ENAR 2012 SPRING MEETING APRIL 1–4

Program

WITH IMS AND SECTIONS OF ASA

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on Capitol Hill – Washington, DC

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Qualifications

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- Natural modern leadership style building partnerships and collaborative environment

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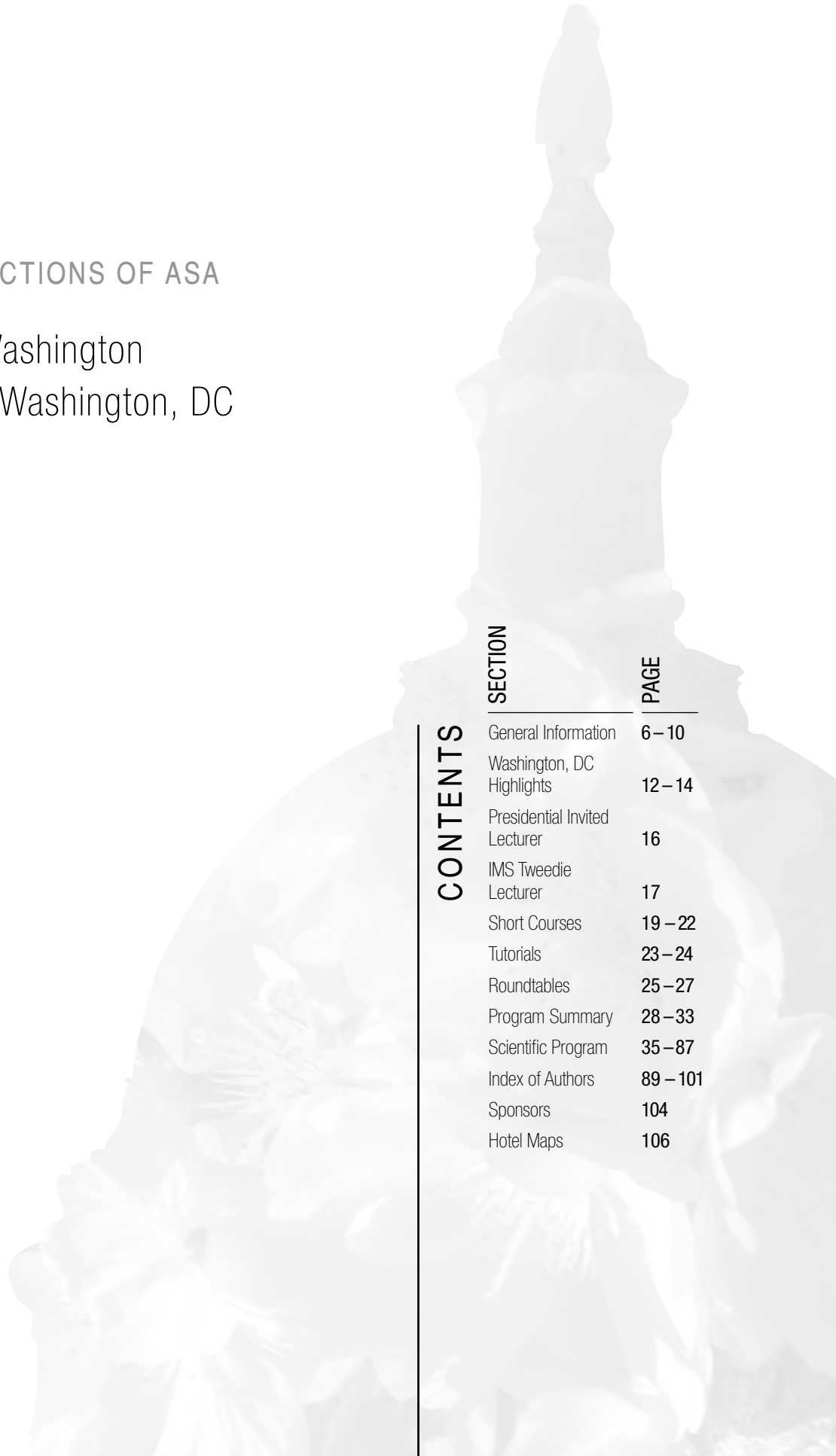
ENAR 2012 SPRING MEETING APRIL 1–4

Program

WITH IMS AND SECTIONS OF ASA

Hyatt Regency Washington on Capitol Hill – Washington, DC



CONTENTS

The Eastern North American Region of the International Biometric Society welcomes you to our 2012 Spring Meeting to be held April 1–4 in Washington, DC together with the IMS and Sections of the ASA.

With the help of many of you, we have assembled scientific and educational programs we hope you will find exciting. We introduce two new program initiatives, and advance a student initiative begun last year, to broadly incorporate and recognize our members' contributions. We will host old favorites including a Young Investigator Workshop, a Diversity Workshop, roundtables, student paper awards and a networking and social event. Finally, our site of Washington, DC, with disclosure that I am a native, can be glorious during our early spring meeting dates. Our hotel sits in sightline of the Capitol Building. The 2012 meeting occurs in the heart of the 100th National Cherry Blossom Festival.

Our Program Chair, Debashis Ghosh of Penn State University, Co-Chair Jonathan Schildcrout of Vanderbilt University, and their Program Committee have assembled a roster of invited sessions to appeal to a broad variety of scientific interests. Topics span clinical trial design and analysis, causal inference, high-dimensional and functional data analysis, genomics, risk prediction and diagnosis, general methodology, and specific application areas spanning diseases to environmental epidemiology to health policy. Additionally we will have special sessions featuring noteworthy papers from the Journal of Agricultural, Biological and Environmental Statistics, surveying grant funding opportunities, and commemorating our colleague who made so many contributions to his colleagues and students, ENAR and our profession, Tom TenHave. Sincere thanks go to Debashis, Jonathan, their committee–representing ENAR, IMS, and eight ASA Sections, and the many who submitted invited paper proposals.

I am particularly excited about our Presidential Invited Address, "Engaging, Inspiring, and Training the Next Generation: Past Successes, Future Challenges and Opportunities," to be given by Professor Marie Davidian of the North Carolina State University. Among honors too numerous to recount here, Professor Davidian is our former ENAR President (2004), President-elect-elect of the American Statistical Association, and the recipient of two COPSS awards. Professor Davidian's contributions to our profession span statistical discovery, advancement of scholarship in pharmacokinetics, pharmacodynamics, and clinical research, outstanding mentorship of junior researchers, vigorous efforts to attract students for our field, and extensive service in ENAR, our other societies, and national panels. Informed as she is by these wide ranging and dedicated perspectives, I could not imagine a leader among us to better stimulate or energize our thinking on the challenges, opportunities and future for our field both generally and as they relate to attracting talented students to our profession. I thank her for her willingness to share her thoughts with us. Additionally, we are fortunate that the IMS will be hosting a first with us: The recently established IMS Tweedie Lecture recognizing an outstanding researcher within five years of receiving his or her doctoral degree. Congratulations to our Tweedie lecturer, Hui Zou of the University of Minnesota.

Our 2012 Spring Meeting has much to offer for scholars of all ages. ENAR is proud to offer an outstanding array of short courses and tutorials across topics ranging from cutting-edge general biostatistical methodology, to clinical trials and translation, to biological applications, to computing and software implementation. Additionally roundtables offer discussion opportunities relating to professional development, specialized methodology, and advancement of our field for statisticians in academia, industry and the federal government. Sincere thanks for their help in brainstorming and identifying these outstanding offerings to our 2012 Educational Advisory Committee of Brad Carlin, Dean Follmann, Joe Hogan, Gene Pennello, and Jose Pinheiro, as well as RAB. We hope you will partake of the outstanding learning and networking opportunities to occur.

For those of you who are emerging into our profession, we have planned many additional opportunities. The ENAR Regional Advisory Board has established a Graduate Student and Recent Graduate Council to help ENAR better address the needs of students and recent graduates. This council is organizing ENAR's first-ever student-organized invited session. Other events for our student registrants include a Monday evening student mixer, our new RAB Poster Awards, and of course ENAR's annual student paper competition. In addition, we will host both of our two extremely popular workshops for prospective and emerging statisticians at our meeting: On Saturday, our Workshop for Junior Investigators, and on Sunday, a Diversity Workshop. In recent years both of these workshops have filled to capacity very quickly, so that interested attendees should be sure to register early. Finally, for those seeking employment, don't miss our ever-growing Career Placement Center.

We hope you will join us in the networking and social event we have planned for Tuesday evening of the meeting: A dinner outing to the Mount Vernon site featuring private access to the Donald W. Reynolds Museum and Education Center. Our site visiting team was delighted by this outstandingly well done and engaging museum facility on the life and living environment of George Washington. The drive out along Washington's lovely George Washington Parkway, dinner, and museum time to be offered by the event present opportunity to network with colleagues in a beautiful setting. Additionally, our Local Arrangements Committee and ENAR officers have recommended other fun activities for you to pursue while in Washington. We encourage you to enjoy several while you're in town for the meeting.

Finally, I wish to thank Kathy Hoskins, our ENAR Executive Director, Laura Yarborough Jennifer Weitz, and their other colleagues at Drohan Management for their amazing, year-round efforts to maintain ENAR as a professional organization of value to its members. If you have a chance, please stop by the registration desk to thank them for all they have done in making the ENAR 2012 Spring Meeting a success.

Karen Bandeen-Roche
ENAR 2012 President

TUESDAY EVENING NETWORKING AND SOCIAL EVENT

Dinner and Private Tour at the Mount Vernon Estate

This event will take us back in time to the 18th century and the life and times of George Washington. We will take motor coaches from the hotel along a 35-40 minute scenic route over the Potomac River to Mount Vernon, one of America's most visited historic home sites. The evening will begin with a three-course, candle-lit dinner at the Mount Vernon Inn, which is located at the front of the estate's property. After dinner, as our highlight, we will have hour-long private access to the Mount Vernon Museum and Education Center – a unique experience that includes a traditional museum as well as an interactive educational tour. Both the Museum and Education Center feature interactive displays, movies, and high-tech, and immersive experiences in addition to more than 700 artifacts. It is important to note that this evening event does not include a tour of the Mount Vernon Mansion, which closes at 5:00 p.m. at this time of year. More information on this historic site can be found by visiting:

http://www.mountvernon.org/

This optional event includes a private tour of the Mount Vernon Museum and Education Center and dinner at the Mount Vernon Inn. *(Please note that there will be a cash bar and that the registration fee does not include the cost of alcoholic beverages.)*

ACKNOWLEDGEMENTS

ENAR would like to acknowledge the generous support of the 2012 Local Arrangements Committee, chaired by Rochelle Tractenberg, Georgetown University, with generous support by Caroline Wu and Georgetown University, and our student volunteers.

We gratefully acknowledge NIH, and in particular the National Cancer Institute; National Heart, Lung, & Blood Institute; National Institute of Environmental Health Sciences;

National Institute of Allergy and Infectious Diseases for their generous support of the ENAR Junior Researchers Workshop

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January – December 2012

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Our nation's capital, Washington, DC, might be one of the few places that the majority of US citizens “have” visited if they've been outside their home state.

Whether with your grade school class on a field trip or with your family, there are an incredible number and variety of events, exhibits, and experiences that, because they're often described as "can't miss", have not been missed! While you can arrange a tour of the White House through your member of Congress or Senator, through your congressperson's office up to six months in advance of any visit, there are many other attractions that you might not have had time for in earlier visits. The Local Arrangements Committee for ENAR 2012 wants to invite you to consider some of these "other" opportunities. For example, if you're flying into/out of BWI, you could visit the nearby National Cryptologic Museum which, because it is not in DC, might be one site you have not yet seen. If you're flying out of Dulles instead, there is an airport shuttle that will take you to and from the expanded Air and Space Museum, the Udvar-Hazy Center, where the Space Shuttle, among other astonishing aeronautical exemplars, is now housed. Again, Udvar-Hazy is not on the National Mall but it is a site worth devoting the "extra" time to.

On or near the National Mall are several exceptional museums, galleries, and exhibits that you might not yet have experienced, or that have been recently updated, renovated, or otherwise improved. For example, in 2008 the American History Museum opened its new gallery to showcase the actual "star-spangled banner", and the National Portrait Gallery has a new exhibit on the Civil War coinciding with the 150th anniversary of the start of the war, as well as artifacts and letters from both Generals Grant and Lee, and an exhibit on "American Origins" (1600–1900). The Petersen House, where Lincoln died, and Ford's Theatre (across the street from it), have both been renovated and rehabilitated and will be reopened by the time of the ENAR meeting. The National Museum of Health and Medicine is in the process of moving to a new location (not on the National Mall) and has both Lincoln and Civil War exhibits.

Ongoing opportunities that you might not yet have experienced include the 70th season of concerts in the National Gallery of Art (beginning September 2011), bringing an additional dimension to the art showcased here (in both the East and West Buildings); a 5-month exhibition of Picasso drawings at the National Gallery of Art closes 6 May 2012. For outdoor exhibits, the Hirshhorn Museum and Sculpture Garden and National Arboretum, with its grove of state trees from nearly all 50 states, are excellent choices (the National Gallery of Art also has a sculpture garden). The National Building Museum will open a new exhibition about architectural and urban design proposals for DC (unbuilt) from the 1790s to today (starting November 2011) and the National Postal Museum (across from Union Station) has a unique collection of Amelia Earhart's personal artifacts, and will open a new exhibition about mail and US military troops in November 2011. One last Mall-based suggestion is the Smithsonian Castle itself, where you will find a display representing *all* of the Smithsonian collections.

There are many other interesting museums and opportunities beyond the museums and monuments near or on the National Mall, including the Spy Museum, the Newseum, and the National Firearms Museum. Tours of DC that you might not yet have experienced include Monuments by Night - one of which departs from Union Station, and a TV and Movie Sites Tour of Washington, DC. In between all of these museums and tours are innumerable options for eating and drinking (including the Capital City Brewing Company, "the first brewpub in Washington, DC since prohibition" across the street from Union Station).

Walking between sites (for touring or meals!) is a fantastic variety of architecture and design – including the Capitol Rotunda, located very nearby the conference hotel. The Local Arrangements Committee welcomes you to Washington, DC and hopes you enjoy every aspect of your visit, whether you try new museums or exhibits or re-visit your favorites!

Karen Bandeen-Roche
2012 ENAR President

The National Air and Space Museum

Feeling you could use an injection of awe in your workaday life? The thrill of imagination transformed into invention… the grandeur of our universe… the dizzying speed with which technology has advanced our power for discovery? The National Air and Space Museum never disappoints.

Take an easy 20 minute stroll from our hotel – brief jogs up New Jersey Avenue, Louisiana Avenue, and First Street to in front of the Capitol, and then an easy shot to Air and Space across the mall just past the National Museum of the American Indian (NMAI). If you're coming around noon, stop inside NMAI for the best lunch on the Mall: First Nations fare at the Mitsisam Café.

