papers/workshops at SAS Users Group International (SUGI), SouthEast SAS Users Group (SESUG), and other SAS regional and non-SAS conferences since 1990. His main areas of interest are Base SAS, SAS Macros, and SAS reporting procedures, SAS/GRAPH, SAS/ACCESS, and SAS/SHARE. He has been a member of the SESUG Executive Council (EC) since 1994, and was proud to cochair the SESUG 97 conference with Andrew T. Kuligowski in Jacksonville, FL. He is currently the SESUG EC President and chair of the SESUG Conference Site Selection Committee.

Tuesday Morning -- Symphony III

8:30 am-
12:00 pm

ODS: What is it, Why would you use it, What can you do with it?

IN10

David Kelley, SAS, Cary NC

Since its introduction in SAS[®] 8, the Output Delivery System (ODS) has been widely embraced by SAS users. ODS enables users to customize the content and style of their SAS output. Reports can be easily rendered into industry-standard formats such as RTF and PDF. Data from tables and graphs can be captured as SAS data sets. Best of all, ODS is Base SAS software, so it is available to every user.

If you are unfamiliar with ODS, this presentation will show you why you should be using it. If you are an experienced ODS user, this presentation will demonstrate new SAS 9 ODS features that give you even greater control over your output. Whatever your skill level, you will learn something to put to use at your work and impress your coworkers!

David Kelley is Software Manager of the group responsible for Base SAS[®] reporting and the Output Delivery System. He has supported PROC TABULATE since 1995. He is the author of PROC DOCUMENT, which was introduced in SAS 9. David is involved with other SAS 9 features such as the Business Intelligence platform and Enterprise Miner 5.0 pmML.

David has a B.S. in Computer Science from Furman University and a M.S. in Computer Science from Clemson University. He lives in Willow Springs, NC with his wife and three children.

POSTERS

Section Chairs:

Larry Altmayer
US Bureau of the Census
Washington, DC

John Charles Gober
US Bureau of the Census
Washington, DC

On display all day Monday and until noon on Tuesday in the Skylight Foyer
Drop by the poster area to meet the authors on Tuesday between 9:30-10:30 a.m.

Doing More with SAS/GRAPH GMAP: A New Look at an Old Procedure

PS01

Barbara B. Okerson, Virginia Health Quality Center, Glen Allen VA

One of the roles of a healthcare quality improvement organization (QIO) is to provide tools and support to healthcare organizations and facilities to assist them in their quality improvement efforts. Geographical differences in adherence to clinical guidelines have been demonstrated. The identification of geographical areas of need helps the QIO improve the efficiency of this information delivery. Geographical data analysis and display are used to summarize spatial data, identify variations in performance by regions and providers and show performance trends over time through both static and interactive displays.

The SAS/GRAPH GMAP procedure was designed to produce two- and three-dimensional color maps of data value variations. With the advent of new spatial analysis tools available through SAS/GIS and other geographical information systems, this procedure is sometimes overlooked. Yet the versatility of this procedure, combined with the Output Delivery System (ODS), Java, Active-X, and the new SAS map data sets, allow the GMAP procedure to remain an excellent tool for spatial data display. Examples in this paper will illustrate these capabilities.

All output is created using SAS software, version 8.2 on a Windows 2000 platform or version 9 on a Windows XP platform. Abbreviated SAS code for each map is included in the paper.

Barbara B. Okerson, Ph.D., CPHQ is a Senior Scientist at the Virginia Health Quality Center where she is responsible for research, design, and project analysis using both clinical and administrative data for health care quality improvement initiatives, hospital payment monitoring, data abstraction, and other contracted analysis. She is an adjunct faculty member at Virginia Commonwealth University Department of Health Administration and is a SAS Certified Professional.

Matching SAS Data Sets: If at First You Don't Succeed, Match, Match AgainPS02 Imelda Go, *South Carolina Dept of Education, Columbia SC*

Two data sets are often matched by using the MERGE and BY statements in a DATA step. If not all records between the two data sets are matched successfully, there may be a need to continue matching those records that did not match using a different set of BY variables. If the goal is to match as many records as possible between the two original data sets, then this process may have to be repeated several times using many sets of BY variables. This paper goes over cautions regarding the matching process described and discusses using macros for more manageable SAS code.

Imelda Go, Ph.D. is a measurement statistician at the South Carolina Department of Education's Office of Assessment. Her interests include efficient SAS programming and office automation.

Installing SAS/IntrNet on Windows and Linux

PS03

Xiao Zhuang, *University of North Carolina-Chapel Hill, Chapel Hill NC*
Sharon Schiro, *University of North Carolina-Chapel Hill, Chapel Hill NC*

The North Carolina Trauma Registry initially developed ISSAC (Information System for State Trauma Advisory Committee) as a SAS/IntrNet application on Windows environment, and then transferred it to the Linux operating system due to its reliability and ease of use. There are similarities and differences between Installing SAS/IntrNet on Windows and Linux, and in contrast to most SAS installations, SAS/IntrNet is rather complicated. This paper presents SAS/IntrNet Installation on Windows and Linux.

Sharon Schiro is a faculty member in the Department of Surgery at University of North Carolina in Chapel Hill. She is the Director of the North Carolina Trauma Registry, responsible for, among other things, database administration, quality control, data processing and analysis, and web-based reporting interface development. She has a PhD in Bioengineering, over 12 years of experience using SAS, and many years of programming experience using other languages.

Xiao (Michelle) Zhuang works as a computing consult at Academic Technology and Networks (ATN) of University of North Carolina at Chapel Hill (UNC-CH). She provides statistical computing support and training on campus. Previously, she worked as a SAS programmer for more than 2 years at Surgery Department at UNC-CH. Michelle received her M.S. in computer engineering from North Carolina State University and an M.S. in environment from Duke University.

SAS-L: The BasicsPS04 Joseph Kelley, *University of Georgia, Athens GA*

(Abstract not available at time of printing.)

(Biography not available at time of printing.)

The Evolution of a SAS/GRAPH ApplicationPS05 Jenine Eason, *AutoTrader.com, Peachtree City GA*

Graphs are an excellent way to represent any activity. The author is using web server errors tracked over a 24 hour period to represent such activity in a traditional SAS/GRAPH bar chart. With increased enhancements to SAS/GRAPH over the years, additional levels of data representation are available. Further understanding of ODS, its options, and the addition of html hyperlinks allows for expanded information delivery for continued drill-down capabilities.

This poster will introduce a basic SAS/GRAPH representing web server errors over 24 hours. With the addition of ODS and java output, drill-down capabilities are introduced allowing the user to identify individual servers and drill into a specific hour for its visualization. This can occur with just a few simple statements. To further the information delivery capabilities, html hyperlinks can be added to each bar in a graph. These linked graphs provide additional levels of data detail to be drilled into. Code to create the html hyperlinks and additional graphs will be revealed.

Jenine is a seasoned SAS programmer working in many industries, currently working for Autotrader.com. She has spoken many times at SESUG and as an Invited speaker for SUGI. She has been section chair for SESUG for several years, will co-chair SESUG'05, and is a member of the SESUG Executive Committee.

SAS® Programs to Select Controls for Matched Case-Control Studies

PS06

Robert Matthews, *University of Alabama at Birmingham, Birmingham AL*
Ilene Brill, *University of Alabama at Birmingham, Birmingham AL*

For epidemiologic matched case-control study designs, SAS programs were developed to match cases (persons with disease/event of interest) to controls (comparison group of persons without disease/event of interest). Matched case-control studies control for confounding by introducing stratification in the design phase of a study. Cases are individually matched to a set of controls (1:n ratio); n can vary from 1 to the desired number of controls for each case. Numbers of matched controls may vary dependent on the available controls possessing matching criteria. Selection of matched controls requires cases and controls to have similar values for important confounding variables defined as the matching criteria. Types of matching variables included within these programs are gender, race, year of birth/age at outcome. The programs

illustrate nested matched case-control study design where cases and controls are chosen from larger retrospective cohort study populations. Study design elements featured are: persons eligible to be controls for ≥ 1 case; cases eligible to be controls for another case; persons eligible to be cases multiple times. The second macro modification of the first program displays the inherent adaptability for other study populations, matching criteria, #controls:case ratio, and optional replacement/without replacement of cases and controls among matched case-control sets.

Robert Matthews is a Senior Systems Analyst in the Department of Epidemiology at the University of Alabama at Birmingham in Birmingham, Alabama. He has used SAS software extensively for twenty years. He has worked on data management aspects of numerous research studies in the Occupational Epidemiology group for over fifteen years. His areas of expertise include the Base SAS language, SAS/FSP and SAS/AF.

Ilene Brill, a Systems Analyst, Dept. Epidemiology, Univ. Alabama at Birmingham (UAB) has used SAS for data management and analysis of STD epidemiology prospective follow-up studies, occupational epidemiology retrospective follow-up and case-control studies. Prior work: Department of Epidemiology and Biostatistics, University of Tromsø, Norway; Channing Laboratory, Boston, MA; Dept. of Epidemiology, Massachusetts Eye and Ear Infirmary; Dept. of Health Care Org. and Policy, UAB. M.P.H. Biometry, UAB; B.A. Biology, University of Pennsylvania.

SERENDIPITY

Section Chairs:	Joy Smith North Carolina State University Raleigh, NC	Mark Tabladillo markTab Consulting Atlanta, GA
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Monday Morning -- Carmichael

8:00 am-
8:30 am

Methods for Minimizing Errors in Address Data

SY01 Milorad Stojanovic, *RTI International, Atlanta GA*

I

We live in an imperfect world and we work with imperfect data. Data often contain small and large errors. This is especially true when collecting data from mail surveys that are sometimes filled out in a hurried or careless manner. Correct address data is critical to achieving high mail survey response rates. This paper presents methods to improve the quality of the street address data obtained from mail surveys and other instruments that collect address data. Improvements are made in the quality of the information typically stored as ADDR1 and ADDR2 by using: standardization techniques, correction methods, and business rules.

SAS/Base and SAS/Macro are used to implement the ideas presented in this paper.

Milorad Stojanovic has 12 years of experience with SAS. He has experience in the pharmaceutical industry as a systems and programming analyst. In this position he developed application software for processing clinical trial data.

He also has experience in education as an analyst/programmer. In this position he developed application software for longitudinal studies.

Milorad has formal education in Applied Physics (Nuclear Science) from School of Electrical Engineering University of Belgrade Yugoslavia. He spent four years working for Upjohn Company of Canada (later Pharmacia-Upjohn) and the last seven years working for Research Triangle Institute International in North Carolina.

8:30 am-
9:00 am

Where's The Match?

