



NEBSUG

**Nebraska SAS[®] Users Group
One-Day Conference
Tuesday, May 14th, 2024**



Conference Information:

This one-day conference will provide an opportunity to enhance your SAS® skills and improve your understanding of the SAS® System. There will be three concurrent sessions throughout the day. We will have invited speakers including academic and industry experts, as well as SAS® Institute speakers. Back by popular demand - we are offering free registration for everyone!

Date: Tuesday, May 14th, 2024

Location: Thompson Alumni Center [Map](#)

University of Nebraska Omaha
6705 Dodge Street
Omaha, NE 68182

Parking: Free parking is provided at the Thompson Alumni Center (TAC) with E-permit. You will be sent an email with an E-permit a few days prior to the conference. Guests of the TAC may park in the on-site UNO Lot X or the overflow lot across Dodge at The First Christian Church lot.

Online Registration: <https://redcap.link/NEBSUG2024>

Registration Fee: Free registration for every attendee.

Cancellation Policy: If necessary, please cancel your registration by sending an email to kksamson@unmc.edu so we can update our food order.




Schedule: Arrive early for a light breakfast and networking at 8:00 AM, which is when check-ins will start. Opening session begins at 8:50 AM and the keynote speaker will begin promptly at 9:00 AM. Three concurrent sessions will start at 10:00 AM. Lunch will be served at noon. The afternoon sessions will start at 1:00 PM. The closing session will start at 4:10 PM and will conclude before 4:30 PM. See Conference Schedule for more details.

Breakfast/Lunch: Continental breakfast and lunch are provided to all attendees, courtesy of SAS®. Coffee and other beverages will be served throughout the day.

Hotel: If looking for hotels, look in the Aksarben neighborhood which is just a couple miles from the conference location. There are many hotels to choose from in this area.

Questions: For answers, e-mail your questions to Kaeli Samson (kksamson@unmc.edu) and Lynette Smith (lmsmith@unmc.edu).

Conference Schedule

Tuesday May 14th 2024	Session 1 Centennial Hall - East	Session 2 Bootstrapper Hall (Available Online)	Session 3 Centennial Hall - West
8:00 – 8:50	Check-in Continental Breakfast – Sponsored by 		
8:50 – 9:00	Opening Remarks		
9:00 – 9:50	Keynote: Skills that Data Scientists Need to Succeed Spencer Lourens		
10:00 – 10:50	Longitudinal Data Analysis Jackie Johnson, SAS®	Top 10 SAS® Efficiency Hacks Charu Shankar, SAS®	An Introduction to PROC SQL Kirk Paul Lafler
11:00 – 11:50		2-for-1 Advanced SQL and Macro Techniques Charu Shankar, SAS®	From Code to No-Code: Alternative Paths for Data Analysts Lincoln Groves, SAS®
11:50 – 1:00	Lunch – Sponsored by 		
1:00 – 1:50	An Introduction to SAS® DATA Step Hash Programming Kirk Paul Lafler	SAS®, SQL, R, and Python: We're All Friends Lincoln Groves, SAS®	Regression Analysis Made Easy Using SAS® Studio Zheyuan "Walter" Yu
2:00 – 2:50	Using a Macro to Automatically Generate Presentation Ready Tables Makayla Schissel	Excel in SAS® Charu Shankar, SAS®	
2:50 – 3:10	Afternoon Break – Sponsored by 		
3:10 – 4:00	Graphical and Numerical Summaries of a Kaplan- Meier like Analysis of Time to Event Data with a Continuous Prognostic Indicator Robin High	Building Amazing Dashboards Using SAS® Software Kirk Paul Lafler	
4:10 – 4:30	Closing Remarks and Raffle		

Presentation Abstracts

10:00 am Presentations:

Longitudinal Data Analysis (extends into 11:00 am session)

Jackie Johnson, SAS®

The objectives of longitudinal data analysis are to examine and compare responses over time. Learn the basics of how to fit mixed models to longitudinal data with continuous or discrete outcomes using PROC MIXED and PROC GLIMMIX. Examples will additionally introduce theoretical concepts of mixed models and describe the importance of choosing the correct covariance structure to model the error in longitudinal data.