As you walk inside Air and Space, soak in the array of balloons, gliders, prop planes, jets, and rockets roundabout and above you. If you're a history buff, be sure to seek out the Wright Flyer (and the very cool simulation of its Kitty Hawk flights), Lindbergh's Spirit of St. Louis, Sputnik 1, the Mercury 7, Gemini 4 and Apollo 11 capsules and more – all these the actual craft. For science lovers there are the Einstein Planetarium and galleries on our exploration of the solar system and cosmos. Tech types will marvel at the leaps by which the biplane evolved from the Wright flyer and the jet from the biplane; the ballistic missile from Robert Goddard's model-rocket and the Saturn V from the ballistics. When a foot rest is needed, the museum's IMAX features provide a great respite. Best of all may be a personal connection – whether it be the sight of a fighter plane like your father or grandfather flew, reminiscence of grainy images coming in from Apollo 11, or recalling your first wonderment seeing nebulae and galaxies courtesy of the Hubble Telescope. In my case it's the "Looking at Earth" exhibit where I can see the TIROS, ITOS and GOES satellites my dad helped send up, savor the thrill of those years for him, and honor the reams of satellite analysis he brought home as the genesis of my interest in data.

If you can't get enough, don't forget the museum's Udvar-Hazy Center out by Dulles Airport, where you can see a mind-boggling array of planes, capsules and the Enterprise space shuttle, or the Visitor Center at the Goddard Space Flight Center in Greenbelt, MD. If you share my experience, the time will have passed before you know it, and before getting nearly enough.

Amy Herring
2012 ENAR Past President

International Spy Museum

Do you want to "Get Smart" at ENAR? Would you like to see an iconic lipstick or umbrella pistol even though you lack a "License to Kill"? Then put on your shoe

phone and walk 0.8 mile to the International Spy Museum (www.spymuseum.org). The vast array of gadgets on display makes this museum, which tells the story of an all-but-invisible profession, a treat not to be missed. Because "You Only Live Twice," allow plenty of time for the exhibits, fill up your money belt before you go ($18 admission), and dress appropriately for crawling through the air conditioning ducts (optional but fun!). Note that all exhibits are "For Your Eyes Only" as photography is strictly NOT allowed!

Mike Daniels
2010-2011 ENAR Treasurer

Capitol Lounge

231 Pennsylvania Ave, SE

Though only a select few seemed to take my recommendation in Miami at ENAR 2011 of putting back a few cold ones at The Democratic Republic of Beer (you missed out on a great place!), I will try again to identify a comfortable and well-stocked watering hole for ENAR 2012. Make your way over to the Capitol Lounge with a very nice selection of bottled beers including Bear Republic Racer 5 IPA (from the left coast and one of my personal favorites) and Duvel (from Belgium). Finish off the night with Young's Double Chocolate Stout (from the UK) for dessert (yummy!). The Capitol Lounge is just a one mile walk from the hotel, a stone's throw from the Library of Congress, behind the Capitol.

Jeffrey S. Morris
2011-2012 ENAR Secretary

Inexpensive Family Fun:

The National Zoo
DC by Foot Walking Tour
Ben's Chili Bowl

If you are bringing children with you or are just an animal lover yourself, you might enjoy the Smithsonian's National Zoo that is right in the city. The zoo has many exotic animals, and is especially known for its giant pandas that are the Asia Trail. The park is open from 10am to 6pm daily, and admission is free!!! It is located at 3001 Connecticut Avenue, and is easily accessible by Metro (BTW, Metro is by far the easiest way to get around Washington, DC, and day passes allowing unlimited riding are only $8.30). The best Metro stop to take is the Cleveland Park stop from which you walk downhill to the zoo, which is better than the "Zoo" stop which requires you to walk uphill. If this is the first time in DC for either you or your children, you could see the major sites in the National Mall with DC by Foot, which gives free walking tours that are kid-friendly and includes games, trivia questions, and fun facts (gratuity is recommended). It is the highest rated walking tour

in DC. You can find details of the times and places of tours on the website (dcbyfoot.com) closer to the date. BTW, they also have other tours including a Lincoln Assassination tour, which currently takes place every Saturday evening at 7 pm and every Wednesday at 7 pm in the summer. For an inexpensive but incredible lunch or snack, I recommend getting the famous chili half-smoke at Ben's Chili Bowl. This

includes ¼ lb. of pork and beef smoked sausage on a steamed bun with mustard, onions, and their famous homemade chili sauce. It only costs $5.45 and has been voted Washington's signature dish. They also have chili, hot dogs, hamburgers, etc., so if you have your kids with you they should find something they like. Ben's is located on 1213 U Street, NW, across from the 13th street entrance of the U street Metrorail station on the Green Line.

Hormuzd Katki
2010–2011 Former RAB Chair

Theodore Roosevelt Island National Monument

Theodore Roosevelt Island is one of the natural treasures of the DC area. The island honors the president who founded the National Park System with a statue and monument with some of his best quotes. Situated on the Potomac River, it affords a scenic view of Georgetown and the Kennedy Center. A path and boardwalk rings the small island (1 mile in circumference), allowing one to see all kinds of wildlife unexpected for Washington DC, including migratory birds.

Glen Echo Park

Glen Echo Park is a magical place situated on the Potomac palisades near Bethesda, Maryland. Originally a Chautauqua retreat, then an amusement park, this National Park now presents vibrant arts and cultural programs. Take a class in pottery, painting, photography, art glass, music, silversmithing, or textiles. Enjoy a puppet show or theater performance with your kids and ride the historic Dentzel carousel. At night, the Spanish Ballroom opens up and features dancing: swing, contra, blues, waltz, Cajun, Zydeco, salsa, tango, and more. Most of the dances feature a pre-dance introductory lesson and dancing to live music from renowned local and national bands. Fall in love at Glen Echo Park (my wife and I did, New Year's Eve 1995).

Debashis Ghosh
2012 ENAR Program Chair

Washington Restaurant Scene

Washington D.C. has an absolutely first-rate restaurant scene with an incredibly diverse food culture. Just hop on the D.C. Metro at the Union Station stop (the nearest one to the Capitol CityRegency Hyatt), and you will get to almost anywhere. Here are a few of my favorite places to eat.

(1) Bodega
3116 M Street NW, DC
202-333-4733
This is a Spanish restaurant that specializes in tapas (Wikipedia defines tapas as "small savory Spanish dishes"; I would recommend the sangria and standard Spanish fare such as Bacalao a la Bilbaína con Lentejas de León (Sauteed cod fillet) and paella.

(2) Vidalia
1990 M Street NW, DC
202-659-1990
Vidalia features American cuisine with Southern stylings. It has standards such as New York Strip Steak and tuna steak, but with neat variations and sides. Plus, the desserts are really good, such as the apple tart! If you don't want to trek on over there, its sister restaurant,

(3) Bistro Bis
15 E Street NW, DC
202-661-2700
just around the corner from the hotel.

(4) Zed's
1201 28th Street NW, Georgetown
202-333-4710
If you are in the mood for Ethiopian food, then you can't go wrong with Zed's. It serves savory Ethiopian dishes (both vegetarian and non-vegetarian) on injera (traditional Ethopian bread with a spongy texture).

(5) Woodley Park-Zoo and Adams Morgan Metro Stop Areas
(On the red line, as is the Union Station stop) boasts a variety of restaurants, ranging from Greek to Middle Eastern to Indian, that are quite tasty and affordable.

Kathy Hoskins
ENAR Executive Director

Union Station – Not Just a Train Station! Within walking distance from the Hyatt Regency Washington on Capitol Hill, Union Station is one of the most visited destinations in the nation's capital. Washington's train station is also a premier shopping mall and serves as a venue for world-class exhibitions and international cultural events.

Union Station features more than 100 specialty shops selling a variety of items from jewelry and apparel to gifts and boutique items. There are more than 35 establishments offering international cuisine and six full service restaurants: America, B. Smith's, Center Cafe, East Street Cafe, Pizzeria Uno, The Station Grill and Thunder Grill.

The Food Court at Union Station is a great place to enjoy a snack or take the family for a quick and inexpensive meal. Union Station also offers a multitude of services including shoe repair, a pharmacy, car rental services, florist, 24-hour automatic teller machines, photo processing, gourmet delicatessen, and foreign currency exchange.

Union Station also offers plenty of sightseeing tours options including the Gray Line, Old Town Trolley, DC Ducks, and Tourmobile.

Engaging, Inspiring, and Training the Next Generation: Past Successes, Future Challenges and Opportunities

Marie Davidian
Department of Statistics | North Carolina State University

Our discipline is in an unprecedented and enviable position. Scientific inquiry, public policy, and decision-making in industry are all increasingly dependent on the collection and interpretation of what are often vast amounts of complex data, and we – statisticians – are uniquely qualified to address the challenges posed by this data "explosion" and to ensure that the inferences drawn are sound and that the results are communicated appropriately. Opportunities for statisticians abound; the position of statistician has even been called "the sexy job in the next ten years." Advanced Placement (AP) statistics courses in high school have seen a tremendous rise in enrollment in the past decade. So why aren't more US students pursuing graduate training in our discipline and choosing statistics as a career? My experience and that of numerous colleagues in academia, industry, and government is that many qualified US students still do not know enough about the opportunities for statisticians or the training required and are diverted by other Science, Technology, Engineering, and Mathematics (STEM) disciplines that may be more familiar.

This shortage of US students entering our graduate programs and profession is nothing new. For example, two workshops were held by NIH in the early 2000s to discuss the need for increasing the pipeline of biostatisticians to meet the expanding needs of the nation's health sciences research enterprise and resulted in a white paper (DeMets et al. 2006) calling for more training programs and opportunities to encourage US students to pursue biostatistics careers. In 2003, the National Heart, Lung, and Blood Institute (NHLBI) took action, soliciting applications for a "Summer Institute for Training in Biostatistics" (SIBS), restricted to US citizen and permanent resident undergraduates, to expose these students to biostatistical science and practice and the pmyriad career opportunities available and to encourage them to seek graduate training. What began as three such programs in 2004 was expanded to eight in 2010, and over the past eight summers, hundreds of students have participated, and scores who might otherwise have pursued training in other STEM disciplines have entered graduate programs in statistics and biostatistics nationwide. However, this and the small number of other government-funded statistics programs cannot alone address the challenge we face in bringing talented, diverse students to our field.

Since 2004, I have been privileged to co-direct one of the eight SIBS programs, which is a joint effort between my Department and Duke Clinical Research Institute (DCRI). I also direct a NHLBI-funded predoctoral training program that provides US PhD students in my department with unparalleled collaborative experience at DCRI. I have seen firsthand how such opportunities have been transformative, altering the career aspirations of so many US students. In this talk, I will review the history of all eight SIBS programs and my experience with training the next generation more generally. I will then argue that, if we are to achieve the statistical workforce required to meet the demand, there must be a broader effort in which stakeholders from all sectors, industry, government, and academia, come together to conceive of and support programs to increase the numbers of US students entering graduate programs in statistics and biostatistics and to provide them with essential practical experience and skills while they are still in training. I hope to inspire all of you to join me in making such an effort a reality.

DeMets, D.L.; Stormo, G.; Boehnke, M.; Louis, T.A.; Taylor, J.; Dixon, D. (2006). *Training of the Next Generation of Biostatisticians: A Call to Action in the U.S. Statistics in Medicine* 25, 3415–3429.

Biography

Marie Davidian is William Neal Reynolds Distinguished Professor of Statistics at North Carolina State University (NCSU). She received bachelors and master's degrees in applied mathematics in 1980 and 1981 from the University of Virginia and received a Ph.D. in statistics from the University of North Carolina at Chapel Hill in 1987 under the direction of Raymond J. Carroll.

She joined the Department of Statistics at NCSU in 1987 and returned in 1996 after serving on the faculty in the Department of Biostatistics at Harvard School of Public Health from 1994-1996. Marie is an elected Fellow of the American Statistical Association (ASA), the Institute of Mathematical Statistics (IMS), and the American Association for the Advancement of Science (AAAS) and is an elected member of the International Statistical Institute (ISI).

She has served as Coordinating and Executive Editor of Biometrics; as chair of the National Institutes of Health Biostatistical Methods and Research Design (BMRD) study section; on the International Biometric Society (IBS) and IMS Councils; as chair of a number of IBS committees, including the Editorial Advisory Committee; and as ENAR president. She is a recipient of the Janet L. Norwood Award for Outstanding Achievement by a Woman in the Statistical Sciences, the ASA Award for Outstanding Statistical Application, an IMS Medallion Lecturer award, and the Committee of Presidents of Statistical Societies (COPSS) G.W. Snedecor and F.N. David Awards, as well as several distinguished lectureships.

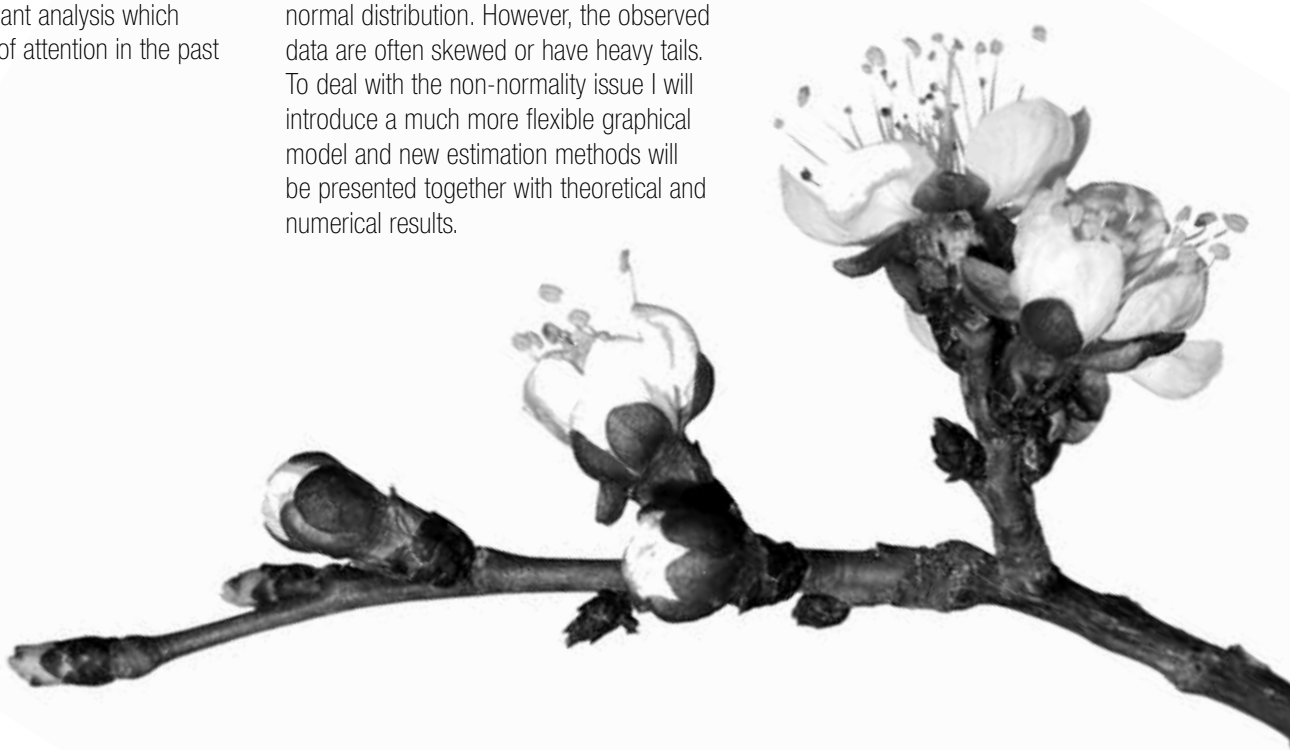
She is currently ASA President-Elect. Since 2004, she has co-directed the NCSU–Duke Clinical Research Institute (DCRI) Summer Institute for Training in Biostatistics (SIBS) program, funded by a grant from the National Heart, Lung and Blood Institute (NHLBI) and the National Center for Research Resources. The program and its seven current counterparts at Boston University, Emory University, University of Iowa, University of Pittsburgh, University of South Florida, Washington University in St. Louis, and University of Wisconsin have inspired scores of talented US undergraduates to pursue graduate training in biostatistics. Marie is also Program Director of a NHLBI-funded predoctoral training grant program in cardiovascular disease biostatistics, also joint with DCRI.