SY02 Jennifer L. Waller, *Medical College of Georgia, Augusta GA*
Verna C. Brantley, *Medical College of Georgia, Augusta GA*
Robert H. Podolsky, *Medical College of Georgia, Augusta GA*

I

Statisticians, while not data managers, are often asked to perform data management tasks. One task is to match a study group to a comparison group one-to-one on several variables. While easy for small datasets and matching only categorical variables, matching thousands of study subjects to thousands of comparison subjects where data come from large administrative databases and the matching variables can be categorical and continuous is difficult. How do you match continuous variables with the comparison subject being within some range of the study subject (e.g. age within +/- 2 years)? The utilization of SAS™ / Macros is one solution. The created macro uses a study subject data set, a control data set, and outputs a data set containing the one-to-one matched subjects. The macro reads in a study subject, scans through the comparison subject data set until a match is found, writes the match to the matched data set, deletes the comparison subject from the comparison data set, and proceeds to the next study subject. If no match is found the macro proceeds to the next study subject. The resulting matched data set contains those study subjects and comparison subjects that were matched one-to-one on the necessary variables.

Jennifer Waller is an Associate Professor of biostatistics at the Medical College of Georgia in the Department of Biostatistics. She received both her masters and Ph.D. from the University of South Carolina in 1991 and 1994. She has used SAS for 15 years.

9:00 am-
10:00 am**Array: Construction and Usage of Arrays of Macro Variables**

SY03

Ronald Fehd, *Centers for Disease Control and Prevention, Atlanta GA*

I

The SAS software data step statement array V (3) \$ V1-V3 ('A' 'B' 'C'); produces three character variables named V1, V2, and V3 with corresponding initial values, 'A', 'B', and 'C' and a function, dim(V) which returns a value of 3. Programmers can write simple macro tools for use in larger macro procedures. These tools can duplicate SAS software data step constructions that the programmer is comfortable using and make reading and comprehension easier. The macro statement %Array(V,A B C) produces three macro variables, V1, V2, and V3, with corresponding values: A, B, and C and macro variable Dim_V with the value 3. These variables can then be used in the macro iterative loop statement %Do I = 1 %to &Dim_V.;

This paper examines the SAS data step array statement and discusses the issues in constructing and using arrays of macro variables. The macro Array takes parameters of either a list of elements or a data set. Expected audience are users and programmers with experience building large macros, for which this is a subroutine.

Macro Array is a basic utility used in two other macros that address analysis of multiple-response data. See Fehd (SUGI-1997) %CheckAll and %ShowComb.

Ronald Fehd, the "Macro Maven", is a frequent SAS presenter at SUGI and regional SAS Conferences, and a regular contributor to the mailing list SAS-L.

10:00 am-
10:30 am**Avoiding Mouse Elbow**

SY04

Malachy J. Foley, *University of North Carolina-Chapel Hill, Chapel Hill NC*

BIA

Computer programming or coding may literally be dangerous to your health. Mouse Elbow, which is akin to Tennis Elbow, is just one adverse health condition that is associated with computer use. Other maladies associated with computers include Carpal Tunnel Syndrome (from keyboard and the mouse), shoulder and neck pain, and Sciatica.

This paper describes computer-related health risks with special emphases on musculoskeletal disorder (MSD) and Mouse elbow. The information in this paper will hopefully help you avoid computer-related injury, or detect and cure it at an early stage.

Mal Foley is currently a Senior SAS Programmer/Analyst with the University of North Carolina at Chapel Hill. His career includes being an international computing consultant, a university professor, a manager of several computing departments, and the CEO of his own computing company. Mal has consulted to IBM, Dow Chemical, the Ford-Rockefeller Foundation, the United Nations, the US Department of Agriculture, the US Agency for International Development, and many universities. He has taught dozens of computer programming courses at the undergraduate, graduate, and professional levels. Mal regularly publishes papers and gives presentations at SUGI and regional SAS User Groups.

10:30 am-
11:00 am**Cutting the SAS® LOG down to size**

SY05

Malachy J. Foley, *University of North Carolina-Chapel Hill, Chapel Hill NC*

BIA

Looking through a large SAS LOG (say 250 pages) for NOTE's and WARNING's that might indicate a problem with your SAS program is necessary, but no fun. This paper presents a SAS program which distills the SAS LOG to list only the critical messages in a LOG. The use of the program increases program reliability and programmer productivity.

Mal Foley is currently a Senior SAS Programmer/Analyst with the University of North Carolina at Chapel Hill. His career includes being an international computing consultant, a university professor, a manager of several computing departments, and the CEO of his own computing company. Mal has consulted to IBM, Dow Chemical, the Ford-Rockefeller Foundation, the United Nations, the US Department of Agriculture, the US Agency for International Development, and many universities. He has taught dozens of computer programming courses at the undergraduate, graduate, and professional levels. Mal regularly publishes papers and gives presentations at SUGI and regional SAS User Groups.

11:00 am-
12:00 pm**Panel: Launching a Web Application**

SY06

Mark Tabladillo, *markTab Consulting, Atlanta GA*Harry Droogendyk, *Stratia Consulting Inc., Atlanta GA*Jenine Eason, *Autotrader.com, Atlanta GA*Steve James, *Centers for Disease Control and Prevention, Atlanta GA*Crystal Vierhout, *North Carolina State University, Raleigh NC*

BIA

A panel of four experienced users respond to interactive questions from the moderator (and potentially audience) on launching a web application.

MARK TABLADILLO, MODERATOR

Mark Tabladillo is a contractor for the Centers for Disease Control, and has been a SAS user since 1991. His Industrial Engineering doctorate is from the Georgia Institute of Technology, where he learned to use SAS for applied statistics. He has launched and supported Macromedia Cold Fusion web applications for two nonprofit organizations, Dia de la Mujer Latina (<http://www.diadelamujerlatina.org>) and Atlanta Lindy Exchange (<http://www.atlx.org>).

Jenine Eason, Autotrader.com, Atlanta GA

Jenine has been programming in SAS for over 16 years. Her industry experience covers Banking, Telecommunications, and for the last four years has been with Autotrader.com, the recipient of the SUGI 25 - SAS Institute Enterprise Computing Award. Jenine is an integral part of a team that maintains an Intranet site for AutoTrader.com using many SAS Web Applications. Such applications range from simple reports with hyperlinks to MDDBs, SAS/Intrnet, Treeview and Java drill-down graphs. Jenine has written and presented a number of papers on the topic: SUGI26 "AutoTrader.com: From Chevette to Corvette", covering all AutoTrader.com web based applications; SESUG03: "A "Real" Java Drill-Down Graph"; SUGI29, SESUG04: "Creating Meaningful Data from Web Logs Using Base SAS". Jenine Eason, a member of the SESUG Executive Council, will be the SESUG 05' conference co-chair being held at the Renaissance Portsmouth Hotel and Waterfront Conference Center in Historic Portsmouth, VA.

Harry Droogendyk, Stratia Consulting Inc., Lynden, ON, Canada

Harry Droogendyk's experience has been fairly focused, almost exclusively with the "vanilla" SAS/Intrnet product, only a little htmSQL, webAF only in courses. He has designed and implemented dynamic and static web-based reporting, explorer-like interfaces (akin to the Explorer app that comes with SAS/Intrnet, but a little more sophisticated since it included security, modules to maintain folders/modules & security), transactional type processing (add, update, delete, display) through the browser. Much of the stuff he has done included a healthy dose of client-side Javascript. ODS has often been utilized though I'm not adverse to PUTing HTML, as ugly as that gets, since it's often necessary when doing really customized stuff. Installation, tweaking, monitoring of application servers, load managers, pooled services etc.. has been part of his past as well, mostly on Windows platforms though there's been some UNIX as well. He has used a mainframe for static web reporting (i.e. SAS/Intrnet wasn't running on the mainframe, though SAS was). Harry participates in SAS-L, from which he formed a connection with Crystal (also on the panel) and advised her during her own SAS Web Application launch.

Steve James, Centers for Disease Control and Prevention

Nearly 20 years programming experience with SAS software, the most recent 5 years doing web development using Application Dispatcher. Projects include WISQARS, a web-based application for Injury-related data, the downloading and reporting of Smallpox data, an application generating random samples of schools for determining immunization rates of school children, and an application for dissemination of infant vaccination rates.

SUGI Papers Authored: "Add a Common Look and Feel to Web Applications Easily,"

Web Application Bar Charts without SAS/Graph" and "A Hiker's Guide to Web Development."

Crystal Vierhout, Computer Consultant North Carolina State University

Crystal received her B.A. from Iowa State University In 1990. After finishing at Iowa State, she was hired as a Mating Appraisal Specialist for the Cooperative Resource International (CRI). In 1995 Crystal attended Virginia Polytechnic Institute and State University to obtain her masters in Dairy Science focusing on Quantitative Genetics, While at Virginia Tech two semesters of graduate level statistics with heavy use of SAS as an analysis tool heavily influenced her focus. Her research project utilized SAS as the major research tool to analyze data from 1.5 million cows. Two papers were published in the Journal of Dairy Science from her research, "Comparisons of cows and herds in two progeny test programs and two corresponding states" and "Influences of progeny test programs on the genetics evaluation of young sires." Utilizing the experience from her masters she became a computer consultant for Dairy Records Management System (DBMS). As an innovator in the dairy industry, Crystal has created DairyMetrics, the first dynamic web benchmarking tool for the Dairy industry. Additionally, she has started her PhD in Animal Science at North Carolina State University focusing on Quantitative Genetics and project finishing in May of 2005. Current responsibilities heavily rely on SAS to maintain in-house MS Access database and generate 10 years of herd summary data, While at DRMS she has submitted a paper to the Journal of Dairy Science titled "Evaluating the Use of Benchmarks or Expert Opinion in Making Herd Management Decisions" and an abstract titled "A Web-based dynamic generation of herd summary information through a dairy herd-benchmarking tool called DairyMetrics."

Monday Afternoon -- Carmichael

1:30 pm-
2:00 pm

Fresh SAS Programming Tunes from Hashville

SY07

Paul M. Dorfman, *Independent Consultant, Jacksonville FL*

Alexander V. Martchenko, *STOPS Corp., Jacksonville FL*

BIA

In SAS® Version 9.1, the hash object - the very first object introduced via the Data Step Component Interface in Version 9.0, has become robust and syntactically stable. The philosophy and application style of the hash object differs quite radically from any other structure ever used in the Data step previously. The most notable departure from the tradition is its run-time nature. The hash objects is instantiated and/or deleted and acquires memory, if necessary, at the run-time. It is intuitively clear that such traits should make for very interesting and flexible programming having not yet seen in the Data step code of yore. And they do, indeed!

Although brief propaedeutics will be provided, this short talk is intended for SAS programmers already somewhat familiar with the basic ideas and syntax behind the hash objects. Instead of teaching hash basics (which by now ought to have been covered enough!), we will concentrate on a few programming techniques using the hash object, which would be utterly unthinkable before its advent. Envisage a "data _null_" step creating a SAS data set, or, better yet, writing a bunch of SAS data sets, their names depending on the

value of a SAS variable. Or fancy sorting a huge temporary array without the need to write sophisticated, efficient code like quicksort.