An Introduction to PROC SQL

Kirk Paul Lafler

Structured Query Language (SQL) is a database language that is available in the base-SAS software. PROC SQL lets users access data stored in data sets or tables in relational data base management systems (RDBMS) using statements, clauses, options, functions, and other language constructs. Topics include introductory concepts and SQL applications for SAS users who desire an overview of the powerful SQL procedure and its capabilities; an assortment of basic SQL queries to retrieve, subset, order and group data and results; perform simple join operations using two and three tables; create new tables; and the application of conditional logic scenarios using case expressions.

Top 10 SAS® Efficiency Hacks

Charu Shankar, SAS®

Whether you are an expert programmer or just beginning to use SAS code, you will certainly appreciate the finer nuances that make for an efficient SAS program. You understand that you can improve efficiency, cut down time by these best practices. Learn what SORT mechanism is smart, where the Length statement should be ideally placed, which is better, DROP/ KEEP Options/statement, when to use Proc SQL over the data step, or vice versa. Which conditional processing algorithm to use and when, and much, much more.

11:00 am Presentations:

2-for-1 Advanced SQL and Macro Techniques

Charu Shankar, SAS®

PROC SQL & the Macro language are some of the most frequently used techniques by advanced SAS users. Learn to use advanced techniques in this unique 2-for-1 seminar where you will learn both languages. This practical session is culled from a SAS instructor's years of experience in working with SAS helping SAS customers resolve their efficiency issues. The audience will be guided on benchmarking statistics for picking an efficient technique.

PROC SQL is the language of databases. It is a powerful query language that can sort, summarize, subset, join and print results all in one step. Users who are continuously improving their analytical processing will benefit from this Seminar.

Participants will learn the following elements to master PROC SQL:

1. The SQL syntax order & the logical query order in which PROC SQL processes queries
2. Manage metadata using dictionary tables
3. Join tables using join conditions like inner join and reflexive join
4. Summarize data using Boolean operations

The SAS macro language is a very versatile and useful tool. It is often used to reduce the amount of regular SAS code and it facilitates passing information from one procedure to another procedure. Furthermore, we can use it to write SAS programs that are "dynamic" and flexible. In this seminar we will demonstrate how to create macro variables and how to write macro programs.

1. Use macro variables for text substitution
2. Use macro functions to alter text
3. Use macro programs to generate code
4. Learn 3 techniques to store a query in a Macro to reuse macro values over and over again

From Code to No-Code: Alternative Paths for Data Analysts

Lincoln Groves, SAS®

If you're like me, you might think, "I'm an expert SAS programmer... why should I care about the newer no-code and low-code options on the SAS Viya platform?" Well, this hands-on workshop strives to make a believer out of you! Although coding gives you the ultimate flexibility in analytics, there are a whole host of tasks in the analytics life cycle (such as exploratory data analysis and preliminary machine learning models) where iterating quickly is much better than exercising our coding muscles. So, learn where no- and low-code tools in SAS Visual Analytics, Model Studio, and SAS Studio can support you in the more mundane analytical tasks and get you onto the good stuff more quickly.

1:00 pm Presentations:

An Introduction to SAS® DATA Step Hash Programming

Kirk Paul Lafler

SAS® supports a DATA step programming construct known as hash objects that enables faster table lookup, search, merge, sort, and transpose operations. By constructing a hash object, users are able to associate a key with one or more values. Topics include introducing what a hash object is, how a hash object works, the syntax required, along with essential programming techniques to define a simple key, sort data, search memory-resident data using a simple key, match-merge (or join) two data sets, handle and resolve collision scenarios where two distinct pieces of data have the same hash value, as well as more complex programming techniques that use a composite key to search for multiple values.

SAS®, SQL, R, and Python: We're All Friends

Lincoln Groves, SAS®

Fact: Most data scientists speak multiple coding languages. So, why should you feel obligated to use just one when you're in a SAS environment? Spoiler alert: You shouldn't! In this workshop, you learn how easy it is to use SAS, SQL, R, and Python in a host of SAS tools such as SAS Studio and Model Studio and via Jupyter. It's (almost always) better together – so learn how to leverage the cloud architecture to better integrate your projects and speed up your time to value!