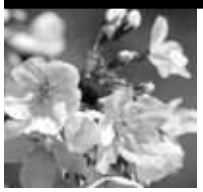
Richard Lewis Tweedie played a significant role throughout his professional career in mentoring young colleagues at work and through professional society activities. With funds donated by his friends and family the IMS created the "Tweedie New Researcher Award." The award provides funds for travel to present the "Tweedie New Researcher Invited Lecture" at the IMS New Researchers Conference.

Statistical Learning with High-Dimensional Data

Hui Zou
University of Minnesota

High-dimensionality has revolutionized the landscape of statistical inference and learning. After a brief literature review I will use two examples to illustrate some strategies to exploit the sparsity assumption in high-dimensional learning. In the first example I will discuss the problem of sparse discriminant analysis which has received a lot of attention in the past decade. This is a classical supervised learning problem. Some fundamental drawbacks of existing proposal will be pointed out and a new approach to sparse discriminant analysis will be presented and demonstrated by theoretical analysis and many numerical examples. The second example concerns learning graphical models with non-Gaussian data. Under normality assumption graphical model learning is often formulated as estimating the precision matrix of a multivariate normal distribution. However, the observed data are often skewed or have heavy tails. To deal with the non-normality issue I will introduce a much more flexible graphical model and new estimation methods will be presented together with theoretical and numerical results.





SC1 Bayesian Adaptive Methods for Clinical Trials

Capitol A | Lobby Level

FULL DAY: 8:00 am – 5:00 pm

Instructors:
Scott Berry
Berry Consultants *and*
Brad Carlin
University of Minnesota

Overview:

Thanks in large part to the rapid development of Markov chain Monte Carlo (MCMC) methods and software for their implementation,Bayesian methods have become ubiquitous in modern biostatistical analysis. In submissions to the U.S. FDA Center for Devices and Radiological Health, where data on new devices are often scanty but researchers typically have access to large historical databases, Bayesian methods have been in common use for over a decade and in fact were the subject of a recently-released FDA guidance document. Statisticians in earlier phases (especially Phase I oncology trials) have long appreciated Bayes' ability to get good answers quickly. Moreover, an increasing desire for adaptability in clinical trials (to react to trial knowledge as it accumulates) has also led to heightened interest in Bayesian methods.

This full-day course (4 consecutive sessions) introduces Bayesian methods, computing, and software, and then goes on to elucidate their use in Phase I, II, and III trials. We include descriptions of how the methods can be implemented in WinBUGS, R, and BRugs, the version of the BUGS package callable from within R. In particular, we will illustrate the different ways a Bayesian might think about power when designing a trial, and how a Bayesian procedure may be calibrated to guarantee good long-run frequentist performance (i.e., low Type I and II error rates), a subject of keen interest to the FDA.

Morning Session 1: Introduction to Hierarchical Bayes Methods and Computing

Bayesian inference: point and interval estimation, model choice Bayesian computing: MCMC methods; Gibbs sampler; Metropolis-Hastings algorithm Hierarchical modeling and metaanalysis Principles of Bayesian clinical trial design: predictive probability, indifference zone, Bayesian and frequentist operating characteristics (power, Type I error)

Morning Session 2: Bayesian Design and Analysis for Phase I Studies

- Rule-based designs for determining the MTD (e.g., 3+3)
- Model-based designs for determining the MTD (CRM, EWOC, TITE monitoring, toxicity intervals) Dose ranging and optimal biologic dosing
- Efficacy and toxicity
- Examples and software

Afternoon Session 1: Bayesian design and analysis for Phase II Studies

- Standard designs: Phase IIA (single-arm) vs. Phase IIB (multi-arm)
- Predictive Probability-based methods
- Sequential stopping: for futility, efficacy
- Multi-arm designs with adaptive dose allocation
- Hierarchical Phase II models and examples

Afternoon Session 2: Bayesian Design and Analysis for Phase III Studies

- Confirmatory trials
- Adaptive confirmatory trials: adaptive sample size, futility analysis, arm dropping
- Modeling and prediction
- Examples from FDA-regulated trials
- Seamless Phase II-III trials
- Multiplicity and Subset Analysis
- Summary and Floor Discussion

Students are invited to bring their own laptop computers to the session, and to have the latest versions of WinBUGS and R already installed on these computers. Both of these programs are freely available from www.mrc-bsu.cam.ac.uk/bugs/winbugs/contents.shtml and www.r-project.org respectively. The presentation will assume familiarity with basic Bayesian methods and MCMC algorithms, at the level of, say, Chapters 2 and 3 of Carlin and Louis (2009) or Chapters 2, 3, 5, and 11 of Gelman et al. (2004). The workshop's goal is to make these methods come alive in the software through real data examples that the students try for themselves during the presentation.

SC2 Regression Modeling Strategies

Columbia C | Ballroom Level

FULL DAY: 8:00 am – 5:00 pm

Instructor:
Frank Harrell
Vanderbilt University School of Medicine

Description:
Regression models are frequently used to develop diagnostic, prognostic, biomarker, and health resource utilization models in clinical, health services, outcomes, pharmacoeconomic, and epidemiologic research, and in a multitude of non-health-related areas. Regression models are also used to adjust for patient heterogeneity in randomized clinical trials, to obtain tests that are more powerful and valid than unadjusted treatment comparisons. Models must be flexible enough to fit nonlinear and non-additive relationships, but unless the sample size is enormous, the approach to modeling must avoid common problems with data mining or data dredging that result in overfitting and a failure of the predictive model to validate on new subjects.

All standard regression models have assumptions that must be verified for the model to have power to test hypotheses and for it to be able to predict accurately. Of the principal assumptions (linearity, additivity, distributional), this short course will emphasize methods for assessing and satisfying the first two. Practical but powerful tools are presented for validating model assumptions and presenting model results. This course provides methods for estimating the shape of the relationship between predictors and response.

The first part of the course presents the following elements of multivariable predictive modeling for a single response variable: using regression splines to relax linearity assumptions, perils of variable selection and overfitting, where to spend degrees of freedom, shrinkage, imputation of missing data, data reduction, and interaction surfaces. Then a default overall modeling strategy will be described, with an eye towards "safe data mining". This is followed by methods for graphically understanding models (e.g., using nomograms) and using re-sampling to estimate a model's likely performance on new data.

Participants should have a good working knowledge of multiple regression. The following articles might be read in advance:

- Harrell, Lee, Mark
  Stat in Med
  15:361-387, 1996
- Spanos, Harrell, Durack
  JAMA
  262:2700-2707, 1989
- Some participants may want to read Chapters 1-5 and 10 of the instructor's book *Regression Modeling Strategies* (NY: Springer, 2001).

See:
biostat.mc.vanderbilt.edu/rms
for more background information.

SC3 Sensitivity Analysis with Missing Data: Statistical Methods and Case Studies

Capitol Room B | Lobby Level

FULL DAY: 8:00 am – 5:00 pm

Instructors:
Joseph Hogan
Brown University *and*
Daniel Scharfstein
Johns Hopkins Bloomberg School of Public Health

Description:
Missing data continues to be a concern in modern clinical trials and observational studies. The fundamental problem in drawing inference from incomplete data is that assumptions about the distribution of missing responses cannot be checked empirically.

In this course, we focus on the formulation and interpretation of sensitivity analyses, wherein sensitivity of estimates and inferences to assumptions about missing data can be represented. Key concepts related to handling missing data will be reviewed, but the primary focus is on formulating and conducting sensitivity analyses for reporting of treatment or exposure effects.

A key feature of the course is presentation of detailed case studies. We will provide detailed background on two recent randomized trials, compare and contrast potential methods of analysis, demonstrate a specific analysis, and give guidelines on interpreting and reporting results. Although we use randomized trials to illustrate methods and concepts, the principles taught in this course are applicable to observational studies as well.

SC4 Statistical Methods for Next Generation Sequencing

Columbia B | Ballroom Level

HALF DAY: 8:00 am – 12:00 noon

Instructors:
Zhijin (Jean) Wu
Brown University
Kasper D. Hansen
Johns Hopkins Bloomberg School of Public Health
Rafael Irizarry
Johns Hopkins Bloomberg School of Public Health

Description:
Next generation sequencing (NGS) technologies provide high throughput identification of DNA sequences. The popularity of NGS applications is rapidly increasing in biomedical research. These applications include quantification of gene expression and identification of isoform variation (RNA-seq), detection of protein-DNA interaction locations (CHIP-seq), DNA variant detection and quantification of DNA methylation. As in all high throughput technologies, analysis of NGS data requires statistical methodology that appropriately accounts for the stochastic nature of biology and data generation processes. The half-day short course will provide an introduction to the technology and its applications, a review of the statistical issues related to each application, and statistical methods for a few typical applications including RNA-seq, SNP-calling and DNA methylation. It will also include hands-on exercise of sequence mapping and statistical analysis. No textbook will be followed, but handouts will be provided. Familiarity with R is a prerequisite and laptop computers are necessary for participants who wish to participate in the labs.

Learning Objectives:
The participants are expected to gain knowledge in the following areas:

1. How data are obtained in NGS and sources of variation
2. Statistical issues in major applications of NGS
3. Specific statistical methods that provide practical results for selected applications
4. Using R/bioconductor packages to perform data analysis

SC5 Latent Variable Models for Networks and Relational Data

Columbia B | Ballroom Level

HALF DAY: 1:00 pm – 5:00 pm

Instructor:
Peter Hoff
University of Washington

Description:
Network and relational data structures have increasingly played a role in the understanding of complex biological, social and other relational systems. Statistical models of such systems can give descriptions of global relational features, characterize local network structure, and provide predictions for missing or future relational data.

Latent variable models are a popular tool for describing network and relational patterns. Many of these models are based on well-known matrix decomposition methods, and thus have a rich mathematical framework upon which to build. Additionally, the parameters in these models are easy to interpret: Roughly speaking, a latent variable model posits that the relationship between two nodes is a function of observed and unobserved (latent) characteristics, potentially in addition to contextual factors.

In this course we will cover the statistical implementation and interpretation of latent variable modeling approaches to relational and network data. We first develop a mathematical justification for these models based on exchangeability and symmetry considerations. We then review fitting algorithms and illustrate several latent variable models in the context of hands-on statistical analysis of several network datasets. We then show how these models can be used to address a variety of statistical tasks, such as prediction and imputation, data description and evaluating the relationship between network and nodal attribute data. Finally, we extend these models in a variety of directions, such as the identification of network communities and the modeling of multivariate relational data, such as longitudinal networks.

Participants should be familiar with matrix algebra and the basics of likelihood estimation for a general statistical model. Familiarity with one or more of the following would also be helpful but not necessary: Bayesian inference, factor analysis, linear regression, MCMC, data analysis with R.

SC6 Current Methods for Evaluating Prediction Performance of Biomarkers and Tests

Congressional A | Lobby Level

Instructor:
Margaret Pepe
Fred Hutchinson Cancer Research Center

HALF DAY: 8:00 am – 12:00 noon

Description:
This course will describe and critique methods for evaluating the performance of markers to predict risk of a current or future clinical outcome. Examples from cancer, cardiovascular disease and kidney injury research will be presented. Course content will include:

a. Three criteria for evaluating a risk model: calibration, benefit for decision making, accurate classification

b. Comparing models

c. Comparing baseline and expanded models

d. Hypothesis testing and confidence interval construction

e. Risk reclassification analysis strategies

f. Relationships and differences with assessing discrimination

g. Software

SC7 The Statistical Impact on Biopharmaceutical Drug Development of the ICH Efficacy Guidelines

Congressional A | Lobby Level

Instructor:
Allan Sampson
University of Pittsburgh

HALF DAY: 1:00 pm – 5:00 pm

Description:
This four hour workshop will provide an introduction to the International Conference on Harmonization (ICH) Efficacy Guidelines, with the primary emphasis being on their statistical aspects. The ICH has issued a series of technical guidelines that have had a major impact on biopharmaceutical research worldwide. This workshop is intended to provide attendees with an overview of the set of guidelines that focus on clinical trials. To familiarize attendees with the ICH, we begin with a brief history concerning the ICH and also summarize the current structures of the biopharmaceutical regulatory authorities of Europe, Japan and the US. We will then proceed to consider the main statistical considerations in the ICH Efficacy Guidelines. Necessarily, with the exception of the E9 Guideline ("Statistical Principles for Clinical Trials"), only the more important statistical highlights of these can be touched upon. The major focus of the workshop is on E9 and we will provide a detailed examination of this highly influential statistical guideline. This workshop is intended for statisticians who have some familiarity with clinical trials and who want to familiarize themselves with the ICH and its effects upon the statistics of biopharmaceutical clinical development.

Tutorials – Monday, April 2 & Tuesday, April 3, 2012

T1: Methods for Reproducible Research in R

Columbia A | Ballroom Level

Monday, April 2, 8:30 am – 10:15 am

Instructor:
Roger Peng
Johns Hopkins Bloomberg School of Public Health

Description:
The validity of conclusions from scientific investigations is typically strengthened by the replication of results by independent researchers. Full replication of a study's results using independent methods, data, equipment, and protocols, has long been, and will continue to be, the standard by which scientific claims are evaluated. However, in many fields of study, there are examples of scientific investigations which cannot be fully replicated, often because of a lack of time or resources. For example, epidemiological studies which examine large populations and can potentially impact broad policy or regulatory decisions, often cannot be fully replicated in the time frame necessary for making a specific decision. In such situations, there is a need for a minimum standard which can serve as an intermediate step between full replication and nothing. This minimum standard is reproducible research, which requires that datasets and computer code be made available to others for verifying published results and conducting alternate analyses. The tutorial will provide an introduction to tools for conducting reproducible research using R and LaTeX. We will focus on the R statistical computing language and will discuss other tools that can be used for producing reproducible documents. Topics that will be discussed include Sweave, literate programming, and efficient caching of large computations.