In other words, you are in for a few intriguing SAS tunes from Hashville...

Paul has a Ph.D. in Physics. Started using SAS in computational plasma physics. Thereafter, has used it in telops, banking, credit card, pharmaceutical, and managed health care industries. Specializes in SAS implementations of high-performance algorithms, such as sorting and searching for data stuff, preferably rapidly. Was the first to have implemented in SAS the hash algorithms; quick, radix, and topological sorts; and a number of methods based on ADDR/PEEK/POKE functions. Over the years, has earned a number of honorable nicknames, such as "Sashole" from a group of COBOL critters, "MVS" and "Hall-of-Famer" from SAS-L, and "Hash-Man" from good folks in SAS R&D

2:00 pm-
2:30 pm

Stata® for the Struggling SAS® Mind

SY08

Dan Blanchette, *University of North Carolina-Chapel Hill, Chapel Hill NC*

BIA

This paper shows how to "do" in Stata what you know how to "program" in SAS. For those SAS programmers who need the statistical software Stata for certain analysis commands or have been given Stata code that they need to use, this is basically a formal presentation of notes to myself that I made as I started learning how to use Stata. What is covered:

- 1) How to get your SAS brain to conceptualize the different way Stata is set up. In essence, how to think Stata.
- 2) How to navigate the Stata window environment.
- 3) How to translate your SAS code into Stata code.

With a SAS programmer in mind, this paper makes use of your SAS knowledge to explain how to use Stata. This makes learning Stata a lot easier as familiar SAS terms and concepts are used in the explanations. Not all SAS statements are translated into Stata commands. Just the basics are covered so that a new-to-Stata user can learn enough to get started. Perhaps the handiest feature is the table of SAS code matched to Stata code.

Dan Blanchette graduated UNC-CH with a BA in 1988 and has been an applications programmer at the Carolina Population Center at UNC-CH for about 10 years. He started out only programming in SAS, but about 5 years ago had to learn Stata as well.

2:30 pm-
3:30 pm

44 Tricks with the 4mat Procedure

SY09

Ben Cochran, *The Bedford Group, Raleigh NC*

I

Actually, there probably are not a total of 44 tricks that one can do with the FORMAT procedure. The number was chosen purely for the purposes of alliteration. However, there are some fairly powerful things one can do with this procedure, and this paper serves as a gentle introduction to the FORMAT procedure. In SAS, a format is simply instructions on how to write or display a value. There are dozens, if not hundreds, of formats that ship with the SAS system. While they cover many of the user's needs, they cannot possibly cover all of them. So, the SAS System includes a tool that allows users to create their own formats. That tool is the FORMAT procedure.

After more than 11 years with SAS Institute in the Professional Services and Marketing Departments, Ben Cochran left to start his own consulting and SAS Training business in the fall of 1996 – The Bedford Group - an affiliate members of SAS Institute's Alliance Partner Program. He has extensive expertise with SAS/EIS in building front-end menuing systems. Ben was the marketing manager for this product for over three years and worked with numerous SAS Institute customers in meeting their application development needs. He also developed the SAS/EIS demo that shipped with the SAS System for Release 6.11.

Ben has extensive experience in training SAS users in many areas of SAS. Since 1986, he taught over 250 SAS courses to over 2,500 SAS users across North America. He developed the first Release 6.11 SAS/EIS course and taught it for SAS Institute. His course notes were the draft for the book Getting Started with SAS/EIS, 2nd Edition.

Ben has been an invited speaker at SUGI and many Regional User Group conferences since 1988.

3:30 pm-
4:30 pm

SAS® Add-In for Microsoft Office – Leveraging SAS® Throughout the Organization from Microsoft® Office

SY10

Jennifer Clegg, *SAS, Cary NC*
Stephen McDaniel, *SAS, Cary NC*

The SAS Add-In for Microsoft Office is a Component Object Model (COM) add-in to Microsoft® Excel and Microsoft® Word. The SAS Add-In for Microsoft Office seamlessly exposes the power of SAS data access, reporting, and analytics directly from the familiar environment of Microsoft Office. This paper discusses the capabilities and features of the SAS Add-In for Microsoft Office 1.3. Refer to Appendix A for a list of features by release.

Jennifer Clegg is a senior software manager at SAS. She has worked for SAS for 13 years and has focused on PC development. She is responsible for the new SAS Add-In for Microsoft Office which brings the power of SAS analytics directly into the Office environment. She also supports SAS DMS for Windows, the Enhanced Editor, and the SAS System Viewer.

4:30 pm-
5:30 pm**The Perks of PRX...**

SY11

David L. Cassell, *Design Pathways, Corvallis OR*

I

Pattern matching lets you find chunks of text that have a particular pattern - even patterns that would be very hard to find using SAS® functions like index() and substr(). For example, try finding all strings which have two consecutive words that are the same, not counting capitalization. Difficult with traditional SAS® functions, but Perl's 'regular expressions' give you a simple language to search for patterns, extract patterns from strings, and even change text that matches your patterns. This is invaluable for all manner of text manipulation, including validation, text replacement, and string testing. With the advent of SAS® 9, the power of Perl's regular expressions is now available in the DATA step.

David L. Cassell is a mathematical statistician in private consulting, as well as performing contract work for the U.S. Environmental Protection Agency. He is a member of the SAS-L Hall of Fame, and has won awards for his presentations at SUGI and regional SUGs. He has been programming in SAS since 1978, and has been programming in Perl for well over a decade.

Tuesday Morning -- Carmichael8:00 am-
8:30 am**SAS Application for Human Health Risk Assessment for Hazardous Waste Combustion Facilities**

SY12

Samuel E. Stinnette, *Science Applications International Corporation, Oak Ridge TN*
 Dennis J. Beal, *Science Applications International Corporation, Oak Ridge TN*
 Barney W. Cornaby, *Science Applications International Corporation, Oak Ridge TN*
 Charles T. Hadden, *Science Applications International Corporation, Oak Ridge TN*
 Sharon K. Robers, *Science Applications International Corporation, Oak Ridge TN*

I

The U.S. Environmental Protection Agency (EPA) has published guidance on performing human health and ecological risk assessments for hazardous waste combustion facilities. This guidance includes mathematical models for determining emissions from such facilities (e.g., based on the hazardous wastes being burned), as well as resulting air, soil, water, plant, and animal food chain concentrations. EPA favors a commercially available combustion risk assessment software package to perform these calculations, ensuring consistency and accuracy of results. Although flexible in nature, this software package does not allow for special site-specific scenarios such as special human receptors and risks from radiological contaminants. Science Applications International Corporation (SAIC) in Oak Ridge, TN, has developed SAS code and SAS data sets to allow for the mathematical modeling of soil, water, plant, and animal concentrations, as well as the estimation of human health risks from exposures to approximately 470 chemicals and radionuclides. The code combines database management, input from and output to Microsoft® Excel files, complex mathematical modeling, and use of SAS macros to perform the necessary calculations and produce report-ready tables. The modeling and calculation process results in a series of SAS data sets with thousands of observations and hundreds of variables to better assess realistic exposure scenarios.

Samuel E. Stinnette is a senior data analyst for Science Applications International Corporation in Oak Ridge, TN. He has more than 20 years experience in the field of statistical data analysis and statistical consulting, with more than 10 years experience in working with environmental data analysis. He has provided statistical and programming support to projects associated with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) sites across the U.S., with a focus on human health risk assessment. He has provided varying levels of support to Remedial Investigation (RI) and RCRA Facility Investigation (RFI) site characterizations, removal actions, corrective measures studies, feasibility studies, and risk-based prioritization. Mr. Stinnette has a B.S. in Mathematics and History from James Madison University and an M.S. in Statistics from Virginia Tech.

Dennis Beal is a statistician and risk scientist for Science Applications International Corporation (SAIC) in Oak Ridge, Tennessee. Mr. Beal earned a B.A. degree in mathematics from Carson-Newman College, M.S. degree in applied mathematics from Virginia Tech and a M.S. degree in statistics from the University of Tennessee in Knoxville, Tennessee. Mr. Beal currently is pursuing a Ph.D. in statistics and management science from the University of Tennessee. Mr. Beal has over 15 years of experience using SAS applying statistics for various U.S. Department of Energy projects, primarily in environmental applications. Mr. Beal also uses SAS for quantifying risk assessments for various U.S. government installations including the Department of Defense.

8:30 am-
9:00 am**Bring the Data Warehouse to the Office with SAS® Integration Technologies**

SY13

Peter Eberhardt, *Fernwood Consulting Group Inc., Toronto ON*

I

No matter how sophisticated your data warehousing solution may be you will still get the question "Can I have that in EXCEL?" The Microsoft Office suite is ubiquitous in most large organizations these days. And regardless of how and where the enterprise intelligence computing goes on, the suite of Office products needs to be able integrate with this enterprise intelligence, or the time and energy you spend on ensuring data quality can be quickly lost with a sloppy cut and paste into EXCEL or WORD. With the release of SAS Integration Technologies the unrivalled analytical and business intelligence capabilities of SAS can now be

delivered to the desktop using the Microsoft Office suite. This paper will introduce some components of SAS Integration Technologies, and then show how to use these components to integrate SAS into Microsoft Office Products without the need for SAS on the user's computer. With SAS v9 came a new product, the SAS Add-in for Microsoft Office. This paper will not address the Add-In, rather it will focus on a programmatic approach to integrating SAS and Excel.

Peter is a long time SAS consultant. V8 certified and a SAS Alliance Partner, Peter knows less than he thinks he does and more than is good for him.

9:00 am-
10:00 am

A Different Approach to Learning SAS® Software

SY14

Mirjana Stojanovic, *Atlanta GA*

BI

This paper will focus on learning SAS® software on the Internet. Reviewing a number of Web sites, we will point out advantages and disadvantages of Internet-based learning.

Web sites offer education in SAS/Base, SAS/Stat, SAS/Graph, SAS/Macro and more. Selected sites are designed to simplify the process of learning SAS software. Many content developers improve their sites content from year to year. Some now use graphical, animated (Power Point) presentations or more sophisticated techniques, such as movies.

Detailed explanation and examination of selected sites will give us a better understanding of the current online environment for learning SAS software. This presentation will explore some choices to enhance effective online learning.

Ms. Stojanovic has a Bachelor degree in Statistics and Computer Science from University of Belgrade, Yugoslavia. She was working more than 15 years at Statistics Serbia as Statistical Analyst. During that period she designed and implemented several statistical surveys mainly in the area of Labor Statistics. She analyzed and presented results of those surveys to the clients in Serbian government.