Regression Analysis Made Easy Using SAS® Studio

Zheyuan "Walter" Yu

SAS® OnDemand for Academics (ODA) provides students, faculty, and SAS learners with free access to SAS software and the SAS® Studio user interface using a web browser. SAS Studio provides a comprehensive and customizable integrated development environment (IDE) for all SAS users. To showcase SAS Studio's many features, numerous techniques will be introduced to access, clean, transform, analyze, and visualize data using the point-and-click features found in SAS Studio's Navigation Pane's Tasks and Utilities. Plus, we'll demonstrate the generated SAS code that is automatically produced from the point-and-click techniques. To obtain a high-level understanding of the datasets being used, we'll demonstrate tasks associated with exploratory data analysis (EDA) to identify missing values, explore outliers, and evaluate trends in the data. Two types of regression will be demonstrated – simple linear regression where one independent variable is used to explain or predict the outcome of the dependent variable and multiple linear regression where two or more independent variables to explain or predict the outcome of the dependent variable to assist with decision-making activities. Key takeaways will be provided to assist in learning regression analysis techniques using effective examples.

2:00 pm Presentations:

Excel in SAS®

Charu Shankar, SAS®

Excel and SAS are universally loved. Both have their strengths. Excel has been around a long time and many non SAS users use the spreadsheet to enter & manage their transactions. SAS is great for analyzing data. Why not marry the strengths of both? Get data from Excel into SAS, complete the analysis in SAS and then send the results to Excel. This would be a great help for colleagues who don't have SAS on their desktops.

Come learn the many ways to get Excel to SAS. From Excel and data from SAS to Excel.

This session will cover the following and much, much more

1. PROC IMPORT - to read Excel into SAS
2. SAS Access engines to read Excel into SAS
3. ODS Tagsets - take sas to Cool Excel pivot tables
4. PROC EXPORT - export SAS to Excel

Come watch some magic in the shaping of a pivot table right before your eyes in this session!

Using a Macro to Automatically Generate Presentation Ready Tables

Makayla Schissel

This workshop will explore the %TABLEN and %MVMODELS macros created by Jeffrey Meyers. The %TABLEN macro is an amazing tool that has the potential to create presentation and publication ready descriptive summary tables. The %MVMODELS macro has the capability to perform multivariable logistic regression, survival, and subgroup analyses of which the results and associated forest plots are then displayed in presentation or publication ready tables. Both macros allow for flexibility in the output destinations as specified by the user.

3:10 pm Presentations:

Building Amazing Dashboards Using SAS® Software

Kirk Paul Lafler

Organizations around the world develop business intelligence dashboards, sometimes referred to as enterprise dashboards, to display the current status of “point-in-time” metrics and key performance indicators. Effectively designed dashboards extract real-time data from multiple sources for the purpose of highlighting important information, numbers, tables, statistics, metrics, performance scorecards and other essential content on a single screen. Topics include the basic rules for “good” dashboard design, the metrics frequently used in dashboards, and the use of best practice programming techniques in the design of highly interactive, filterable, and drill-down dashboards using SAS® Base software. Attendees learn how to create a real-world static and interactive dashboard using SAS® Base programming techniques including the use of the DATA step, PROC FORMAT, PROC PRINT, PROC MEANS, PROC SQL, ODS, ODS Statistical Graphics, PROC SGRENDER, PROC SGPLOT, PROC SGSCATTER, PROC SGPANEL, and PROC TEMPLATE.

Graphical and Numerical Summaries of a Kaplan-Meier like Analysis of Time to Event Data with a Continuous Prognostic Indicator

Robin High

In statistical models, an unknown amount of measurement error in the explanatory data may exist due to instrument or sampling errors resulting in biased parameter estimates and suspect p-values. For most situations its impact can be ignored; however, in some cases the negative features of this type of error can be self-inflicted by converting continuous data with a reasonable distribution into two or more discrete categories, such as "low versus high" for a Kaplan-Meier curve with the LIFETEST procedure. An alternative approach will be illustrated with an example from survival analysis where a

continuous prognostic indicator is associated with a time to an event, which includes a substantial number of censored values, with the PHREG procedure. The method includes evaluation of several graphical and numerical summaries by first applying an ROC analysis to determine an optimal cut-point for the prognostic indicator, followed by the interpretation of results from PHREG displayed with the SGPLOT procedure. Although the motivating example is from survival analysis, a considerable portion of the talk is devoted to data processing and graphical techniques encountered in several types of statistical procedures.