Prerequisites:
Knowledge of R and some familiarity with the LaTeX typesetting system.

T2: Object Oriented Data Analysis

Columbia A | Ballroom Level

Monday, April 2
10:30 am – 12:15 pm

Instructor:
J. S. Marron
University of North Carolina

Description:
Object Oriented Data Analysis is the statistical analysis of populations of complex objects. This tutorial will begin with building basic ideas in the special case of Functional Data Analysis, where data objects are curves. In that case standard Euclidean approaches, such as principal components analysis, have been very successful.

The latter part of the tutorial will draw its motivation from medical image analysis, which leads naturally to the statistical analysis of populations of more complex data objects. Cases discussed will include elements of mildly non-Euclidean spaces, such as geometric manifolds (e.g. shape spaces), and of strongly non-Euclidean spaces, such as populations of tree-structured data objects. These new contexts for Object Oriented Data Analysis create several potentially large new interfaces between mathematics and statistics.

T3: Comparative Effectiveness Research: Opportunities and Challenges

Columbia A | Ballroom Level

Monday, April 2, 1:45 – 3:30 pm

Instructor:
Sharon-Lise T. Normand
Harvard Medical School and Harvard School of Public Health

Description:
Comparative effectiveness research (CER) "is the conduct and synthesis of research comparing the benefits and harms of different interventions and strategies to prevent, diagnose, treat and monitor health conditions in real world settings." As such, it includes a variety of

NOTE: Wireless access will not be available in the classroom and participants should check the ENAR website (www.enar.org) for instructions on download prior to the meeting.

statistical designs, including randomized trials, pragmatic trials, and observational studies. With the growth of electronic health records and registries, opportunities to answer causal questions about therapies delivered in routine practice are increasing. Along with these opportunities, however, new statistical problems arise. This tutorial will describe the rationale for CER, common designs and analytical tools for CER, illustrations, and new challenges for statisticians. Participants should be familiar with randomized trials and regression techniques.

T4: Towards High-Performance Computing with R

Columbia A | Ballroom Level

Monday, April 2, 3:45 – 5:30 pm

Instructor:
John W. Emerson, Yale University

Description:
This tutorial assumes assumes some basic familiarity with R but does not require advanced knowledge. It will start by reviewing the pros and cons of the core data structures (vector, factor, list, matrix, and data.frame) with an eye towards computational efficiency (speed and memory consumption). We will then learn about basic benchmarking with functions, loops, and loop alternatives (the apply family of functions, in particular). This leads naturally to topics in high-performance computing, including (a) foreach (and associated parallel backends) for parallel programming; (b) an introduction to the C/C++ interface and Rcpp; and (c) the use of shared memory and larger-than-RAM data sets. Participants are encouraged to download materials prior the tutorial and to work through the examples during the tutorial.

T5: Slippery Slopes: A Practical Introduction to Spatially Varying Slopes in Regression Models

Lexington Room | Ballroom Level

Tuesday, April 3, 8:30 – 10:15 am

Instructor:
Lance A. Waller
Rollins School of Public Health
Emory University

Description:
Regression frameworks provide the basis for many statistical modeling methods. The assumptions of independent, Gaussian errors, fixed associations across the data set, and constant variance provide a comfortable arrangement leading to many of our favorite tools for variable selection, testing, and inference. With geographically referenced data, we often want to loosen each of these restrictions allowing correlated, non-Gaussian errors, spatially varying associations, and heteroskedasticity. This tutorial will provide an overview of recent modeling approaches to these settings including geographically weighted regression (GWR), hierarchical modeling with random effects (random intercepts to induce spatial correlation between observations and random slopes to allow associations to vary across space). It will compare and contrast the assumptions, implementation, and inference enabled by these two approaches. It will also explore the robustness of results and assumptions required for successful implementation. Results on data involving violent crime, illegal drug arrests, and alcohol sales will be compared. Data and illustrative R and WinBUGS code will be provided to participants.

T6: Introduction to MATLAB for Statisticians

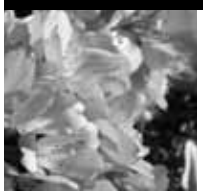
Lexington Room | Ballroom Level

Tuesday, April 3, 1:45 – 3:15 pm

Instructor:
Wendy L. Martinez
Department of Defense

Description:
This course will provide a brief introduction to MATLAB for statisticians. In the first part of the class, an overview and demonstration of the MATLAB software will be provided, to include the desktop environment, programming tools, and basic graphics. In the remainder of the class, free and commercial toolboxes that would be of interest to statisticians will be introduced. Examples of commercial packages include the Statistics, Curve Fitting, and Bioinformatics toolboxes from The MathWorks. Examples of free software are the Computational Statistics, Exploratory Data Analysis, and Data Visualization toolboxes. Time permitting, the class will conclude with a brief discussion of ways to connect MATLAB and R.

Roundtables – Monday, April 2, 2012



12:15 – 1:30 pm

Capitol Room | Lobby Level

R1: Latent Variable Modeling of High-dimensional Mixed Data

Discussion Leader:
David Dunson
Duke University

Description:
It has become common to collect high-dimensional data in biomedical studies and models are needed for characterizing dependence with relatively few parameters. A very commonly used model is the Gaussian latent factor model, which has been widely used for gene expression data. However, latent factor models are much more broad and can be applied not only for continuous data, such as gene expression, but for general mixed domain data including not only simple cases (count, binary, categorical, continuous) but also complex "object data" (functions, images, text, shapes, etc). This roundtable will discuss recent developments and applications of latent variable models.

R2: Data Science: Redesigning Statistics PhD Programs to Enhance Relevance

Discussion Leader:
Scott Zeger
Johns Hopkins University

Description:
Statistical expertise has never been in greater demand, particularly at the interface with sciences such as astronomy, physics, economics, medicine, biology, and genetics. Throughout its history, statistics has been dramatically advanced by engagement in these disciplines and others. But research at the science interface now requires more substantive knowledge to complement the statistical training. In addition, the questions being asked demand new skills of statisticians, for example, computing on large data sets.

This conversation will briefly review the core content of statistics and biostatistics programs across the US and then discuss essential revisions of the core to make PhD training maximally relevant to science.

R3: Navigating Promotion and Tenure in Schools of Medicine, Public Health, and Arts & Sciences

Discussion Leaders:
J. Richard Landis
University of Pennsylvania
Tom Louis
Johns Hopkins Bloomberg School of Public Health
James Rosenberger
The Pennsylvania State University

Description:
Academic biostatisticians and statisticians know well that promotion and tenure are awarded based on scholarship, education, and service. However, promotion and tenure criteria do vary amongst universities and schools within them. Moreover, schools of arts and science, medicine, and public health have different cultures, potentially leading to variation in weighting of the scholarship, education and service components. Roundtable leaders will summarize and contrast their views on these issues from the perspective of leading or having led a statistics department or a division of biostatistics in three different universities and schools. Professor Landis directs the Division of Biostatistics in Penn's School of Medicine; Professor Louis is the former chair of the Division of Biostatistics, School of Public Health, University of Minnesota; and Professor Rosenberger chaired the Department of Statistics, Eberly College of Science at Penn State. Discussion topics will relate to navigating your professional career and include relative valuation of the teaching, research, and service criteria, publication portfolio, grant funding and roles, necessary and sufficient service and the advantages of effective mentoring. Participants should be ready to pose questions and discuss their experiences and concerns. All should leave the roundtable with broadened perspectives and understanding of the ingredients that will structure a career for success.

R4: Bayesian Statistics in Clinical Trials and the Role of the FDA

Discussion Leader:
Gregory Campbell
U.S. Food and Drug Administration

Description:
Bayesian designs and analyses are part of an increasing number of premarket submissions to FDA. An initiative, begun in FDA's Center for Devices and Radiological Health more than ten years ago, takes advantage of good prior information on safety and effectiveness that is often available for studies of the same or similar recent generation devices. A guidance document on the use of Bayesian

statistics in medical device clinical trials, finalized in 2010, explores not only the use information from prior trials but also designs that rely on no prior information but are planned to adapt to accumulating evidence during the course of the trial. The issue of simulation for Bayesian designs and software for Bayesian analyses is discussed. A number of important lessons in the design, conduct and analysis of clinical studies are explored, along with possible implications for drug trials or studies of diagnostic tests. Insights into success are addressed as well as challenges for the future.

R5: Longitudinal Data Analysis, Functional Data Analysis, Model Selection and Their Use In Applications

Discussion Leader:
Naisyin Wang
University of Michigan

Description:
There are many shared features between longitudinal and functional data analysis. Lately there is interest from researchers in both areas to investigate how to borrow strengths from each other. We will have a lively discussion on model building, model selection/regularization and how these issues matter conceptually and in real-life applications. In particular, we will discuss what could be the potential criteria to determine the simplicity and flexibility of model, whether these criteria should be modified to adjust for data structure, and whether researchers should try to pursue a common approach that fits both fields or should customize methods for their distinctive needs. Participants are also welcomed to send topics of interest to the discussion leader in advance so that handouts can be made and shared by all participants.

R6: Gender Issues in Academia and How to Balance Work and Life

Discussion Leader:
Francesca Dominici
Harvard University

Description:
Despite interventions by leaders in higher education, women are still under-represented in academic leadership positions. This dearth of women leaders is no longer a pipeline issue, raising questions as to the root causes for the persistence of this pattern. We have identified four themes as the root causes for the underrepresentation of women in leadership positions from focus group interviews of senior women faculty leaders at Johns Hopkins. These causes are found in routine practices surrounding leadership selection as well as in cultural assumptions about leadership potential and effectiveness. As part of this roundtable, I will discuss these findings and I will facilitate an informal discussion on how to balance work and life.

R7: Statistical Methods to Evaluate Diagnostic Medical Tests

Discussion Leader:
Gene Pennello
Food and Drug Administration

Description:
Statistical evaluation of diagnostic medical tests may become increasingly challenging because of growth in areas such as personalized medicine, medical imaging, diagnostic software, and mobile applications. Statistical methods continue to evolve to evaluate diagnostic tests for specific intents of use. A basic challenge with diagnostic performance studies is their observational nature. Typically, the diagnostic result is examined for its association with a reference result (e.g., presence or absence of disease). Because subjects are not randomized, associations may not be causal. Many sources of bias can be introduced into such studies. This roundtable will provide a forum to discuss statistical methods to evaluate diagnostic medical tests for specific intents of use. Specific uses include diagnosis in symptomatic subjects, screening of asymptomatic subjects, early detection, monitoring, risk assessment, prognosis, and tailoring of therapy. To frame the scope of discussion, diagnostic tests can be defined as providing results that are used alone or with other information to help assess a subject's past, present, or future health condition. Diagnostic tests include in vitro diagnostic tests (which examine specimens taken from the human body), diagnostic imaging systems (e.g., digital mammography), devices that provide biological measurements (e.g., bone density, blood glucose level, cardiac ejection fraction), and algorithms that combine subject data to yield a classification, score, or index (e.g,. the Framingham risk score, the Gail score, Genomic Health's Oncotype Dx assay).

R8: The Role of Statisticians at the NIH

Discussion Leaders:
Dean Follmann
National Institute of Allergy and Infectious Diseases
Nilanjan Chatterjee
National Cancer Institute

Description:
Statisticians at the NIH have diverse roles including collaborative research, oversight/monitoring of multi-center medical experiments, consultation services, and methodological research. NIH statisticians need strong methodological skills, superb communication, and the ability to creatively attack problems. At the NIH

there are two career paths; one is focused more on methodological research, has formal temporary positions and can culminate in tenure; the other focuses more on collaborative research. Topics to be discussed include typical career trajectories for visiting and permanent employees, what it takes to excel at NIH, the tenuring process, and the kinds of research studies statisticians conduct. Dr. Follmann is the Chief of the Biostatistics Research Branch (extramural) at the NIAID, and Dr. Chatterjee is the Chief of the Biostatistics Branch in the Division of Cancer Epidemiology and Genetics (intramural) at the NCI.

R9: Conducting Methodological Research in Statistics in the Biopharmaceutical Industry

Discussion Leader:
José Pinheiro
Johnson & Johnson PRD

Description:
The pipeline problem currently facing the pharmaceutical industry, with decreasing number of approved drugs and escalating development costs, has led to renewed interest in innovative designs and analysis methods aimed at improving the efficiency and overall success rate of drug development programs. Adaptive designs, model-based drug development, and clinical trial simulations are examples of current areas of great methodological interest and activity within the pharma industry. Although considerable amount of research in biopharmaceutical statistics takes place in academia, an increasing number of statisticians in industry have played a leading role in methodological development in the field. Motivated by this, several companies have created groups dedicated to methodological development and implementation, with mixed success. This roundtable will discuss statistical methodology research within the biopharmaceutical industry, focusing on areas of ongoing and potential interest, strategies used by companies to promote and sustain methodology groups, and the outlook for the future.

R10: Beyond BMRD: Success in Statistical Grant Applications to Subject-Area Science Study Sections at the NIH and NSF

Discussion Leader:
Jun Liu
Harvard University

Description:
In these times of threat to research funding, developing a portfolio of grant options takes on increasing importance. In this roundtable, you will participate in discussion of funding opportunities in subject-area science study sections at the NIH and NSF. Your discussion leader, Jun Liu, will describe options with promise beyond the Biostatistical Methodology and Research Design Study section, strategies for developing grant applications with appeal to interdisciplinary study sections, and insights into the dynamics and procedures of inter-disciplinary review. Participants will be encouraged to share experiences and engage in question-and-answer discussion. Professor Liu is a former IMS Medallion and Bernoulli Lecturer and COPSS Presidents' Award winner, among other honors, and a former member of the NIH GCAT (Genomics, Computational Biology and Technology) Study Section.