In the United States, she has worked as a SAS programmer for RTI (Research Triangle Institute), Parexel International, University of North Carolina Chapel Hill School of Nursing, and Duke University – Terry Sanford Institute. She gained valuable experience using SAS software in three different areas: Survey, Clinical trials, and Education. She regularly attends SAS seminars, SUGI, SESUG, and PharmaSUG and has updated her knowledge at several workshops.

10:00 am-
11:00 am

Rules for Tools - The SAS Utility Primer

SY15

Frank Christopher Dilorio, *CodeCrafters, Inc., Chapel Hill NC*

IA

Let's start with the premise that good programmers are lazy by nature. They want to use tools such as formats and ODS for execution-time efficiency or to pretty-up our output, functions to perform calculations, and so on. Another hallmark of a good programmer is a keen eye for pattern recognition. Rather than rewrite basically the same program over and over, they identify similarities and parameterize the program, making it into a general-purpose program, a "utility."

This paper steps through the life cycle of a simple utility. It starts with "naïve" code that doesn't exploit program similarities, then illustrates how a general-purpose utility may be developed. It ends with the initial program becoming a call to a simple, powerful routine in a macro library. The transition from simple, brute-force programming into a compact, general-purpose utility isn't a random event. The last sections of the paper present a set of design principles for utilities.

Although we focus on Base SAS in Version 9.0, the principles and techniques are readily extended across SAS versions and products. The reader will come away from this paper with an appreciation of both the process and the tool set required to build generalized programs.

A SAS programmer for nearly 30 years, Frank Dilorio is President of CodeCrafters, Inc. and the author of "SAS Applications Programming: A Gentle Introduction" and (with Ken Hardy) "Quick Start to Data Analysis with SAS." Both titles are part of SAS Institute's Books by Users series and have sold over 25,000 copies. Frank has been active in the SouthEast SAS Users Group (SESUG) since its inception. He served one term as president of the group, and co-chaired its 1994 and 1996 conferences.

*When not writing *about* SAS, Frank writes *in* SAS, primarily data management and reporting applications in the pharmaceutical industry. A native New Yorker, he has lived in Chapel Hill, North Carolina since 1974 and sort of buys into its claim of being the "Southern Part of Heaven."*

11:00 am-
12:00 pm

Spatial Statistics Using the SAS Bridge for ESRI

SY16

Patricia Cerrito, *University of Louisville, Louisville KY*

George Barnes, *University of Louisville, Louisville KY*

William Dakan, *University of Louisville, Louisville KY*

Robert Forbes, *University of Louisville, Louisville KY*

Carol Hanchette, *University of Louisville, Louisville KY*

I

The SAS Institute, Inc. has developed a bridge to ArcGIS software, developed by ESRI, Inc. ArcGIS is used worldwide for spatial data analysis and, increasingly, for spatial statistics. The bridge allows users to exchange spatial attribute data between SAS and ArcGIS and to import SAS programming directly into

ArcGIS. The bridge provides ArcGIS users access to a wide range of statistical functions and enhances the use of spatial statistics to analyze map data. This presentation will demonstrate the effective use of the SAS Bridge for ESRI, using kernel density estimation as an example.

In recent years, health researchers have shown much interest in using kernel density estimation for the exploration and display of point health data. Kernel density estimation provides an alternative to choropleth mapping (e.g. shaded mapping of administrative units) and some of its drawbacks, such as the modifiable area unit problem. Using point health data, this presentation will demonstrate the use of kernel density functions in both ArcGIS and SAS to generate information about the density of health events. The Spatial Analyst module of ArcGIS will be used to represent and map the outcomes as a continuous field.

Patricia Cerrito has worked with SAS for over 25 years. Recently, she received funding from the National Institutes of Health to use SAS Enterprise Miner (with Text Miner) to develop applications to investigate clinical data. In addition, she has received funding from the National Science Foundation to collaborate with geographers to develop courses that combine mapping and data mining to investigate public health data.

(Other biographies not available at time of printing)

STATISTICS AND DATA ANALYSIS

Section Chairs:	Jennifer Waller Medical College of Georgia Augusta, GA	Bob Bolen Southern Company Atlanta, GA
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Monday Morning -- Neely

8:30 am-
9:00 am

Binary Logistic Regression Model Optimization

Jerry A. Musial, *Cingular Wireless, Atlanta GA*

There are a number of techniques available to statisticians to measure predictiveness of a binary logistic regression model. The log likelihood ratio chi-square, Brier score and classification tables are some of these methods. Models that are very good at correctly predicting events tend to also have a high false positive rate. This paper will describe a set of macros which can be used to build, compare and select an optimized model from a series of competing models by using multiple measures of model predictiveness.

(Biography not available at time of printing)

9:00 am-
10:00 am

Building and Analyzing Probabilistic Sampling Designs using SAS

SD03 David L. Cassell, *Design Pathways, Corvallis OR*

BIA

We often need a complex sampling system to handle all the problems that the real world deals out. We may have an incomplete sampling frame. We may have logistic or budgetary constraints. We may have some categories which are much harder to sample than others. SAS now gives us a way to develop and then analyze cluster samples, stratified samples, and multi-stage samples. This talk will demonstrate the use of PROC SURVEYSELECT, PROC SURVEYMEANS, and PROC SURVEYREG to perform these tasks.

David L. Cassell is a mathematical statistician in private consulting, as well as performing contract work for the U.S. Environmental Protection Agency. He is a member of the SAS-L Hall of Fame, and has won awards for his presentations at SUGI and regional SUGs. He has been programming in SAS since 1978, and has been programming in Perl for well over a decade.

10:00 am-
10:30 am

Crossover Designs and PROC Mixed in SAS

SD04 Hossein N. Yarandi, *University of Florida, Gainesville FL*

Crossover designs are commonly used in pharmaceutical and human/animal nutrition studies. This design is used to reduce error variance on the one hand and to meet different experimental situations like limitation on experimental resources on the other. Error variation mainly arises due to variation in experimental units under identical treatments. As a result, a type of design known as crossover designs (or switchover designs) could be evolved to use the same experimental unit for different treatments in an experiment but in different periods. In a crossover design each treatments is applied to each of a number of experimental units in different time periods. The sequences in which the treatments are applied to an experimental unit (or a subject) may have some influence on the effects of the different treatments. Accordingly, different treatment sequences are taken to eliminate sequence effects. In this study, a crossover design example will be analyzed using Procures Mixed in SAS. In addition the Proc Mixed output will be compared with the GLM output in analyzing the crossover design example.

Hossein Yarandi, PhD is an associate professor at the University of Florida. He teaches graduate courses in research

methods and statistical analyses. His collaborative works have been published in Nursing, Pharmacy and Medical Journals. He has been using SAS STAT in teaching and research since 1984.

10:30 am-
11:30 am

Case Studies in Time Series

SD05

David A. Dickey, *North Carolina State University, Raleigh NC*

I will demonstrate some of the time series capabilities of SAS* software for analysis of data taken over equally spaced time points. The difference between this kind of analysis and ordinary statistical analysis is that the assumption of independent errors is usually violated. This is not necessarily a disadvantage as this autocorrelation, as it is called, implies that future observations are correlated with the past and hence might be predictable to some extent from historic data. The talk is a series of data examples to illustrate the methods.

Dave Dickey teaches graduate level statistics at North Carolina State University and has been a contract instructor for SAS for 25 years. He teaches courses in general statistical methods, regression, design of experiments and time series. With Wayne Fuller, he developed a statistical test for stationarity that is used in many statistical packages including PROC ARIMA in SAS. He is a fellow of the American Statistical Association, has coauthored 3 books, written several articles in statistical journals, and spoken at many past SESUG and SUGI meetings.*

11:30 am-
12:00 pm

A Simulation Study to Evaluate ANOVA and GEE for Comparing Correlated Proportions with Missing Values

SD06

Mark S. Litaker, *University of Alabama at Birmingham, Birmingham AL*

Daron G. Ferris, *Medical College of Georgia, Birmingham AL*

The performance of an analysis of variance (ANOVA) model was compared with that of a generalized estimating equations (GEE) model for comparison of correlated proportions using simulated data. The analyses were implemented using SAS® PROC GLM and PROC GENMOD. Simulations were based on a clinical study of three diagnostic techniques, validated with biopsy. Study subjects received two independent evaluations using each of the three methods. Observations represent agreement or disagreement with biopsy results. Correlated observations were generated using observed subject means and hypothesized treatment effects. Simulations included the null and two alternative scenarios, each with complete data and with 5% and 10% missing data. The binomial distribution and logit link function were used in the GEE analysis. Least-squares means and 95% confidence intervals (CI) were calculated for group means using each of the analysis models. Alpha, power and CI coverage probabilities were calculated. Observed alphas were close to the nominal level for both procedures. Power was similar for the two methods, with ANOVA demonstrating a slight power advantage. CI coverage was closer to nominal for ANOVA than for GEE, although the ANOVA CIs may be overadjusted for larger treatment effects. GEE CIs showed higher than nominal coverage levels.

Dr. Daron Ferris is a professor in the department of Family Medicine at the Medical College of Georgia.

Mark Litaker received an MS in biostatistics from the Medical University of SC, and Ph.D. in biostatistics from the University of SC. He is currently Associate Professor and Director of Biostatistics for the Dental School of the University of Alabama at Birmingham, and has used SAS for 16 years.

Monday Afternoon -- Neely

1:30 pm-
2:30 pm

Using SAS to Make an Independent Assessment of Electronic Medical Records

SD07

Patricia B. Cerrito, *University of Louisville, Louisville KY*

There are many claims concerning the benefits of electronic medical records: reduction in medical errors, more accurate billing records, more timely treatment of patients. However, these claims are rarely validated through statistical analysis. Using different types of data in the electronic medical database, it is possible to investigate the validity of claims of improvement in the quality of patient care. It is also possible to investigate the impact of physician decision-making on patient outcomes. For the ER, it is also possible to examine the relationship of triage (the ranking of severity of patient complaint) to patient ER discharge (home, home health, physician follow-up, admission to hospital).

Kernel density estimation (PROC KDE) and Text Miner will be used in conjunction with more inferential statistical methods to investigate data from electronic medical records based in a hospital emergency room. Initial data collected included patient histories, physician orders, laboratory results, patient throughput records, and billing codes. In particular, variability in physician decisions, patient co-morbidities, and outcomes will be investigated.

Patricia Cerrito has worked with SAS for over 25 years. Recently, she received funding from the National Institutes of Health to use SAS Enterprise Miner (with Text Miner) to develop applications to investigate clinical data. In addition, she has received funding from the National Science Foundation to collaborate with geographers to develop courses that combine mapping and data mining to investigate public health data.