Presenter Biographies



Lincoln H. Groves, Ph.D., leads a team of Analytical Training Consultants with U.S. Academic Programs, a group dedicated to helping train the next generation of analytics talent at post-secondary institutions. As a researcher, he brings together a range of academic, federal, and private sector perspectives. Before joining SAS in 2018, he was a postdoc in the National Poverty Fellow Program, which provided him joint appointments at the University of Wisconsin, Madison, and the Department of Health and Human Services (HHS) in Washington, DC.

Beyond HHS, Lincoln had two other stints in the federal government – one as an Economic Analyst at the Department of Justice and a second as a Peace Corps Volunteer – and spent roughly 6 years wrangling data and running economic models for a microeconomic consulting firm in DC. Lincoln is highly proficient SAS and SQL programmer, and is an expert in applied econometric modeling and data visualizations. He holds a Ph.D. from Syracuse University in Public Administration and a M.A. in Applied Economics from Johns Hopkins University.



Robin High, MBA, MA has been a biostatistician at the University of Nebraska Medical Center in Omaha, NE since 2008. His prior experience includes statistical consulting with a civil engineering firm in Austin, TX, researchers at Oregon State University, and for nearly 15 years assisted graduate students and faculty at The University of Oregon. He has over 30 years' experience with the SAS System



Jacqueline Johnson is a principal analytical training consultant in Global Academic Programs at SAS. In her role at SAS, she conducts SAS software training at academic campuses around the country and works with faculty to support efforts to develop the future analytics workforce. She holds a DrPH in Biostatistics from UNC Chapel Hill. Prior to SAS, Dr. Johnson's career has focused on statistical analyses of clinical trials data and includes working as a biostatistics faculty in an academic medical school and as a biostatistician in the pharmaceutical industry. She has been teaching with SAS in commercial and academic settings for 15 years.



Kirk Paul Lafler is an educator, developer, programmer, consultant, and data scientist; currently teaching as a lecturer and adjunct professor at San Diego State University; and teaching SAS, SQL, Python, Excel, and cloud-based technology courses to users around the world. Kirk has decades of programming experience and specializes in SAS software, SQL, RDBMS technologies (Oracle, SQL-Server, Teradata, DB2), Python, and other languages and productivity tools. Kirk is the author of the popular PROC SQL: Beyond the Basics Using SAS, Third Edition (SAS Press. 2019) and is actively involved with SAS, SQL, Python, R, ML, and cloud-computing user groups, conferences, and blogs as an Invited speaker, educator, keynote, and leader; and is the recipient of 28 “Best” contributed paper, hands-on workshop (HOW), and poster awards.



Spencer Lourens, PhD (he/him/his) grew up on a small acreage and farm in central Iowa near Des Moines and Ames. He went on to receive a PhD in Biostatistics from University of Iowa in May of 2015, when he moved to Indiana University School of Medicine for nearly four years before moving to CliftonLarsonAllen (CLA). Spencer is very interested in all things Data Science, Machine Learning, and AI, but particularly in identifying uses for existing methodologies to provide business values to clients in the form of applications with AI and machine learning embedded into them.




Makayla Schissel, MPH is a biostatistician at the University of Nebraska Medical Center. She works with a variety of investigators ranging from medical students to experienced faculty. Makayla values effective communication when presenting statistical results and is always trying to find ways to make her reports more easily digestible. Makayla is also a PhD student in the Biomedical Informatics program at UNMC with special interests in clinical data sourced from the Electronic Health Record. In her free time, she enjoys baking sourdough, walking the dogs, and checking another National Park off her list.



Charu Shankar has a background in computer systems management, and she engages with logic, visuals and analogies to spark critical thinking. A SAS instructor since 2007, Shankar curates and delivers unique content via the SAS YouTube channel, SAS events, SAS Ask the Expert Series, SAS Training Post blog and more. She is a popular speaker at SAS users group conferences and has helped train thousands of SAS users on topics related to SAS, SQL, efficiencies, PERL, macros, Python and Viya, among others.



Zheyuan "Walter" Yu is a skilled data analyst with a Master of Science degree in Biostatistics from the University of California, Davis. With expertise in data analysis tools like Python, Excel, R, and SAS, he has honed his analytical abilities through his work in the dental supply industry.



Many thanks to SAS®, our conference organizers, and our speakers for making this event happen!

Conference Planning Committee:

Kaeli Samson and Lynette Smith, Co-Chairs

Anne O'Keefe, Treasurer

John Xu, Consultant and Co-Chair of the IASUG One-Day Conference

Robin High, Consultant