Saturday, March 31

9:00 am – 9:00 pm
Regency B | Ballroom Level
Workshop for Junior Researchers

3:30 pm – 5:30 pm
Regency Foyer | Ballroom Level
Conference Registration

Sunday, April 1

7:30 am – 6:30 pm
Regency Foyer | Ballroom Level
Conference Registration

8:00 am – 12:00 pm
Columbia B | Ballroom Level
Congressional A | Lobby Level
Short Courses
SC4: Statistical Methods for Next Generation Sequencing
SC6: Current Methods for Evaluating Prediction Performance of Biomarkers and Tests

8:00 am – 5:00 pm
Capitol A | Lobby Level
Columbia C | Ballroom Level
Capitol Room B | Ballroom Level
Short Courses
SC1: Bayesian Adaptive Methods for Clinical Trials
SC2: Regression Modeling Strategies
SC3: Sensitivity Analysis with Missing Data: Statistical Methods and Case Studies

12:30 am – 5:30 pm
Columbia A | Ballroom Level
Diversity Workshop

1:00 pm – 5:00 pm
Columbia B | Ballroom Level
Congressional A | Lobby Level
Short Courses
SC5: Latent Variable Models for Networks and Relational Data
SC7: The Statistical Impact on Biopharmaceutical Drug Development of the ICH Efficacy Guidelines

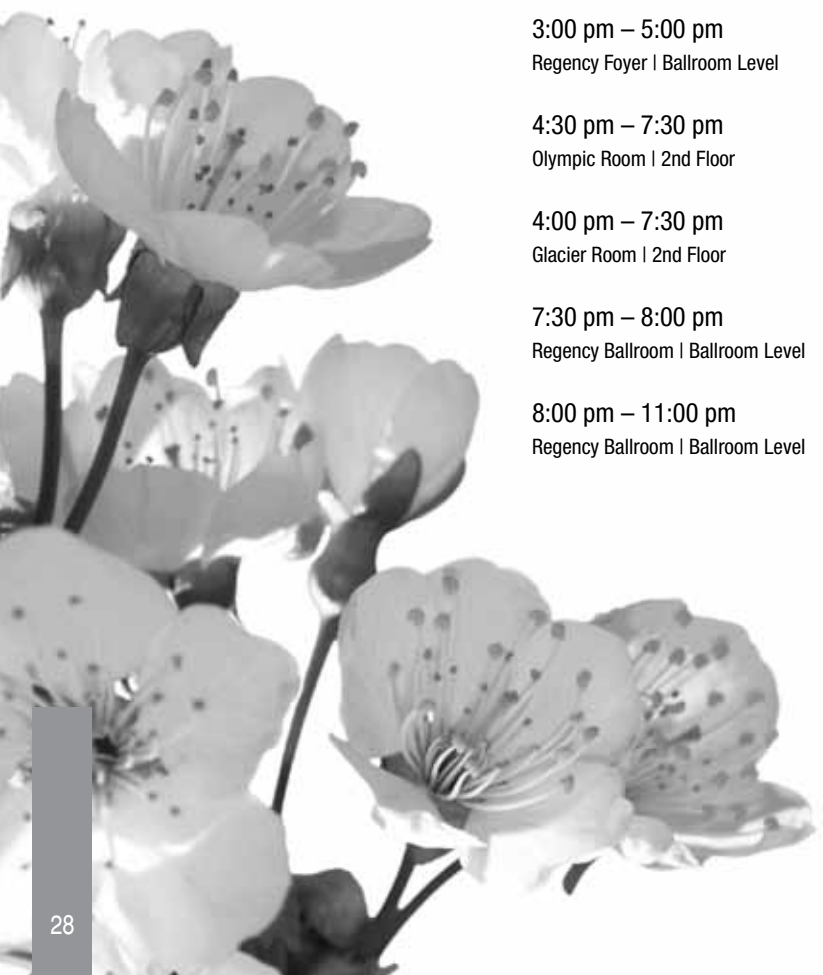
3:00 pm – 5:00 pm
Regency Foyer | Ballroom Level
Exhibits Open

4:30 pm – 7:30 pm
Olympic Room | 2nd Floor
ENAR Executive Committee
(By Invitation Only)

4:00 pm – 7:30 pm
Glacier Room | 2nd Floor
Placement Service

7:30 pm – 8:00 pm
Regency Ballroom | Ballroom Level
New Member Reception

8:00 pm – 11:00 pm
Regency Ballroom | Ballroom Level
Social Mixer and Poster Session
1. Posters: Bayesian Methods
2. Posters: Survival Analysis
3. Posters: Statistical Genetics / Genomics
4. Posters: Clinical Trials / Biopharmaceuticals / Medical Devices
5. Posters: Computationally Intensive Methods / High Dimensional Data
6. Posters: Environmental, Epidemiological, Health Services and Observational Studies
7. Posters: Correlated and Longitudinal Data
8. Posters: Multivariate, Non-Parametric and Semi-Parametric Models
9. Posters: Modeling, Prediction, Diagnostic Testing, Variable Selection and Consulting



Monday, April 2

7:30 am – 5:00 pm Regency Foyer | Ballroom Level	Conference Registration
7:30 am – 5:00 pm Sequoia Room | 2nd Floor	Speaker Ready Room
8:30 am – 5:00 pm Regency Foyer | Ballroom Level	Exhibits Open
8:30 am – 10:15 am Columbia A | Ballroom Level	**Tutorial** T1: Methods for Reproducible Research in R
8:30 am – 10:15 am	**Scientific Program**
Regency B | Ballroom Level	10. Statistical Genomics in Sequencing Era, from Data Analysis to Personal Medicine
Regency A | Ballroom Level	11. Variable Selection for Complex Models
Columbia B | Ballroom Level	12. Optimal and Personalized Treatment of HIV
Regency C | Ballroom Level	13. Statistical Methods for Hospital Comparisons
Congressional A | Lobby Level	14. Statistical Evaluation of Diagnostic Performance Using ROC Analysis
Regency D | Ballroom Level	15. Statistical Applications in Food Safety
Columbia C | Ballroom Level	16. Topic Contributed Papers: Synthetic Health Data for Confidentiality Control
Congressional B | Lobby Level	17. Topic Contributed Papers: Statistical Issues Arising from Alternatives to Double-Masked Randomized Controlled Trials
Lexington | Ballroom Level	18. Contributed Papers: Statistical Genetics
Concord | Ballroom Level	19. Contributed Papers: Spatial/Temporal Modeling
Yellowstone | 2nd Floor	20. Contributed Papers: Non-Linear, PK-PD, and Dose-Response Models
Congressional C/D | Lobby Level	21. Contributed Papers: Longitudinal Data
9:30 am – 5:00 pm Glacier | 2nd Floor	**Placement Service**
10:15 am – 10:30 am Regency Foyer | Ballroom Level	Refreshment Break and Visit Our Exhibitors
10:30 am – 12:15 am Columbia A | Ballroom Level	**Tutorial** T2: Object Oriented Data Analysis
10:30 am – 12:15 pm	**Scientific Program**
Regency A | Ballroom Level	22. Correlated High-Dimensional Data
Regency B | Ballroom Level	23. Current Developments in Bayesian Clinical Trials
Regency C | Ballroom Level	24. Causal Inference and Measurement Error
Columbia B | Ballroom Level	25. Two-Phase Estimation
Regency D | Ballroom Level	26. Semi-Competing Risks
Congressional A | Lobby Level	27. Graduate Student and Recent Graduate Council Invited Session: Careers in Biostatistics
Columbia C | Ballroom Level	28. Topic Contributed Papers: Statistical Challenges of Spatial Multi-Pollutant Data in Environmental Epidemiology
Congressional B | Lobby Level	29. Topic Contributed Papers: Sample Size Adjustments for Clinical Trials with Multiple Comparisons
Congressional C/D | Lobby Level	30. Contributed Papers: Adaptive Design/Adaptive Randomization
Concord | Ballroom Level	31. Contributed Papers: Biomarkers I
Lexington | Ballroom Level	32. Contributed Papers: Causal Inference
Yellowstone | 2nd Floor	33. Contributed Papers: Epidemiologic Methods
12:15 pm – 1:30 pm Capitol Room | Lobby Level	Roundtable Luncheons

12:30 pm – 4:30 pm Thornton Room | 11th Floor	Regional Advisory Board (RAB) Meeting *(By Invitation Only)*
1:45 pm – 3:30 pm Columbia A | Ballroom Level	**Tutorial** T3: Comparative Effectiveness Research: Opportunities and Challenges
1:45 pm – 3:30 pm Regency A | Ballroom Level	**Scientific Program** 34. Recent Advances on High-Dimensional Medical Data Analysis
Regency B | Ballroom Level	35. Bayesian Approaches with Applications to Genomics
Regency C | Ballroom Level	36. New Trends in Statistical Analysis of Biological Networks
Columbia B | Ballroom Level	~~37. Mathematical Modeling of Disease~~ | **CANCELLED** 38. High Dimensional Multi-Drug Combinations: From Preclinical Models to Clinical Trials
Congressional A | Lobby Level	39. Group Testing Methodology: Recent Developments and Applications to Infectious Disease
Columbia C | Ballroom Level	40. Topic Contributed Papers: Novel Developments in Statistical Blind Source Separation and Independent Components Analysis
Regency D | Ballroom Level	41. Topic Contributed Papers: Causal Inference and Survival Analysis
Concord | Lobby Level	42. Contributed Papers: Clinical Trials
Congressional B | Lobby Level	43. Contributed Papers: Competing Risks
Congressional C/D | Lobby Level	44. Contributed Papers: Functional Data Analysis
Lexington | Ballroom Level	45. Contributed Papers: Genome Wide Association Studies
3:30 pm – 3:45 pm Regency Foyer | Ballroom Level	Refreshment Break and Visit Our Exhibitors
3:45 pm – 5:30 pm Columbia A | Ballroom Level	**Tutorial** T4: Towards High-Performance Computing with R
3:45 pm – 5:30 pm Regency B | Ballroom Level	**Scientific Program** 46. Statistical Models for Omics Data
Regency A | Ballroom Level	47. Tweedie Award
Congressional A | Lobby Level	48. Recent Development in Optimal Treatment Strategies – Estimation, Selection and Inference
Columbia B | Ballroom Level	49. Challenging Issues in Functional Connectivity Analysis
Regency D | Ballroom Level	50. Recent Advances in Clinical Trial Design: Utilities and Pitfalls
Regency C | Ballroom Level	51. Recent Advances in Methodology for the Analysis of Failure Time Data
Columbia C | Ballroom Level	52. Topic Contributed Papers: New Methods and Theory in Functional/Longitudinal Data Analysis
Congressional B | Lobby Level	53. Topic Contributed Papers: Multivariate Methods in High Dimensional Data
Congressional C/D | Lobby Level	54. Contributed Papers: Bayes and other Approaches to Variable and Model Selection
Concord | Ballroom Level	55. Contributed Papers: Clustered / Repeated Measures Survival Analysis
Yellowstone | 2nd Floor	56. Contributed Papers: Genomics
Lexington | Ballroom Level	57. Contributed Papers: Health Services / Health Policy
5:30 pm – 6:30 pm Capitol B | Lobby Level	Student Mixer
6:00 pm – 7:30 pm Thornton Room | 11th Floor	President's Reception *(By Invitation Only)*

Tuesday, April 3

7:30 am – 5:00 pm Regency Foyer | Ballroom Level	Conference Registration
7:30 am – 5:00 pm Sequoia | 2nd Floor	Speaker Ready Room
9:00 am – 3:30 pm Glacier | 2nd Floor	**Placement Service**
8:30 am – 5:30 pm Regency Foyer | Ballroom Level	Exhibits Open
8:30 am – 10:15 am Lexington | Ballroom Level	**Tutorial** T5: Slippery Slopes: A Practical Introduction to Spatially Varying Slopes in Regression Models
8:30 am – 10:15 am	**Scientific Program**
Columbia B | Ballroom Level	58. Towards Omics-Based Predictors for Patient Management
Capitol Room | Lobby Level	59. Functional Data Analysis
Columbia A | Ballroom Level	60. The Analysis of Social Network Data in Public Health
Regency D | Ballroom Level	61. Novel Methodological Issues in Analyzing and Designing Longitudinal Biomarker Studies
Congressional A | Lobby Level	62. Advances in Cancer Risk Prediction Models
Columbia C | Ballroom Level	63. Adaptive Design in Vaccine Trials
Congressional B | Lobby Level	64. Topic Contributed Papers: Mixing: Inferences using Frequentist and Bayesian Methods and for Mixed Discrete and Continuous Data
Congressional C/D | Lobby Level	65. Contributed Papers: Bayesian Methods for Longitudinal and/or Survival Data
Yellowstone | 2nd Floor	66. Contributed Papers: Complex Study Designs and Bias Corrections
Yosemite | 2nd Floor	67. Contributed Papers: High Dimensional Data
Bryce | 2nd Floor	68. Contributed Papers: High Dimensional Data: Machine Learning, Multivariate Methods and Computational Methods
Concord | Ballroom Level	69. Contributed Papers: Variable and Model Selection Methods
10:15 am – 10:30 am Regency Foyer | Ballroom Level	Refreshment Break and Visit Our Exhibitors
10:30 am – 12:15 pm Regency Ballroom | Ballroom Level	70. Presidential Invited Address and Student Paper Awards
12:30 pm – 4:30 pm Thornton Room | 11th Floor	Regional Committee Meeting *(By Invitation Only)*
1:45 pm – 3:15 pm Lexington | Ballroom Level	**Tutorial** T6: Introduction to MATLAB for Statisticians
1:45 pm – 3:30 pm	**Scientific Program**
Columbia C | Ballroom Level	71. Recent Advances in Statistical Methods for Diagnostic Medicine
Columbia B | Ballroom Level	72. JABES Special Session on Climate Change
Capitol Room | Lobby Level	73. Grant Funding Opportunities for Biostatisticians
Columbia A | Ballroom Level	74. Causal Mediation analysis: Definitions, Identification, Inference and Controversies

Congressional A | Lobby Level	75. Advances in Brain Imaging and Signal Biomarkers for Behavior
Regency D | Ballroom Level	76. Recent Development in Imputation Methods and Their Applications
Congressional B | Lobby Level	77. Topic Contributed Papers: Joint Modeling and Its Applications
Yellowstone | 2nd Floor	78. Contributed Papers: Bayesian Methods I
Congressional C/D | Lobby Level	79. Contributed Papers: Correlated / Longitudinal Data
Bryce | 2nd Floor	80. Contributed Papers: Imaging
Concord | Ballroom Level	81. Contributed Papers: Longitudinal and Time Series Data Analysis
Yosemite | 2nd Floor	82. Contributed Papers: Survival Analysis and Risk Prediction
3:30 pm – 3:45 pm Regency Foyer | Ballroom Level	Refreshment Break and Visit Our Exhibitors
3:45 pm – 5:30 pm	**Scientific Program**
Columbia B | Ballroom Level	83. Statistical Methods and Applications in Rare Variant Sequencing Studies
Columbia A | Ballroom Level	84. Causal Inference Methods for HIV Research
Capitol Room | Lobby Level	85. Modern Statistical Machine Learning for Complex and High Dimensional Data
Congressional A | Lobby Level	86. Statistical Challenges in Reproductive and Environmental Epidemiology
Columbia C | Ballroom Level	87. Combining Population Data from Multiple Sources
Regency D | Ballroom Level	88. Spatial Uncertainty in Public Health Problems
Congressional B | Lobby Level	89. Topic Contributed Papers: New Statistical Tools for High Dimensional Problems
Yellowstone | 2nd Floor	90. Contributed Papers: Bayesian Methods II
Bryce | 2nd Floor	91. Contributed Papers: Diagnostic and Screening Tests
Congressional C/D | Lobby Level	92. Contributed Papers: Meta-Analysis
Concord | Ballroom Level	93. Contributed Papers: Missing Data I
Yosemite | 2nd Floor	94. Contributed Papers: Semiparametric and Nonparametric Methods for Survival Analysis
5:30 pm – 6:00 pm Concord | Ballroom Level	ENAR Business Meeting *(Open to all ENAR Members)*
6:00 pm – 10:00 pm	Tuesday Night Event