2:30 pm-
3:00 pm**Mixed Models Analysis of Microarray Experiments Using Pooled Error Estimates**

SD08

James Blum, *University of North Carolina-Wilmington, Wilmington NC*Yuan Liu, *University of North Carolina-Wilmington, Wilmington NC*

Our current efforts involve modification of "gene by gene" models for analyzing microarray experiments to include the possibility of similar error distributions among groups of genes, thereby reducing the complexity of the overall model and enhancing the power of effect tests. This paper presents implementations of these ideas using the SAS System, including multiple grouping methods, diagnostics and summarization. Comparisons of the proposed and current methods will be discussed in relation to applications to experiments from recent literature.

A 2000 graduate of Oklahoma State University, Dr. James Blum is currently an assistant professor at the University of North Carolina at Wilmington. Among his current projects are collaborations with researchers in the biological sciences that involve design and analysis for microarray experiments.

Originally from Wuhan, China, Yuan Liu is currently a graduate student in the department of Mathematics and Statistics at University of North Carolina at Wilmington. Upon completion of here masters degree work with Dr. James Blum, she will enroll in the Biostatistics Ph. D program of the Arnold School of Public Health University of South Carolina in the fall of 2004. Her interests include statistical genetics and Biostatistics.

3:00 pm-
3:30 pm**Structural Equation Modelling Microarray Data**

SD09

Mussie Angesom Tesfamicael, *University of Louisville, Louisville KY*

Micro arrays are part of a new class of biotechnologies that allow the monitoring of expression levels for thousands of genes simultaneously. We will discuss a novel method to investigate gene marker data by classifying several genes into a homogenous group so that similar genes will be classified together. Gene markers are often studied through micro array analysis where a chip containing identified genes is treated with a specific drug and then examined. We will compare several genes by all treatments of interest and determine whether there are any differences among the genes.

Structural equation modeling, or SEM, is a very general, chiefly linear, chiefly cross-sectional statistical modeling technique. Factor analysis, path analysis and regression all represent special cases of SEM. In building the structural equation model, the key variables of interest are latent constructs. The model contains two types of variables, namely exogenous and endogenous variables. Exogenous constructs are independent variables in all equations in which they appear. While endogenous constructs are dependent variables in at least one equation; although they may be independent variables in other equations in the system. In this paper we demonstrate how structural equation modeling can be used to extract biologically significant insights from DNA micro array gene expression data and find which of the genes can be predicted by the performance of other genes. It is a good method to build the interaction network of gene activity.

Mussie Tesfamicael has a BS in Mathematics (1983) and a MS in Statistics (1989) from the University of South Carolina. He began to use SAS in 1981 at USC Computer Services and worked there for eight years. He then spent 4 years with Centers for Disease Control using SAS for AIDS research, reporting and analysis. Following that he spent 4 years at Coca-Cola, using SAS/EIS, AF, etc for Executive information system, reporting and analysis. In the last 7 years he has worked with Cingular Wireless, using SAS for Churn prediction, propensity modeling and reporting and analysis. He received honorable mention for a paper, Using SAS/AF, SCL and the SAS Macro Language to Develop an Interactive Archival System Using SAS/AF, presented at the 16th SAS Users Group International (SUGI) Conference.

3:30 pm-
4:30 pm**Taking it Home and Putting it into Practice**

SD10

Diane M. Cunningham, *Southern Company, Atlanta GA*

We attend SUGI & SESUG to network with fellow SAS users and hope we'll discover some tidbit of knowledge that can be brought back to the office and put into practice. Well, that's what happened at SUGI 27. I had been working on a large data modeling project when my coworker attended SUGI. When he returned, he shared a paper by Nancy Croonen and Henri Theuwissen of Belgium, titled "Table Lookup: Techniques beyond the Obvious". The paper contained a discussion of 7 different approaches to table lookups.

The timing of receiving this information was perfect. I read the paper and considered which approach would work best for each of the situations I faced. I ended up choosing three different methods for three different reasons. This paper will discuss each situation and highlight reasons for deciding on each approach.

Diane Cunningham is a senior load research analyst with Southern Company for the past 6 years. Her main areas of responsibility are load research for Alabama Power and pricing model and analysis reporting for the Flat Bill tariff system-wide. She has a B.S. degree in Computer Science from Manhattan College, New York. Her 18 year career has been spent in the electric utility industry.

4:30 pm-
5:30 pm**Mixed Model Influence Diagnostics**

SD11

Oliver Schabenberger, *SAS, Cary NC*

Linear models for uncorrelated data have well established measures to gauge the influence of one or more observations on the analysis. For such models, closed-form update expressions allow efficient computations without refitting the model. When similar notions of statistical influence are applied to mixed models, things are more complicated. Removing data points affects fixed effects and covariance parameter estimates. Update formulas for "leave-one-out" estimates typically fail to account for changes in covariance parameters. Moreover, in repeated measures or longitudinal studies, one is often interested in multivariate influence, rather than the impact of isolated points. This paper examines extensions of influence measures in linear mixed models and their implementation in the MIXED procedure.

Oliver Schabenberger is a Senior Research Statistician at SAS Institute, where he develops and maintains various procedures and mixed model tools; for example, the MIXED, NLMIXED, VARCOMP, and LATTICE procedures in SAS/STAT. Prior to joining SAS in 2002, he was an Associate Professor of Statistics at Virginia Tech, and a SAS user for more than ten years. He has served the Eastern North American Region of the International Biometric Society in various capacities, for example, as the 2003 program chair.

TUTORIALS

Section Chairs:

Mal FoleyUniversity of North Carolina
Chapel Hill, NC**Sandy Donaghy**North Carolina State University
Raleigh, NC**Monday Morning – Calhoun/Kirkland**8:00 am-
9:00 am**8 Characteristics of a Successful Data Warehouse**

TU01

Marty Brown, *Lucid Analytics Corp*

Most organizations are well aware that a solid data warehouse serves as the foundation from which to build meaningful business and analytical intelligence. Unfortunately the gulf that exists between being aware of the need and actually building a data warehouse seems too large to cross. Instead of building a data warehouse, many organizations build their analytical solutions from spreadsheets and query tools.

There is a better way. This paper serves as a roadmap from which to bridge the gap between concept and reality. Included are brief discussions in the following areas:

- ✍ The executive sponsor
- ✍ The project team
- ✍ The business
- ✍ The data model
- ✍ The metadata
- ✍ Extract, transform, and load (ETL)Q
- ✍ Marketing and change management
- ✍ The users

Once complete, the data warehouse allows organizations to unleash the power of their data in the form of analytical intelligence. It is at this point that they can begin to achieve a true competitive advantage.

(Biography not available at time of printing)

9:00 am-
10:00 am**A Gentle Introduction To SAS/GRAPH**

TU02

Ben T. Cochran, *The Bedford Group, Raleigh NC*

B

The power and flexibility of SAS/GRAPH software enables the user to produce high quality graphs, charts, and maps. With all this strength and flexibility, the new user is sometimes overwhelmed and discouraged from using these powerful tools. However, learning how to use the tools of SAS/GRAPH can be a pleasant experience.

This paper introduces several ways to generate graphical representations of your data. Starting with the importance of understanding their data, users are lead in a step by step process that ends with the generation of high quality plots and graphs.

After more than 11 years with SAS Institute in the Professional Services and Marketing Departments, Ben Cochran left to start his own consulting and SAS Training business in the fall of 1996 – The Bedford Group - an affiliate members of SAS Institute's Alliance Partner Program. He has extensive expertise with SAS/EIS in building front-end menuing

systems. Ben was the marketing manager for this product for over three years and worked with numerous SAS Institute customers in meeting their application development needs. He also developed the SAS/EIS demo that shipped with the SAS System for Release 6.11.

Ben has extensive experience in training SAS users in many areas of SAS. Since 1986, he taught over 250 SAS courses to over 2,500 SAS users across North America. He developed the first Release 6.11 SAS/EIS course and taught it for SAS Institute. His course notes were the draft for the book *Getting Started with SAS/EIS, 2nd Edition*.

Ben has been an invited speaker at SUGI and many Regional User Group conferences since 1988.

10:00 am-
11:00 am

SAS® Macro Design Issues

TU12

Ian Whitlock

Two questions motivated this paper. The first came more than twenty years ago at the end of my first programming course when the professor asked, "You now know how to write programs, but do you know when it is appropriate to write a program?" For SAS macro the question might be rephrased. What kind of SAS problem is appropriate to macro? Or when should the solution involve macro code? The second came from SAS-L in September 2001, "What sources discuss how to develop clear and good macro code?" There have been many Beginning Tutorials on macro, and many of the examples in them may illustrate some of the principles that these questions hint at, but I do not know of any source that concentrates on the principles.

To sum up, I will consider: 1) What makes a macro good? and 2) How do you make a maintainable, useful, clear system of macros? Do you need to know how to write %IF and %DO statements to understand this talk? No, all terms will be introduced, however, knowing something about these statements will increase your appreciation of the subject.

(Biography not available at time of printing)

11:00 am-
12:00 pm

PICTURE Perfect: In depth look at the PICTURE format

TU03

Carry W. Croghan, *US Environmental Protection Agency, Washington DC*

SAS PICTURE format is a very powerful tool. The different options allow the display of data in a more picturesque manner adding symbols, qualifiers, and comments to the data points without modifying the data. With a PICTURE format one can create a series of templates for displaying the data. The PICTURE format even allows the user to generate their own date and time formats. In addition to the options available with the VALUE formats, PICTURE format has options such as DATATYPE, NOEDIT, PREFIX, MULTIPLIER, and FILL. With its multitude of options, the PICTURE format is very impressive, but it can also be confusing. It is not always clear how different options will interact. If not carefully applied, the PICTURE format can produce misleading information. This presentation will look at the structure and the options available, removing some of the mystery of the PICTURE format and revealing a powerful formatting tool.

(Biography not available at time of printing)

Monday Afternoon -- Calhoun/Kirkland

1:30 pm-
2:30 pm

Case Studies in Time Series II - Periodic Behavior and Related Issues

TU05

David A. Dickey, *North Carolina State University, Raleigh NC*

This is a second paper of time series data analyses. This one deals with analyses in which periodic components are to be extracted from the data. An example here is seasonal data that has a periodic behavior in which case the periodicity would be known from the data structure - monthly sales would have period 12. More interestingly, the methods shown here allow us to discover hidden periodicities, that is we may not know what the periods of interest are.

Dave Dickey teaches graduate level statistics at North Carolina State University and has been a contract instructor for SAS for 25 years. He teaches courses in general statistical methods, regression, design of experiments and time series. With Wayne Fuller, he developed a statistical test for stationarity that is used in many statistical packages including PROC ARIMA in SAS. He is a fellow of the American Statistical Association, has coauthored 3 books, written several articles in statistical journals, and spoken at many past SESUG and SUGI meetings.*

2:30 pm-
3:30 pm

An Overview of Non-parametric Tests in SAS: When, Why and How

TU04

Paul Alexander Pappas, *Duke Clinical Research Institute, Durham NC*
Venita Depuy, *Duke Clinical Research Institute, Durham NC*

Most commonly used statistical procedures are based on the assumption that distributions are normal. But what if they are not? When should non-parametric statistics be used, and what assumptions do those require? If your data doesn't meet the assumptions for either group, what should you do?