Wednesday, April 4

7:30 am – 12:00 noon Sequoia I 2nd Floor	Speaker Ready Room
7:30 am – 9:00 am Olympic I 2nd Floor	Planning Committee Meeting *(By Invitation Only)*
8:00 am – 12:30 pm Regency Foyer I Ballroom Level	Conference Registration
8:00 am – 12:00 pm Regency Foyer I Ballroom Level	Exhibits Open
8:30 am – 10:15 am	**Scientific Program**
Yellowstone I 2nd Floor	95. New Statistical Challenges in Functional Data Analysis
Columbia B I Ballroom Level	96. Estimation of Covariance Matrices with Applications to Longitudinal Data and Graphical Models
Capitol Room B I Lobby Level	97. Analyses of Incomplete Longitudinal Data: How Robust are the Results?
Columbia A I Ballroom Level	98. Statistics in Mental Health Research: A Prelude to a Proposed New ASA Section
Congressional A I Lobby Level	99. High-Impact Statistical Methods and the Fight Against HIV in the Developing World
Regency A I Ballroom Level	100. Memorial Session for Tom Ten Have
Congressional B I Lobby Level	101. Topic Contributed Papers: Advanced Statistical Modeling for Complex Omics Data
Concord I Ballroom Level	102. Contributed Papers: Biomarkers II
Congressional C/D I Lobby Level	103. Contributed Papers: Dynamic Treatment Regimens
Columbia C I Ballroom Level	104. Contributed Papers: Missing Data II
Lexington I Ballroom Level	105. Contributed Papers: Multiple Testing
Bryce I 2nd Floor	106. Contributed Papers: Power / Sample Size Calculations
10:15 am – 10:30 am Regency Foyer I Ballroom Level	Refreshment Break and Visit Our Exhibits
10:30 am – 12:15 pm	**Scientific Program**
Columbia B I Ballroom Level	107. Imaging, Omics and High-Dimensionality
Congressional A I Lobby Level	108. Statistical Methods for Modeling SEER Population-based Cancer Data
Columbia A I Ballroom Level	109. Powerful Statistical Models and Methods in Next Generation Sequencing
Yellowstone I 2nd Floor	110. Recent Developments in Subgroup Analysis in Randomized Clinical Trials
Columbia C I Ballroom Level	111. Individualized Risk Prediction using Joint Models of Longitudinal and Survival Data
Capitol A I Lobby Level	112. Recent Advances in Dynamic Treatment Regimes Research
Congressional B I Ballroom Level	113. Topic Contributed Papers: A Review of Established and New Methods of Multiple Imputation of Missing Data with the Emphasis on Available Software Packages
Congressional C/D I Lobby Level	114. Contributed Papers: Accelerated Failure Time Models
Lexington I Ballroom Level	115. Contributed Papers: Environmental and Ecological Applications
Concord I Ballroom Level	116. Contributed Papers: Next Generation Sequencing
Yosemite I 2nd Floor	117. Contributed Papers: Nonparametric Methods
Bryce I 2nd Floor	118. Contributed Papers: Semi-Parametric and Non-Parametric Models

Sunday, April 1

7:30 pm – 8:00 pm **New Member Reception**
Regency Ballroom
Ballroom Level

8:00 pm – 11:00 pm **Poster Presentations**
Regency Ballroom
Ballroom Level

1. Bayesian Methods

Sponsor: ENAR

1a. Bayesian Modeling of ChIP-Seq Data for Detecting Chromatin Regions Attached to the Nuclear Envelope Based on Lamin B1
Sabrina Herrmann and Holger Schwender, TU Dortmund University Dortmund, Germany; Shoudan Liang, Yue Lu and Marcos Estecio, University of Texas MD Anderson Cancer Center; Katja Ickstadt, TU Dortmund University, Dortmund, Germany and Peter Mueller, University of Texas at Austin*

1b. Bayesian Learning in Joint Models for Longitudinal and Survival Data
Laura A. Hatfield, Harvard Medical School; James S. Hodges and Bradley P. Carlin, University of Minnesota*

1c. Bayesian Semiparametric Regression Analysis of Bivariate Current Status Data
Naichen Wang and Lianming Wang, University of South Carolina*

1d. A Phase I Trial Design for Incorporating Efficacy Outcomes that are Conditional Upon Absence of Dose-Limiting Toxicities
Thomas M. Braun, Shan Kang and Jeremy M G Taylor, University of Michigan*

1e. An Empirical Bayes Hierarchical Model for Inference in Time-course RNA-seq Experiments
Ning Leng, University of Wisconsin-Madison; Victor Ruotti, Ron M. Stewart and James A. Thomson, Morgridge Institute for Research and Christina Kendziorski, University of Wisconsin-Madison*

1f. Bayesian Indirect and Mixed Treatment Comparisons across Longitudinal Time Points
Ying Ding and Haoda Fu, Eli Lilly and Company*

1g. Sample Size Estimation for Joint Modeling of Efficacy and Safety
Brandi Falley and James Stamey, Baylor University*

1h. Implementation of Continuous Bayesian Interim Monitoring for Single Arm Phase II Trials with the Oncore System
Stacey Slone, Emily Van Meter and Dennie Jones, Markey Cancer Center, University of Kentucky*

1i. Joint Modeling of Time-to-event and Tumor Size
Weichao Bao and Bo Cai, University of South Carolina*

1j. Bayesian Order Restricted Inference of Measurement Agreement with an Application to the Physician Reliability Study
Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

1k. Quantal Responses of the Weibull Risk Function
Douglas Moore, University of North Carolina at Wilmington*

1l. Bayesian Effect Estimation Accounting for Adjustment Uncertainty
Chi Wang, University of Kentucky; Giovanni Parmigiani, Dana-Farber Cancer Institute and Harvard School of Public Health and Francesca Dominici, Harvard School of Public Health*

1m. Bayesian Semiparametric Regression Models for Semicompeting Risks Data
Kyu Ha Lee, Sebastien Haneuse and Francesca Dominici, Harvard School of Public Health*

1n. Bayesian Restricted Contour Estimation Method for X-inactivation Ratio from Pyro-Sequencing Data
Alan B. Lenarcic, John Calaway, Fernando de Pardo and William Valdar, University of North Carolina at Chapel Hill*

1o. Multiple Imputation of Latent Counts from Heaped Self-Reported Measurements of Daily Cigarette Consumption
Sandra D. Griffith, University of Pennsylvania; Saul Shiffman, University of Pittsburgh and Daniel F. Heitjan, University of Pennsylvania*

1p. Bayesian Graphical Models in Epigenetic Applications
Riten Mitra, University of Texas, MD Anderson Cancer Center; Peter Mueller, University of Texas at Austin and Yuan Ji, University of Texas, MD Anderson Cancer Center*

1q. Bayesian Nonparametric Estimation of Finite Population Quantities in Absence of Design Information on Nonsampled Units
Sahar Zangeneh, Robert W. Keener and Roderick J.A. Little, University of Michigan*

■ = Student Award Winner | ★ = Presenter

2. Survival Analysis

Sponsor: ENAR

2a. Commonality Analysis for Survival Data, with an Application to Data from Breast Cancer Patients with Newly Diagnosed Brain Metastases
Binglin Yue, Moffitt Cancer Center; Xianghua Luo, Haitao Chu and Paul Sperduto, University of Minnesota*

2b. An AIPCW Estimator of the Cumulative Incidence Function Under Multiple Competing Censoring Mechanisms
Brian Sharkey, Michael Hughes and Judith Lok, Harvard University*

2c. Incorporating Sampling Plan and Competing Risks in Analysis of Prospective Pregnancy Studies
Kirsten J. Lum, Johns Hopkins Bloomberg School of Public Health; Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health and Thomas A. Louis, Johns Hopkins Bloomberg School of Public Health*

2d. Estimation of Cox Proportional Hazards Models for Two Negatively Correlated Processes
Wenjing Xu, Qing Pan and Joseph L. Gastwirth, George Washington University*

2e. Recursive Partitioning Based Weights for Censored Quantile Regression
Andrew Wey, Lan Wang and Kyle D. Rudser, University of Minnesota*

2f. Development and Evaluation of Multimarker Panels for Clinical Prognosis
Benjamin French, University of Pennsylvania; Paramita Saha Chaudhuri, Duke University; Bonnie Ky and Thomas P. Cappola, University of Pennsylvania and Patrick J. Heagerty, University of Washington*

2g. Generalized Odds-Rate Hazard Models for Interval-Censored Failure Time Data
Bin Zhang, University of Alabama-Birmingham and Lianming Wang, University of South Carolina*

2h. A Semi-Parametric Joint Model for Semi-competing Risk Data
Renke Zhou and Jing Ning, University of Texas, MD Anderson Cancer Center and Melissa Bondy, Baylor College of Medicine*

2i. Informative Age Reduction Model for Recurrent Event
Li Li and Timothy Hanson, University of South Carolina*

2j. Parameter Estimation in Cox Proportional Hazard Models with Missing Censoring Indicators
Naomi C. Brownstein, Eric Bair, Jianwen Cai and Gary Slade, University of North Carolina at Chapel Hill*

2k. Challenges from Competing Risks and Recurrent Events in Cardiovascular Device Trials: A Regulatory Reviewer's Perspective
Yu Zhao, Center for Devices and Radiological Health, U.S. Food and Drug Administration*

2l. Bayesian Semiparametric Model for Spatial Interval-Censored Failure Time Data
Chun Pan, Bo Cai, Lianming Wang and Xiaoyan Lin, University of South Carolina*

2m. Analysis of Variance for Right Censored Survival Data
Chetachi A. Emeremni, University of Pittsburgh*

2n. Sample Size and Power Calculation for Proportional Hazards Model with Time-dependent Variables
Songfeng Wang and Jiajia Zhang, University of South Carolina and Wenbin Lu, North Carolina State University*

3. Statistical Genetics/Genomics

Sponsor: ENAR

3a. Simultaneous Functional Category Analysis
Qiuling He and Michael A. Newton, University of Wisconsin-Madison*

3b. Combining Linkage Analysis and Next Generation Sequencing to Identify Rare Causal Variants in Complex Diseases
Silke Szymczak, Qing Li and Claire L. Simpson, National Human Genome Research Institute, National Institutes of Health; Robert Wojciechowski, Johns Hopkins Bloomberg School of Public Health; Xilin Zhao, National Institute of Diabetes, Digestive, and Kidney Diseases, National Institutes of Health; Mary Pat S. Jones, National Human Genome Research Institute, National Institutes of Health; Richa Agarwala and Alejandro A. Schaeffer, National Center for Biotechnology Information, National Institutes of Health; Stephen A. Wank, National Institute of Diabetes, Digestive, and Kidney Diseases, National Institutes of Health and Joan E. Bailey-Wilson, National Human Genome Research Institute, National Institutes of Health*

3c. Using Growth Mixture Modeling to Identify Loci Associated with the Progression of Disease
Tong Shen, Duke University*

3d. Data Preprocessing: Quantification and Normalization of the Luminex Assay System
Eileen Liao and David Elashoff, University of California at Los Angeles*

3e. Borrowing Information across Genes and Experiments for Improved Residual Variance Estimation in Microarray Data Analysis
Tieming Ji, Peng Liu and Dan Nettleton, Iowa State University*

3f. Joint Modeling of Disease and Endophenotype to Characterize the Effect of Genes and their Interactions
Alexandre Bureau, Jordie Croteau and Molière Nguilé Makao, Université Laval - Robert-Giffard, Université Laval, Québec, Canada*

3g. Epistasis Enriched Network and Risk Score Modeling of Continuous Multifactor Dimensionality Reduction
Hongying Dai, Children's Mercy Hospital; Richard Charnigo, Mara Becker and Steve Leeder, University of Kentucky*

3h. Joint Analysis of SNP and Gene Expression Data in Genome-Wide Association Studies
Yen-Tsung Huang, Xihong Lin and Tyler VanderWeele, Harvard University*

3i. A Robust Test for Detecting Differentially Methylated Regions
Hongyan Xu and Varghese George, Georgia Health Sciences University*

3j. Testing for Gene-Environment and Gene-Gene Interactions Under Monotonicity Constraints
Summer S. Han, Philip S. Rosenberg and Nilanjan Chatterjee, National Cancer Institute, National Institutes of Health*

3k. Bayesian Gene Set Test, the Proportion of Significant Genes in the Set as the Summary Statistic
Di Wu, Ke Deng, Ming Hu and Jun Liu, Harvard University*

3l. Adjustment for Population Stratification via Principal Components in Association Analysis of Rare Variants
Yiwei Zhang, Weihua Guan and Wei Pan, University of Minnesota*

3m. Reprioritizing Genetic Associations in Hit Regions using LASSO-based Resample Model Averaging
William Valdar, Jeremy Sabourin, Andrew Nobel, University of North Carolina at Chapel Hill and Chris Holmes, University of Oxford, United Kingdom*

3n. Multilayer Correlation Structure of Microarray Gene Expression Data
Linlin Chen, Rochester Institute of Technology; Lev Klebnov, Charles University and Anthony Almudevar, University of Rochester*

3o. Statistical Methods for Identifying Batch Effects in Copy Number Data
Sarah E. Reese, Virginia Commonwealth University; Zerry M. Therneau and Ellizabeth J. Atkinson, Mayo Clinic; Kellie J. Archer, Virginia Commonwealth University and Jeanette E. Eckel-Passow, Mayo Clinic*

3p. Distribution of Allele Frequencies and Effect Sizes and Their Interrelationships for Common Genetic Susceptibility Variants
Ju-Hyun Park and Mitchell H. Gail, National Cancer Institute, National Institutes of Health; Clarice R. Weinberg, National Institute of Environmental Health Sciences, National Institutes of Health; Raymond J. Carroll, Texas A&M University; Charles C. Chung, Zhaoming Wang, Stephen J. Chanock, Joseph F. Fraumeni and Nilanjan Chatterjee, National Cancer Institute, National Institutes of Health*

3q. Selecting a Statistical Test to Detect Associations with Groups of Genetic Variants: A User's Guide
John Ferguson and Hongyu Zhao, Yale University; William Wheeler, IMS; Yi-Ping Fu, Ludmila Prokunina-Olsson and Joshua N. Sampson, National Cancer Institute, National Institutes of Health*

3r. A New Penalized Regression Approach to Testing Quantitative Trait-Rare Variant Association
Sunkyung Kim, Wei Pan and Xiaotong Shen, University of Minnesota*

3s. Incorporating Heterogeneity into Meta-Analysis of Genomic Data: A Weighted Hypothesis Testing Approach
Yihan Li and Debashis Ghosh, Pennsylvania State University*

3t. Modeling Haplotype Effects in a Genetic Reference Population: A Bayesian Collaborative Cross Toolkit
Zhaojun Zhang, Wei Wang and William Valdar, University of North Carolina at Chapel Hill*

3u. Multi-Marker Association Analysis with Multiple Phenotypes in Families
Yiwei Zhang and Saonli Basu, University of Minnesota*

3v. Multi-Stage Sequence/Imputation Design
Thomas J. Hoffmann and John S. Witte, University of California San Francisco*

3w. An Application of the Proportional Odds Model to Genetic Association Studies
Kai Wang, University of Iowa*

3x. An Empirical Evaluation of Array Normalization for Agilent microRNA Expression Arrays
Li-Xuan Qin, Qin Zhou, Jaya Satagopan and Samuel Singer, Memorial Sloan-Kettering Cancer Center*

■ = Student Award Winner | ✱ = Presenter

3y. Association Analysis of Rare Variants with Incomplete Genetics Data
Yijuan Hu, Emory University and Danyu Lin, University of North Carolina at Chapel Hill*

3z. A Weighted Average Likelihood Ratio Test with Application to RNA-seq Data
Yaqing Si and Peng Liu, Iowa State University*

3aa. Order Statistic for Robust Genomic Meta-analysis
Chi Song and George C. Tseng, University of Pittsburgh*

3ab. Asymptotic Properties and Convergence Rate in Solving Models of Linkage Disequilibrium Mapping
Jiangtao Luo, University of Nebraska Medical Center*

4. Clinical Trials/Biopharmaceuticals/ Medical Devices

Sponsor: ENAR

4a. A Phase II Factorial Design for Combination Codevelopment in Oncology based on Probability of Correct Selection
Xinyu Tang, University of Arkansas for Medical Sciences and William Mietlowski, Novartis Oncology*

4b. Bayesian Application for a Clinical Trial with Correlated Continuous and Binary Outcomes
Ross Bray, John W Seaman Jr. and James Stamey, Baylor University*

4c. Scaled Biosimilarity Margins for Higher Variable Biologic Products
Nan Zhang and Jun Yang, Amgen, Inc.; Shein-Chung Chow, Duke University; Eric Chi, Amgen, Inc. and Laszlo Endrenyi, University of Toronto*

4d. Dose Finding Designs for Modeling Immunotherapy Outcomes: A Practical Approach in a Metastatic Melanoma Phase I Trial
Cody C. Chiuzan and Elizabeth Garrett-Mayer, Medical University of South Carolina*

4e. Elliptical Likelihood Ratio Test for Homogeneity of Ordered Means
Xiao Zhang and Michael P. McDermott, University of Rochester*

4f. Analysis of Multiple Non-Commensurate Outcomes in Psychiatry
Frank B. Yoon, Mathematica Policy Research, Inc.; Garrett M. Fitzmaurice, Harvard School of Public Health; Stuart R. Lipsitz, Harvard Medical School; Nicholas J. Horton, Smith College and Sharon-Lise T. Normand, Harvard Medical School*

4g. Evaluation for Time to Onset of Drug Action
Ziwen Wei, University of Connecticut, Luyan Dai and Naitee Ting, Boehringer Ingelheim*

4h. Meta-Analysis of One Outcome from Group Sequential Trials with Composite Outcomes: Are Standard Methods Appropriate?
Abigail B. Shoben, The Ohio State University*

4i. Statistical Analysis of Evaluating the Clinical Utility of Quantitative Real-Time Loop-Mediated Isothermal Amplification for Diagnosis of Lower Respiratory Tract Infections
Peng Zhang, Peichao Peng, Yu Kang and Minping Qian, Peking University*

4j. Monotonicity Assumptions for Exact Unconditional Tests in Binary Matched-Pairs Designs
Xiaochun Li, Mengling Liu and Judith D. Goldberg, New York University*

4k. A Phase I/II Clinical Trial for Drug Combinations
Beibei Guo and Yisheng Li, University of Texas MD Anderson Cancer Center*

4l. Overview of Statistical Issues in the Analysis of Continuous Glucose Monitoring
Chava Zibman, U.S. Food and Drug Administration*

4m. Biological Optimum Dose Finding for Novel Targeted Agents
Hao Liu, Baylor College of Medicine*

4n. Hierarchical Bayesian Methods for Combining Efficacy and Safety in Multiple Treatment Comparisons
Hwanhee Hong and Bradley P. Carlin, University of Minnesota*

5. Computationally Intensive Methods / High Dimensional Data

Sponsor: ENAR

5a. Global Hypothesis Testing for High Dimensional Repeated Measures Outcomes
Yueh-Yun Chi, University of Florida; Matthew Gribbin, Human Genome Sciences; Lamers Yvonne, University of British Columbia; Jesse F. Gregory and Keith E. Muller, University of Florida*

5b. An Example of using Sweave to Create and Maintain a Large, Dynamic Statistical Report: Prevalence and Effects of Potentially Distracting Non-care Activities during Anesthesia Care
David Afshartous, Steve Ampah, Samuel K. Nwosu, Jason Slage and Eric Porterfield, Vanderbilt University*

5c. Iteratively Reweighted Poisson Regression for Fitting Generalized Linear Model with Multiple Responses
Yiwen Zhang and Hua Zhou, North Carolina State University*

5d. Joint Estimation of Multiple Precision Matrices
T. Tony Cai and Hongzhe Li, University of Pennsylvania; Weidong Liu, Shanghai Jiao Tong University and Jichun Xie, Temple University*

5e. How to Bootstrap fMRI Data?
Sanne Roels, Tom Loeys and Beatrijs Moerkerke, Ghent University, Belgium*

5f. The Hosmer-Lemeshow Goodness of Fit Test: Does the Grouping Really Matter?
Hillary M. Rivera, Zoran Bursac and D. Keith Williams, University of Arkansas for Medical Sciences*

5g. A Bayesian Non-Parametric Potts Model with fMRI Application
Timothy D. Johnson and Zhuqing Liu, University of Michigan and Thomas E. Nichols, University of Warwick*

5h. Oracle Inequalities for the High-Dimensional Cox Regression Model via Lasso
Shengchun Kong and Bin Nan, University of Michigan*

5i. Integrated Machine Learning Approach as a Tool for Testing SNP-SNP Interactions
Hui-Yi Lin, H. Lee Moffitt Cancer Center & Research Institute*

5j. Optimal Multi-Stage Single-arm Phase II Design Based on Simulated Annealing
Nan Chen and J. Jack Lee, University of Texas MD Anderson Cancer Center*

5k. SubLIME: Subtraction-based Logistic Inference for Modeling and Estimation
Elizabeth M. Sweeney and Russell T. Shinohara, Johns Hopkins University and National Institute of Neurological Disorders and Stroke, National Institutes of Health; Colin D. Shea, National Institute of Neurological Disorders and Stroke, National Institutes of Health; Daniel S. Reich, Johns Hopkins University and National Institute of Neurological Disorders and Stroke, National Institutes of Health and Ciprian M. Crainiceanu, Johns Hopkins University*

5l. Comparing Independent Component Analysis Estimation Methods with an Application to Neuroimaging of Resting State Functional Connectivity in Attention Deficit and Hyperactivity Disorder
Benjamin B. Risk, David S. Matteson and David Ruppert, Cornell University*

5m. Variable Section Methods in Linear Models with Growing Dimension
June Luo, Clemson University*

5n. Family-based Association Studies for Next-generation Sequencing
Yun Zhu and Momiao Xiong, University of Texas, Health Science Center at Houston*

5o. Case-based Reasoning in Comparative Effectiveness Research
Marianthi Markatou and T. J. Watson Research Center, IBM and Prabhani Kuruppumullage Don, The Pennsylvania State University*

5p. Regularization with Latent Factors for Model Selection in Multivariate Multiple Regression with Application to eQTL Analysis
Yan Zhou and Peter X. K. Song, University of Michigan; Sijian Wang, University of Wisconsin and Ji Zhu, University of Michigan*

5q. Measurement Error Model in Shape Analysis
Jiejun Du, Ian Dryden and Xianzheng Huang, University of South Carolina*

6. Environmental, Epidemiological, Health Services, And Observational Studies

Sponsor: ENAR

6a. Publication Bias in Meta-Analysis
Min Chen, ExxonMobil Biomedical Sciences, Inc.*

6b. Regression Models for Group Testing Data with Pool Dilution Effects
Christopher S. McMahan and Joshua M. Tebbs, University of South Carolina and Christopher R. Bilder, University of Nebraska*

6c. Principal Stratification Based on Latent Survival Classes to Predict Treatment Outcomes for Localized Kidney Cancer
Brian L. Egleston, Yu-Ning Wong and Robert G. Uzzo, Fox Chase Cancer Center*

6d. Loss Functions for Identifying Regions with Minimum or Maximum Rates
Ronald E. Gangnon, University of Wisconsin-Madison*

6e. Time-to-event Analysis of Ambient Air Pollution and Preterm Birth
Howard H. Chang, Emory University; Brian J. Reich, North Carolina State University and Marie Lynn Miranda, University of Michigan*

■ = Student Award Winner | * = Presenter

6f. Dorfman Group Screening with Multiple Infections
Yanlei Peng, Joshua M. Tebbs, University of South Carolina and Christopher R. Bilder, University of Nebraska-Lincoln*

6g. Applying General Risk Scores in Special Populations
Cynthia S. Crowson, Elizabeth J. Atkinson and Terry M. Therneau, Mayo Clinic*

6h. Using Predictive Surfaces to Understand Disparities in Exposure to PM2.5 and Ozone in North Carolina
Simone Gray, U.S. Environmental Protection Agency; Sharon Edwards and Marie Lynn Miranda, University of Michigan*

6i. Probabilistic Risk Assessment of Air Quality Management Strategies for Ozone
Kristen M. Foley, U.S. Environmental Protection Agency; Brian J. Reich, North Carolina State University and Sergey L. Napelenok, U.S. Environmental Protection Agency*

6j. A Simulation Study of Estimators of Time-Varying Treatment Effects on Cancer Recurrence with Time Dependent Confounding
Jincheng Shen, University of Michigan; Edward H. Kennedy, VA Center for Clinical Management Research; Douglas E. Schaubel, Lu Wang and Jeremy M.G. Taylor, University of Michigan*

6k. Propensity Score Using Machine Learning
Yi-Fan Chen and Lisa Weissfeld, University of Pittsburgh*

6l. Assessing the Effect of Organ Transplant on the Distribution of Residual Lifetime
David M. Vock, Anastasios A. Tsiatis and Marie Davidian, North Carolina State University*

6m. Methods for Classifying Changes in Bacterial Prevalence over Time
Raymond G. Hoffmann, Ke Yan and Pippa Simpson, Medical College of Wisconsin; Jessica Vandevalle and Sandra McLellan, University of Wisconsin – Milwaukee*

6n. Salivary Cortisol as a Predictor of Health Outcomes
Brisa N. Sanchez, Ana V. Diez-Roux and TE Raghunathan, University of Michigan*

6o. Retracing Micro-Epidemics of Chagas Disease Using Epicenter Regression
Michael Levy, Dylan Small and Joshua Plotkin, University of Pennsylvania*

6p. Comparing Cancer Rates by Age-stratified Zero-inflated Poisson Model
Xiaoqin Xiong, Information Management Services, Inc. and Binbing Yu, National Institute on Aging, National Institutes of Health*

6q. Use of the Continuous-time Markov Chain to Examine the Natural History of Alzheimer's Disease
Wenyaw Chan and Julia Benoit, University of Texas, Health Science Center at Houston and Rachelle S. Doody, Baylor College of Medicine*

6r. Process-based Bayesian Melding of Two-Zone Models and Industrial Workplace Data
Joao V.D. Monteiro, Sudipto Banerjee and Gurumurthy Ramachandran, University of Minnesota*

7. Correlated and Longitudinal Data

Sponsor: ENAR

7a. Multilevel Joint Analysis of Longitudinal and Binary Outcome
Seo Yeon Hong and Lisa A. Weissfeld, University of Pittsburgh*

7b. Space-time Heterogeneities in One-dimensional Point Process Data: Modeling Sea Turtle Nesting Patterns via Log-Gaussian Cox Processes
Ming Wang, Jian Kang and Lance A. Waller, Emory University*

7c. Joint Modeling of Longitudinal Multivariate Measurements and Survival data with Applications to Parkinson's Disease
Bo He and Sheng Luo, University of Texas at Houston*

7d. Identification of Clinically Relevant Disease Subtypes using Supervised Sparse Clustering
Sheila Gaynor and Eric Bair, University of North Carolina-Chapel Hill*

7e. Multistate Markov Chain Transition Model for Clustered Longitudinal Data: Application to an Osteoarthritis Study
Ke Wang, Bin Zhang and Yuqing Zhang, Boston University; Haiqun Lin, Yale University and Howard Cabral, Boston University*

7f. A Bivariate Location-Scale Mixed-Effects Model with Application to Ecological Momentary Assessment (EMA) Data
Oksana Pugach and Donald Hedeker, University of Illinois at Chicago*

7g. The Influences of Utilized and Theoretical Covariance Weighting Matrices on the Estimation Performance of QIF
Philip M. Westgate, University of Kentucky*

7h. Group-based Trajectory Modeling of Cardiac Autonomic Modulation
Michele Shaffer, Fan He and Duanping Liao, Penn State College of Medicine*

7i. Statistical Inference on Temporal Gradients in Regionally Aggregated Data
Harrison S. Quick, Sudipto Banerjee and Bradley P. Carlin, University of Minnesota*

7j. Modeling and Estimation of Repeated Ordinal Data Using Gaussian Copula
Raghavendra R. Kurada, Old Dominion University; Roy T. Sabo, Virginia Commonwealth University and N. Rao Chaganty, Old Dominion University*

7k. Simulation Study of the Convergence Properties of Log Gaussian Cox Process Posteriors
Timothy D. Johnson and Ming Teng, University of Michigan and Jian Kang, Emory University*

7l. Sensitivity of a Longitudinal Analysis to Missing Data Hypotheses: A Study of the Mechanisms by which Weight Loss Reduces Arterial Stiffness
Jennifer N. Cooper, Jeanine M. Buchanich, Ada Youk, Maria M. Brooks and Kim Sutton-Tyrrell, University of Pittsburgh*

7m. Multivariate Spatial Analysis via Mixtures
Brian Neelon and Rebecca Anthopolos, Duke University*

7n. Elliptic Spatial Scan Statistic on Trends
Jun Luo, Information Management Services, Inc.*

7o. Joint Modeling of Longitudinal Health Predictors and Cross-sectional Health Outcomes via Mean and Variance Trajectories
Bei Jiang and Mike Elliot, University of Michigan; Mary Sammel, University of Pennsylvania and Naisyin Wang, University of Michigan*