This paper will provide an easy guide to choosing the most appropriate statistical test, whether parametric or

non-parametric; how to perform that-test in SAS; and how to interpret the results. Non-parametric SAS procedures covered will include PROCs ANOVA, NPAR1WAY, TTEST and UNIVARIATE. Discussion will include assumptions and assumption violations, robustness, and exact versus approximate tests.

Venita DePuy, M.Stat., is the statistician for the Center for Clinical and Genetic Economics at Duke Clinical Research Institute (DCRI). Her interests include non-parametric statistics, survival analysis, and cost-benefit analysis. In addition to her work with CCGE, she enjoys statistical consulting in a variety of fields and is pursuing her doctorate in biomathematics and statistics.

Paul A. Pappas, M.Stat., is a statistician for the Outcomes Research and Assessment Group at the Duke Clinical Research Institute (DCRI). His research interests include non-parametric statistics, propensity score analysis, survival analysis, mixed model analysis and diagnostic test agreement applied to the fields of cardiovascular health, infectious disease and echocardiography.

3:30 pm-
4:30 pm

Dictionary Tables and Views: Essential Tools for Serious Applications

TU06

Frank Dilorio, *CodeCrafters, Inc., Chapel Hill NC*

Jeff Abolafia, *Rho, Inc., Chapel Hill NC*

Dictionary tables were introduced to the SAS System in during the mid-life of Version 6. Laden with information that is often difficult, and sometimes impossible, to get through other means, they still appear to be on the outside of many programmers' Bag of Tricks. This is both perplexing and unfortunate for as we will see in this paper, once their content and organization is understood, they are readily adapted for a range of applications that "are only limited by your imagination." Indeed, it is difficult to think of a robust, generalized system utility that would not benefit from use of this metadata.

This paper describes dictionary tables and their associated SASHELP library views. It:

- ? presents scenarios that show how they can be used gives high-level descriptions of some of the more important (a relative term, to be sure) tables
- ? identifies features of SQL and the macro language that are commonly used when writing programs that effectively use the tables
- ? shows examples of the tables' use, emphasizing the use of SQL and the macro language interface

The reader should come away from the discussion with an understanding of the tables as well as with a checklist of SQL and macro skills that are required to use the tables most effectively.

A SAS programmer for nearly 30 years, Frank Dilorio is President of CodeCrafters, Inc. and the author of "SAS Applications Programming: A Gentle Introduction" and (with Ken Hardy) "Quick Start to Data Analysis with SAS." Both titles are part of SAS Institute's Books by Users series and have sold over 25,000 copies. Frank has been active in the SouthEast SAS Users Group (SESUG) since its inception. He served one term as president of the group, and co-chaired its 1994 and 1996 conferences.

*When not writing *about* SAS, Frank writes *in* SAS, primarily data management and reporting applications in the pharmaceutical industry. A native New Yorker, he has lived in Chapel Hill, North Carolina since 1974 and sort of buys into its claim of being the "Southern Part of Heaven."*

Jeff Abolafia is currently the Assistant Director of Biostatistics at Rho, Inc. Previously Jeff was a member of the faculty in the Department of Biostatistics at the University of North Carolina at Chapel Hill, as well as, the Director of the Statistical Computing Division at the Collaborative Studies Coordinating Center. Jeff has used SAS for over twenty years and is the author of several SUG/SESUG papers. His areas of interest include clinical trials, statistical computing, and research data management.

4:30 pm-
5:00 pm

Speaking Klingon: The Power of PROC TABULATE

TU09

Dianne Louise Rhodes, *Westat, Washington DC*

B

A frustrated colleague once complained to me that he couldn't understand the SAS Reference Manual for PROC TABULATE. "It's written in Klingon!" he exclaimed. I have found that the basics of Tabulate are easy to use if it is recognized as being a different set of constructs than used by other SAS Procedures. New features in version 8 make it much easier to produce the statistics that you want. The Bureau of Labor Statistics Table Producing Language/Print Control Language (TPL/PCL ©) has been used to produce vital statistics tables for many years. This paper introduces the TPL concepts that are the foundation of PROC TABULATE. These fundamentals are used to demonstrate how to build more complex tables, and how to exploit totals, percentages, and percentage bases. The paper demonstrates how to use formats to produce easy-to-read tables, including rows for all missing data.

Dianne Rhodes first programmed in SAS on an IBM 360 mainframe using a DECWriter and a TI Silent 700. She worked for a statistician on both sides of Equal Employment Opportunity cases. Later she worked in producing health care statistics for HCFA, NIH, the Urban Institute, and the Department of Labor's Office of Workers Compensation Program. She joined the senior staff at WESTAT in 1998, where she is working on the Medical Expenditures Panel Survey and the Medical Provider Component using SAS and Oracle. She also spends time clicker training her two Abyssinian cats.

5:00 pm-

Losing the Fat: One Application's Journey to the Internet

6:00 pm

TU08 Jeff Lessenberry, *Jeff Lessenberry Consulting Group, Simpsonville SC*

This paper will discuss the processes necessary to convert a SAS/FRAME application to an intranet-based application. Until a few years ago, I was content with coding fat client applications utilizing SAS/FRAME. I was happy with my frame objects and SCL until my manager approached me with a new web project. The web project used Java Server Pages as the interface and the SAS/IOM application server as the backend access to the data. Although I had no training in web development, I was really excited about the project. There are some basic techniques which have surfaced during my learning curve that make the development process easier. This paper will discuss those techniques and present an example application.

I have been a contractor for 15 years.

I have been to 5 Sugi conferences and 3 Sesug conferences.

I have presented papers at 3 Sugi conferences.

Nashville -<http://www2.sas.com/proceedings/sugi23/Appdevel/p2.pdf>

Miami -<http://www2.sas.com/proceedings/sugi24/AppDevel/p24-24.pdf>

Indianapolis (invited) -<http://www2.sas.com/proceedings/sugi25/25/aa/25p011.pdf>

(submitted) -<http://www2.sas.com/proceedings/sugi25/25/sy/25p286.pdf>

I also have the following certifications:

- ? SAS Certified Developer V6
- ? SAS Certified Professional - Application Development V6
- ? SAS Certified Professional - Business Intelligence V6
- ? SAS Certified Professional - Data Management V6
- ? SAS Certified Professional V6
- ? SAS Certified Professional V8

Tuesday Morning -- Calhoun/Kirkland

8:00 am-
9:00 am

SAS System Options are your Friends

TU07 Edward Heaton, *Westat, Rockville MD*

Does SAS® always do things the way you want? Have you ever made a simple little mistake of omission with disastrous consequences? Do you find the SAS log difficult to read and less informative than you need? Do you keep doing the same little tasks over and over because SAS doesn't remember what you want?

System Options can be your solution to some of these problems.

What! This is a beginning tutorial. You want me to mess with System Options? Isn't that a little like playing around with the Windows Registry?

Not at all; and it isn't hard to pick out some System Options to make your code easier to manage.

SAS provides a lot of System Options. There are about 258 in version 8.2 for Windows. With version 9, ten of them went away and 68 new options were introduced. Although their implementation can sometimes be confusing, these options should not be ignored. The author will explain a little about their usage in a Windows environment and will present a handful that will make your work easier and less prone to simple mistakes.

Ed Heaton is a Senior Systems Analyst at Westat in Rockville, Maryland. He was introduced to SAS while pursuing his BS in Mathematical Statistics at the University of Missouri and has been programming primarily in SAS for the past 8 years. His SAS experience includes work in the CMS, MVS, and MS Windows environments.

Ed has written papers for local and regional SAS Users Groups, and the SAS Users Group International (SUGI). He teaches SAS to programmers at Westat and is a regular contributor to the SAS-L list server.

9:00 am-
10:00 am

Pretty Dates All in a Row

TU10 Dianne Louise Rhodes, *Westat, Washington DC*

Have you been faced with the task of production reports that have a start and end date that change based on the date the report is run? Here are some tricks and tips for using the system date and the SAS functions INTNX with interval dot notation and INTCK to programmatically produce formats for your dates.

Dianne Rhodes first programmed in SAS on an IBM 360 mainframe using a DECWriter and a TI Silent 700. She worked for a statistician on both sides of Equal Employment Opportunity cases. Later she worked in producing health care statistics for HCFA, NIH, the Urban Institute, and the Department of Labor's Office of Workers Compensation Program. She joined the senior staff at WESTAT in 1998, where she is working on the Medical Expenditures Panel Survey and the Medical Provider Component using SAS and Oracle. She also spends time clicker training her two Abyssinian cats.

10:00 am- A Second Look at SAS Macro Design Issues

11:00 am

TU13 Ian Whitlock

At SUGI 27 the author presented a paper "SAS Macro Design Issues" as a Beginning Tutorial. The use of names and parameters were emphasized because it was presented as a Beginning Tutorial.

This tutorial assumes that you have written some macros, made macro decisions with %IF and done looping with %DO statements, but you are still teachable, i.e. bad habits are not so deeply ingrained that there is nothing more you can learn about macro.

Two questions motivated this paper. The first came more than twenty years ago at the end of my first programming course when the professor asked, "You now know how to write programs, but do you know when it is appropriate to write a program?" For SAS macro the question might be rephrased. What kind of SAS problem is appropriate to macro? Or when should the solution involve macro code? The second came from SAS-L in September 2001, "What sources discuss how to develop clear and good macro code?"

The material discussed was developed under Windows, but is appropriate to all operating systems.

(Biography not available at time of printing)

**11:00 am-
12:00 pm****Toward Object-Oriented Macros in SAS®**TU11 Mark Tabladillo, *markTab Consulting, Atlanta GA*

The qualities which SAS macros share with object-oriented languages account for the power of macro programming. This presentation will attempt to describe the extent to which SAS macros are object-oriented (defined as encapsulation, polymorphism, and inheritance) with the goal of extracting best practices for SAS macro programming.

Mark Tabladillo Ph.D. is a Senior Software Systems Engineer for markTab Consulting, and is a contractor for the Centers for Disease Control. He has used the SAS System since 1991. He has written SAS software for healthcare, commercial finance, and public health. Georgia Institute of Technology granted his Industrial Engineering doctorate, with emphasis in applied statistics and quality management. He has presented at several SESUG and SUGI conferences, and is cochair for the SESUG 2004 Serendipity Section.



PRE-CONFERENCE WORKSHOPS

Section Chair: Deb Cassidy
Cardinal Health
Dublin, OH

Adding pre-conference workshops **enhances your SESUG conference experience** by giving you the opportunity to receive in-depth instruction from well-known SAS experts, on a wide variety of topics, at reasonable rates.

In addition, the discounted lodging rate at the conference hotel is available if you need to arrive early in Nashville to attend the workshops. The SESUG conference leadership has selected these instructors based on their subject matter expertise, presentation skills, and enthusiasm for teaching others about SAS. The table below shows the wide array of learning opportunities available by attending these sessions. Descriptions of the workshops are on the following pages, and instructor profiles are on page 61. Tuition, which includes a copy of the workshop materials and morning/afternoon refreshments, is only **\$99** for the half-day workshops. Full-day workshops are \$198.

Attendees at the workshops who do **not** also register for SESUG '04 are charged an additional \$25 per person administrative fee.

SESUG and the instructors will hold all workshops with pre-registered attendees unless there is an unexpected event preventing the instructor from attending the conference. If a workshop is cancelled, the sole liability of SESUG and/or the instructors is a refund of fees paid for the cancelled workshop, and they are **NOT** liable for special or consequential damages arising from the cancellation. If a training workshop is cancelled, we will notify you **as soon as possible** and you will be invited to transfer your registration to another workshop. If you transfer to a workshop with a different price, fees will be adjusted accordingly. Or, you may elect to receive a refund for the amount paid for that workshop.

Workshop Times: The workshops will start promptly at the hour listed. Refreshments will be available at 7:30 am for the morning workshops. Workshops will also have a mid-morning and mid-afternoon refreshment break. Lunch is on your own. Full day workshops will break from 12:00 noon to 1:00 pm for lunch.

Saturday, October 30th, 2004

<i>Time</i>	<i>Instructor</i>	<i>Title</i>
1:00 pm - 5:00 pm	Patricia Cerrito	Using SAS/Stat to Mine Data
1:00 pm - 5:00 pm	Steven First	SAS Efficiencies – Techniques for Improving Your Code

Sunday, October 31st, 2004

8:00 am - 12:00 noon	Steven First	What's New in SAS 9 - An Overview of a Few Hundred New Things
8:00 am – 5:00 pm	David Cassell	Sampling with the SAS System
8:00 am – 5:00 pm	Frank Dilorio	Building SAS Utilities: Putting Dictionary Tables, SQL and the Macro Language to Work
1:00 pm - 5:00 pm	Mal Foley	Merging, Combining and Subsetting Files (Tricks, Traps and Techniques)

Using SAS/Stat® to Mine Data

Instructor: Patricia B. Cerrito

When: Saturday Oct 30, 1:00 pm-5:00 pm

Abstract: Data mining is a process of investigating large datasets so that the investigator can “drill down” into the data to find meaningful patterns and relationships. Data mining relies on the entire distribution of data, instead of just using means and standard deviations.

Although Enterprise Miner was designed to do data mining, the techniques in SAS/Stat can also be used. Data mining includes using a variety of methods to investigate the data to discover patterns, reserving some of the data for the purpose of validation of results. The importance of validation cannot be over-emphasized.

One of the most important methods of data mining is that of visualization. There are many ways to examine the data, including kernel density estimation. Kernel density can be used to compare different populations without reducing the dataset to averages. Enterprise Guide also has some excellent graphics that can be used to examine the data. Simple data transformation can be used to find more meaningful information from the data. Although inferential statistics are used to prove hypotheses, it is the visualization that convinces of the “rightness” of the results.

If the dataset has a large number of variables, or data fields, it is possible to use some type of factor or cluster analysis to reduce the number to a meaningful few. While factor analysis is often used to classify variables into categories, it can be used as a reduction technique so that the total number of variables is more manageable in standard inferential techniques such as regression. For example, a store inventory can have thousands or tens of thousands of categories. The general linear model was never designed to handle so many.

Examples of “drill down” results will be provided, and examined in terms of the statistical methods used. Several demonstrations will show the effectiveness of this “drill down” into the data.

Recommended Background: Although some background in statistics is helpful, it is NOT required.

Intended Audience: Those who want to learn more about the data mining process. This workshop is for a very general audience and not just statisticians.

Materials Provided Attendees: Hard-copy of slides

SAS Efficiencies-Techniques for Improving Your Code

Instructor: Steven First

When: Saturday Oct 30, 1:00 pm-5:00 pm

Abstract: This workshop will cover how SAS processes large data files and will show several techniques for improving a SAS program. Emphasis will be on the DATA step, with a brief look at improving the use of several SAS PROCs. The objectives of this workshop are to:

- ✍ Understand how to measure “efficiency”
- ✍ Understand how the data step handles data, both input and output
- ✍ Learn how to alter SAS column attributes as needed for correctness and efficiency
- ✍ Practice techniques for reducing the amount of data SAS has to process
- ✍ Learn to use SAS programming logic in an efficient manner, and understand why some programs are less efficient than others
- ✍ Review using FORMAT statements effectively
- ✍ Understand when, how, and why to sort or index SAS data files
- ✍ Discuss storage of compiled DATA step source code
- ✍ Utilize WHERE statements to maximize coding efficiency
- ✍ Understand when to use SAS VIEWS and PROC SQL
- ✍ Know how and when to use data compression

Recommended Background: A working knowledge of the fundamentals of SAS is required.

Intended Audience: This course is designed for students who have experience with SAS and want to enrich their SAS skills and improve the efficiency of their SAS programs.

Materials Provided Attendees: Hard-copy of slides



What's New in SAS 9-An Overview of a Few Hundred New Things

Instructor: Steven First

When: Sunday Oct 31, 8:00 am-12:00 noon

Abstract: What? A few hundred new things? Don't get overwhelmed. There are over 200 new things in just the SAS functions section. This workshop is designed to familiarize students with SAS Version 9. Topics to be covered included:

- Transitioning from version 8 to 9
- Overview of enhancements in version 9
- SAS Explorer Window
- SAS Management Console
- Revised Procedures in version 9
- The Migrate Procedure
- SAS System Options
- SAS Functions and Perl Regular Expressions
- SAS Formats and Informats
- New Libname Engines including Access and Excel
- Importing Data in version 9
- Exporting Data in version 9
- Multi-threaded parallel processing

Recommended Background: A good working knowledge of the programming capabilities of SAS in previous versions.

Intended Audience: Those who already use an earlier version of SAS and want to learn about the new features found in SAS 9.

Materials Provided Attendees: Hard-copy of slides

Sampling with the SAS® System

Instructor: David L. Cassell

When: Sunday, Oct 31, 8:00 am-5:00 pm

Abstract: This workshop is designed to provide you with the skills and insights necessary to apply the SAS System's survey sampling procedures to your projects. This workshop is tailored for the knowledge worker who is confronted with standard business and scientific problems, such as:

- ✍ Developing cost-effective survey samples that can properly address business needs
- ✍ Avoiding the often unintended consequences of poorly-designed survey samples
- ✍ Preventing the biases and errors that are incurred when incorrectly analyzing survey samples using standard tools such as PROC REG and PROC MEANS
- ✍ Coping with missing data in survey samples.

Through instructor's presentation and the examination of example SAS programs provided in the course materials, you will learn about the basic concepts of survey sampling, as well how to apply these concepts using the SAS System.

Recommended Background: Prior experience with PROC MEANS and PROC REG, as well as familiarity with statistical concepts such as confidence intervals, p-values, population parameters and their estimates, slope and intercept, dependent and independent variables in regression, etc. will enhance the value you will receive from attending this workshop.

Intended Audience: SAS users who currently need to or will want to analyze data that are from sampling designs or develop cost-effective sampling designs. Participants **do not need a deep statistical background**, nor do they need an expert grounding in SAS DATA steps and basic SAS procedures.

Materials Provided Attendees: Hard-copy and diskette of slides and SAS programs, diskette of SAS datasets



Building SAS Utilities: Putting Dictionary Tables, SQL, and the Macro Language to Work

Instructor: Frank Dilorio

When: Sunday, Oct 31, 8:00 am-5:00 pm

Abstract: Let's start by acknowledging a simple truth – programmers are, by nature, a lazy lot. We want data to be normalized so we don't have to repeat values more than necessary. We want functions to do routine tasks. We want ODS to figure out how to render our procedure output in HTML.

We also want to avoid writing the same type of program more than once. Given an eye for repetition, a little imagination, and the right tools, it's possible to create elegant, generalized, reliable utility programs that can greatly improve program development time and reliability.

This workshop addresses three components of Base SAS that are vital to developing utilities: dictionary tables, the SAS macro language, and SQL. We'll look at some of the more popular tables in detail, then review the macro language and SQL, emphasizing the aspects of these "languages within a language" that are most relevant to building general-purpose utility programs. With these tools in hand, we then review a set of guidelines for building utilities, using a series of real-world examples as we go.

The workshop emphasizes Windows platforms using Base SAS Version 9.0. We note incompatibilities with earlier Versions when appropriate. Concepts and techniques are applicable across SAS and operating system versions, and can be fruitfully extended into use with non-Base products such as SAS/GRAPH, SAS/IntrNet, *et al.*

Recommended Background: Familiarity with SQL and macro language

Intended Audience: Intermediate to advanced SAS programmers who are interested in developing general-purpose utilities.

Materials Provided Attendees: Hard copy of slides; hard copy of listings, logs, etc that expand on material in the slides; CD with sample code used in the workshop

Merging, Combining and Subsetting Files (Tricks, Traps, and Techniques)

Instructor: Malachy (Mal) J. Foley

When: Sunday, Oct 31, 1:00 pm-5:00 pm

Abstract: This workshop discusses over 30 common errors in merging, combining, or otherwise manipulating data. All of these errors result in erroneous data. Most of them occur with no SAS message or warning! In addition to examining errors, this covers a wide range of topics such as interleaving, subsetting, concatenations, the IN= data set option, BY groups, FIRST.variable, program data vectors (PDV), Cartesian products, one-to-one merges, match merges, and fuzzy merges.

The workshop starts with the basics and continues to build up to complex and tricky examples of data set manipulation. The only prerequisite for the course is a working knowledge of the SAS DATA Step. Yet, this workshop will give intermediate and advanced programmers a great review and some surprises. Come see what mysteries lurk in manipulating SAS files!

Recommended Background: Working knowledge of the SAS DATA Step

Intended Audience: Anyone who manipulates SAS data sets

Materials Provided Attendees: Hard-copy of slides PLUS more in-depth material



WEEKEND WORKSHOP INSTRUCTOR PROFILES

Here are the biographies for instructors providing pre-conference workshops at SESUG '04. We have chosen them to present workshops in conjunction with our annual conference because of their reputation within the SAS user community for being subject-matter experts who have excellent presentation skills and for their enthusiasm to share their knowledge with others. A listing of the workshops they will present are on pages 57-60.

David L. Cassell

David L. Cassell is co-director of Design Pathways, a consulting company based in Corvallis, Oregon providing survey sampling design and analysis, experimental design, statistical analysis, SAS programming, and SAS systems design to public and private sector clients. He is also a contractor for the U.S. Environmental Protection Agency, where his primary responsibility is design and analysis of environmental survey designs for the U.S. EPA's EMAP program.

A 25-year SAS Software user, David has applied SAS System capabilities to generate and analyze survey sampling designs for environmental monitoring that have been implemented across the United States, as well as in a number of foreign countries. David's expertise with the SAS System has been recognized by his peers within the user community in several ways including being named to the SAS-L Hall of Fame. David has given award-winning presentations at numerous SAS user group meetings on topics ranging from survey sampling to the integration of SAS and PERL.

Patricia B. Cerrito

Patricia B. Cerrito is a Professor of Mathematics and Biostatistician at the University of Louisville. She also collaborates with medical researchers through the Jewish Hospital Center for Advanced Medicine in Louisville, Kentucky. She has worked with SAS Enterprise Miner since its introduction, and was awarded a pilot project with the SAS Institute to develop medical applications of SAS Text Miner.

Dr. Cerrito has received funding from the National Institutes of Health to use text and data mining techniques to investigate large, clinical databases derived from electronic patient records, and frequently integrates methods in Enterprise Miner with methods in SAS/Stat. She has been a SAS user for over 25 years. Recently she has given a WebCast in conjunction with the SAS Institute on the use of Text Miner to investigate risk-adjusted severity models used to rank hospitals as to quality. She is under contract with Books by Users to complete a textbook on Enterprise Miner.

Frank Dilorio

Frank Dilorio is President of CodeCrafters, Inc. and the author of "SAS Applications Programming: A Gentle Introduction" and (with Ken Hardy) "Quick Start to Data Analysis with SAS." Both titles are part of SAS Institute's Books by Users series and have sold over 25,000 copies. Frank has been active in the SouthEast SAS Users Group (SESUG) since its inception, co-chairing the 1994 and 1996 conferences.

He has, much to his astonishment after doing the math, nearly 30 years' experience with SAS software. When not writing *about* SAS, Frank writes *in* SAS, primarily data management and reporting applications in the pharmaceutical industry.

Steven J. First

Steven J. First, President and Owner of Systems Seminar Consultants (SSC), is one of the country's foremost experts in SAS applications and support. He is SAS Certified Professional V8.

Since starting the company by himself in 1981, Steve has developed SSC into a full-service provider of SAS training that has been attended by over 12,000 students. One of the early pioneers to recognize the power of SAS software, Steve has a commitment to quality and customer service. Steve has established a reputation for making his clients' work easier, not more complicated. His philosophy has always been to look for the simple things that make life easier.

His experience with SAS since 1976 includes manufacturing, government, university, and financial applications. Steve comes from a traditional data processing background and has worked as an applications programmer, systems programmer, systems trainer and SAS consultant.

Steve is past president and founder of WISAS (Wisconsin Illinois SAS User's Group) and has been invited to speak at SUGI (SAS Users Group International) meetings on many occasions.

Malachy J. Foley

Malachy J. Foley is a Senior SAS Programmer/Analyst in the Department of Biostatistics at the University of North Carolina at Chapel Hill (UNC). Mal has programmed business and research applications for more than 35 years. His career in computing includes being an international consultant, a department manager, a university professor, and a CEO. He teaches computing courses at the undergraduate, graduate, and professional levels. He frequently presents papers and gives seminars at local, regional, national, and international SAS users' groups.



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Tutorials

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University of North Carolina
Sandy Donaghy
North Carolina State University

SESUG POLICIES & PROCEDURES

The annual SouthEast SAS Users Group (SESUG), Inc., Conference is primarily an educational gathering for the benefit of its attendees. SESUG recognizes that the majority of attendees are present as representatives of their employers for this purpose. Accordingly, SESUG does not condone, endorse, or encourage activities that may conflict with the educational nature of the conference. All attendees and vendors are expected to abide by the Policies and Procedures set forth in this document.



Paper Content: Users are urged to present papers describing real-world applications using SAS Institute software. SESUG also accepts a limited number of theoretical and general overview papers. Acceptance of all presentations is at the discretion of the Conference Chairs.

Oral presentations and written papers describing products or services of a commercial nature may only be presented at the conference if:

They describe how the product relates to the use of SAS Institute software

They do NOT include price lists, support commitments, or other material of a promotional or sales nature.

Right of Withdrawal: The SESUG Executive Council and the Conference Chairs reserve the right to determine if any activity is in violation of these Guidelines. They may, at their option, direct the withdrawal of a presentation or demonstration or the dismissal of a SESUG attendee from the conference.

Marketing and Recruiting: Any person or entity wishing to market their products or services or whose presence is primarily to recruit attendees at the annual SESUG conference must register as a vendor. Registered vendors are expected to conduct themselves with professionalism. The SESUG Executive Council (EC) reserves the right to refuse any or all vendor registrations.

In addition to, or in lieu of, a physical presence at the annual SESUG conference, vendors may choose to have a virtual presence through means of advertising. Advertising opportunities are delineated below and do not require separate registration of the vendor.

The Conference *Program* may include printed vendor advertisements. All advertising is accepted at the discretion of the SESUG Conference Chairs. A fee may be assessed.

Sales literature and promotional items may only be distributed to conference attendees in an approved manner. Items for distribution must be submitted to a designee of the Conference Chairs and are subject to approval of form and content. A fee may be assessed.

Vendors who wish to sponsor the goals and aims of SESUG may be recognized publicly at the discretion of the Conference Chairs.

Distribution of sales literature and other promotional items will be limited to the above procedures. The Conference Chairs will issue specific requirements (e.g., content, deadlines, and costs) for these vendor promotional opportunities.

SESUG does not condone, endorse, or encourage unauthorized hospitality suites or other similar unauthorized activities. In the event of any questions of interpretation, the decision of the Conference Chairs will apply.

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For those of you that like to plan ahead, we'd like to announce the **13th annual SESUG** conference to be held in lovely Portsmouth, Virginia **October 23rd - 25th, 2005.**

See you in Portsmouth!



"Hampton Roads, Tidewater, Coastal Virginia, metropolitan Norfolk - all these terms are used to refer to Portsmouth and the many surrounding cities you can explore on your trip to SESUG '05. Plan to arrive by car, plane or boat!"

For questions or comments on SESUG '05, including how to get involved, please contact the conference co-chairs:

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Academic Chair

Deb.Cassidy@cardinal.com

Jenine Eason

Operations Chair

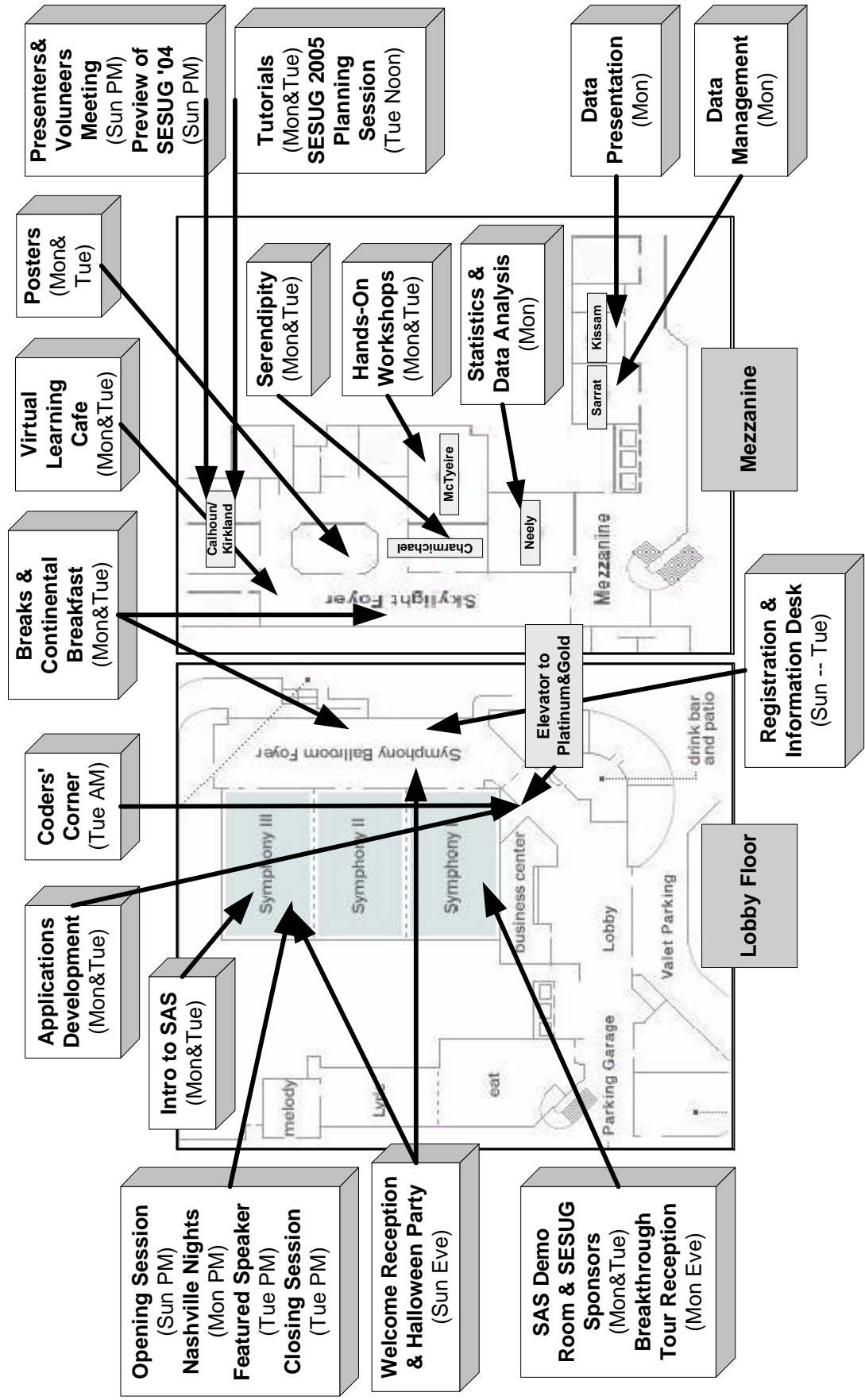
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See the SESUG Conference website for contacts and other questions.

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Facilities Map



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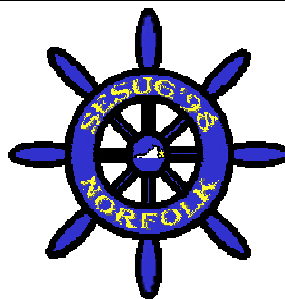
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