7p. Conditional Maximum Likelihood Estimation in Tumor Growth Models under Volume Endpoint Censoring
Kingshuk Roy Choudhury, Duke University and Finbarr O'Sullivan, University College Cork, Ireland*

7q. An Analytical Framework for HPV Transmission using Longitudinal Data on Couples
Xiangrong Kong, Johns Hopkins Bloomberg School of Public Health*

7s. Dimension Reduction Techniques in Application to Longitudinal Data Analysis
Tamika Royal-Thomas, Winston-Salem State University; Daniel McGee, Debajyoti Sinha, Florida State University; Clive Osmond, University of Southampton and Terrence Forrester, University of the West Indies*

7t. A Bayesian Semi-Parametric Joint Modeling for Longitudinal and Survival Data
Julius S. Ngwa and L. Adrienne Cupples, Boston University*

8. Multivariate, Non-Parametric, and Semi-Parametric Models

Sponsor: ENAR

8a. Estimation of Kendall's Tau For Bivariate Survival Data with Truncation
Hong Zhu, The Ohio State University*

8b. Probabilistic Index Mixed Models for Clustered Data
Fanghong Zhang, Ghent University, Belgium; Stijn Vansteelandt, Ghent University, Belgium and London School of Hygiene and Tropical Medicine, U.K.; Jan De Neve and Olivier Thas, Ghent University, Belgium*

8c. A Multi-dimensional Approach to Large-scale Simultaneous Hypothesis Testing using Voronoi Tessellations
Daisy L. Phillips and Debashis Ghosh, The Pennsylvania State University*

8d. Model Selection and Estimation in Generalized Additive Mixed Models
Dong Wang and Daowen Zhang, North Carolina State University*

8e. Clinical Variables Associated with Melanoma Brain Metastasis: A Meta Analysis
Meng Qian, Michelle Ma, Ronald O. Perelman, Iman Osman and Yongzhao Shao, New York University School of Medicine*

8f. Rank Based Estimation for Generalized Linear Models
Guy-Vanie M. Miakonkana and Asheber Abebe, Auburn University*

8g. Exploring Multivariate Associations: A Graph Theoretic Approach Revisited
Srikesh G. Arunajadai, Columbia University*

8h. Comparison of Rank Based Tests in Combined Designs
Yvonne M. Zubovic, Indiana University Purdue University Fort Wayne*

8i. Factor Analysis for Binary Data used to Measure Patient´s Expectations and Experiences with Health Services|
Rebeca Aguirre-Hernandez, Alicia Hamui-Sutton, Ruth García-Fuentes and Anselmo Calderon-Estrada, Ciudad Universitaria, Mexico*

8j. Autoassociative Neural Network Approach for Nonlinear Principal Component Analysis
Siddik Keskin, Yuzuncu Yil University and University of Toronto and W.Y. Wendy Lou, University of Toronto*

9. Modeling, Prediction, Diagnostic Testing, Variable Selection, And Consulting

Sponsor: ENAR

9a. Joint Modeling of Censored Multivariate Longitudinal and Event Time Data
Francis Pike and Lisa Weissfeld, University of Pittsburgh*

9b. Cross-sectional HIV-1 Incidence Estimation Utilizing Viral Genetic Diversity
Natalie M. Exner, Vladimir A. Novitsky and Marcello Pagano, Harvard School of Public Health*

9c. Jackknife Empirical Likelihood for ROC Curves with Missing Data
Hanfang Yang, Georgia State University*

9d. Profile Likelihood Based Confidence Interval of the Intraclass Correlation for Binary Outcomes, with Applications to Toxicological Data
Krishna K. Saha, Central Connecticut State University*

9e. Introductory Statistics for Medical Students—in 6 Lectures
Jacob A. Wegelin, Virginia Commonwealth University*

9f. Comparison of Tests in a Region around the Optimal Threshold
Donna K. McClish, Virginia Commonwealth University*

9g. Interquantile Shrinkage in Regression Models
Liewen Jiang, Howard Bondell and Judy Wang, North Carolina State University*

9h. A Joint Model for Quality of Life and Survival in Palliative Care Studies
Zhigang Li, Tor Tosteson and Marie Bakitas, Dartmouth Medical School*

9i. The Hosmer-Lemeshow Goodness of Fit Test for Multiply Imputed Data
Danielle Sullivan and Rebecca R. Andridge, The Ohio State University*

9j. Reverse Kaplan-Meier Method for Analyzing Biomarkers with Limit of Detection
Tulay Koru-Sengul, University of Miami*

9k. Empirical Likelihood Based Tests for Stochastic Ordering in Right-censored Setting
Hsin-wen Chang and Ian W. McKeague, Columbia University*

9l. Efficient Estimation using Conditional Empirical Likelihood with Missing Outcomes
Peisong Han, Lu Wang and Peter X.K. Song, University of Michigan*

9m. A Perturbation Method for Prediction Accuracy with Regularized Regression
Jessica Minnier and Tianxi Cai, Harvard School of Public Health*

Monday, April 2

8:30 – 10:15 am

10. Statistical Genomics in Sequencing Era, from Data Analysis to Personal Medicine

Regency B | Ballroom Level

Sponsor: ENAR
Organizer: Wei Sun, University of North Carolina at Chapel Hill
Chair: Wei Sun, University of North Carolina at Chapel Hill

8:30 **Quantitative Trait Analysis Under Trait-Dependent Sampling, with Applications to the NHLBI Exome Sequencing Project**
Danyu Lin and Donglin Zeng, University of North Carolina at Chapel Hill*

8:55 **A Survival-Supervised Latent Dirichlet Allocation Model for Genomic Based Studies of Disease**
John A. Dawson and Christina Kendziorski, University of Wisconsin–Madison*

9:20 **Detection of RNA and DNA Sequence Differences in the Human Transcriptome**
Mingyao Li, University of Pennsylvania*

9:45 **Estimation of Sequencing Error Rates in Short Reads**
Xin Victoria Wang, Dana-Farber Cancer Institute, Harvard School of Public Health; Natalie Blades, Brigham Young University; Jie Ding, Dana-Farber Cancer Institute, Harvard School of Public Health; Razvan Sultana, Dana-Farber Cancer Institute, Boston University and Giovanni Parmigiani, Dana-Farber Cancer Institute, Harvard School of Public Health*

10:10 **Floor Discussion**

11. Variable Selection for Complex Models

Regency A | Ballroom Level

Sponsor: IMS
Organizer: Marie Davidian, North Carolina State University
Chair: Marie Davidian, North Carolina State University

8:30 **A ROAD to Classification in High Dimensional Space**
Jianqing Fan, Princeton University; Yang Feng, Columbia University and Xin Tong, Princeton University*

8:55 **Bayesian Nonparametric Variable Selection**
David Dunson, Duke University*

9:20 **Risk Prediction from Genome-Wide Data**
Ning Sun and Hongyu Zhao, Yale School of Public Health*

9:45 **Complete Least Squares for Screening and Variable Selection**
Leonard A. Stefanski, Eric Reyes and Dennis Boos, North Carolina State University*

10:10 **Floor Discussion**

12. Optimal and Personalized Treatment of HIV

Columbia B | Ballroom Level

Sponsor: IMS
Organizer: Michael Hudgens, University of North Carolina at Chapel Hill
Chair: Michael Hudgens, University of North Carolina at Chapel Hill

8:30 **Methods for Evaluating the Effects of Delayed ARV Regimen Change**
Brent A. Johnson, Emory University*

9:00 **Personalized Medicine for HIV Patients Initiating Therapy**
Brian Claggett, Yun Chen, Michael Hughes, Heather Ribaudo, Camlin Tierney, and Katie Mollan, Harvard School of Public Health*

9:30 **Estimation of Constant and Time-Varying Dynamic Parameters of HIV Infection in a Nonlinear Differential Equation Model**
Hulin Wu, Hongyu Miao and Hua Liang, University of Rochester*

10:00 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

13. Statistical Methods for Hospital Comparisons

Regency C | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Tom Louis, Johns Hopkins University
Chair: Debashis Ghosh, Penn State University

8:30 **Hospital Comparisons, Issues and Approaches**
Arlene Ash, University of Massachusetts Medical School; Stephen E. Fienberg, Carnegie Mellon University; Thomas A. Louis, Johns Hopkins Bloomberg School of Public Health; Sharon-Lise T. Normand, Harvard Medical School and Harvard School of Public Health; Therese Stukel, University of Toronto and Jessica Utts, University of California, Irvine*

9:00 **Advantages of Unified Model-Based Approaches to Provider Profiling**
Frank E. Harrell Jr, PhD., Department of Biostatistics, Vanderbilt University School of Medicine

9:20 **Challenges Implementing a Hierarchical Model for Use in Public Reporting: The Case of "Hospital Compare."**
Jeffrey H. Silber, MD, PhD., Departments of Pediatrics and Anesthesiology & Critical Care, School of Medicine; Department of Health Care Management, The Wharton School, University of Pennsylvania; Center for Outcomes Research, The Children's Hospital of Philadelphia

9:40 **Discussion: Statisticians & Health Policy**
Sharon-Lise T. Normand, Harvard University*

10:00 **Floor Discussion**

14. Statistical Evaluation of Diagnostic Performance Using ROC Analysis

Congressional A | Lobby Level

Sponsor: ASA Health Policy Statistics Section
Organizer: Kelly Zou, Pfizer Inc.
Chair: A. James O'Malley, Harvard Medical School

8:30 **Combining Biomarkers to Improve Diagnostic Accuracy**
Chunling Liu, Hong Kong Polytechnic University; Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health and Susan Halabi, Duke University*

9:00 **Performance Evaluation in Tasks of Detection and Localzation of Multiple Targets per Subject**
Andriy I. Bandos, University of Pittsburgh*

9:30 **The Use of the Invariance Property in ROC Analysis**
Kelly H. Zou, Pfizer Inc.*

10:00 **Discussant:** *Howard Rockette, University of Pittsburgh*

15. Statistical Applications in Food Safety

Regency D | Ballroom Level

Sponsor: ENAR
Organizer: Errol Strain, U.S. FDA Center for Food Safety and Applied Nutrition
Chair: Yoko Adachi, FDR Center for Veterinary Medicine

8:30 **Disproportionality Analyses for Detection Food Adverse Events**
Stuart J. Chirtel, U.S. Food and Drug Administration*

8:50 **Statistical Methods for Analysis of DNA Aptamers**
Yan Luo, Jeffrey A. DeGrasse, Sara Handy, Andrea Ottesen and Errol Strain, U.S. Food and Drug Administration*

9:10 **Forensic Analysis of Bacterial Genomes for Foodborne Outbreaks**
Errol A. Strain, Allard Marc, Eric Brown and Luo Yan, U.S. Food and Drug Adminstration*

9:30 **Confidence Intervals for Counting Microbes on Plates**
Robert Blodgett, FDA/CFSAN*

10:00 **Floor Discussion**

16. TOPIC CONTRIBUTED PAPERS: Synthetic Health Data for Confidentiality Control

Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Mandi Yu, National Cancer Institute, National Institutes of Health
Chair: Yulei He, Harvard Medical School

8:30 **Imputation of Confidential Datasets with Spatial Locations using Point Process Models**
Thais V. Paiva and Jerome P. Reiter, Duke University*

8:50 **Multiple Imputation using Chained Equations for High Dimensional Longitudinal Missing Data in the DCCT/EDIC Study**
Michael D. Larsen, Paula McGee and John M. Lachin, The George Washington University*

9:10 **Assessing the Privacy of Randomized Multivariate Queries to a Database Using the Area under the Receiver-Operator Characteristic Curve**
Gregory J. Matthews, University of Massachusetts and Ofer Harel, University of Connecticut*

9:30 **Disclosure Control in the CanCORS**
Bronwyn Loong and David Harrington, Harvard University; Alan Zaslavsky and Yulei He, Harvard Medical School*

9:50 **Partial Synthetic Data for Population-based Cancer Registry Data**
Mandi Yu, Li Zhu, Benmei Liu, Eric (Rocky) Feuer and Kathleen Cronin, National Cancer Institute, National Institutes of Health*

10:10 **Floor Discussion**

17. TOPIC CONTRIBUTED PAPERS: Statistical Issues Arising from Alternatives to Double-Masked Randomized Controlled Trials

Congressional B | Lobby Level

Sponsor: ENAR
Organizers: Scott Miller, Shiling Ruan, and Qin Li, U.S. Food and Drug Administration
Chair: Scott Miller, U.S. Food and Drug Administration

8:30 **A Regulatory View of the Statistical Challenges for Alternatives to Double-Masked Randomized Controlled Trials**
Gregory Campbell, U.S. Food and Drug Administration*

8:45 **Study Design and Analysis issues with EFM-CAD**
Bipasa Biswas, U.S. Food and Drug Administration*

9:00 **Assessing the "Success" of the Blind in Sham-Controlled Randomized Clinical Trials**
Valerie Durkalski and Qi Wu, Medical University of South Carolina*

9:15 **Practices of Using Propensity Score Methods in Drug-Eluting Stent Studies**
Hong Wang and H. Terry Liao, Boston Scientific Corporation*

9:30 **Study Designs for Postmarket Surveillance**
Theodore Lystig and Jeremy Strief, Medtronic, Inc.*

9:45 **Challenges in Non-Randomized Controlled Medical Device Trials**
Shelby Li* and Shufeng Liu, Medtronic, Inc.

10:00 **Floor Discussion**

■ = Student Award Winner | ✱ = Presenter

18. CONTRIBUTED PAPERS: Statistical Genetics

Lexington | Ballroom Level

Sponsor: ENAR
Chair: Kun Chen, Kansas State University

8:30 **Nonlinear Sufficient Dimension Reduction for Association Testing of Complex Traits**
Hongjie Zhu, Duke University; Lexin Li and Hua Zhou, North Carolina State University*

8:45 **A Graph-constrained Estimation and Regularization for Survival Analysis of Microarray Gene Expression Data**
Hongzhe Li, University of Pennsylvania*

9:00 **Local Ancestry Inference in Admixed Nuclear Families using a Two-layer Clustering Model**
Wei Chen, University of Pittsburgh and Yongtao Guan, Baylor College of Medicine*

9:15 **A Flexible Varying Coefficient Model for the Detection of Nonlinear Gene-Environment Interaction**
Yuehua Cui and Cen Wu, Michigan State University*

9:30 **Permutation-based Expression Pathway Analysis, Without Permutation**
■ *Yi-Hui Zhou* and Fred A. Wright, University of North Carolina at Chapel Hill*

9:45 **Response-selective Sampling Designs for Rare Variant Analysis in Genetic Association Studies**
Yildiz E. Yilmaz, University of Toronto*

10:00 **Floor Discussion**

19. CONTRIBUTED PAPERS: Spatial/Temporal Modeling

Concord | Ballroom Level

Sponsor: ENAR
Chair: Victoria Liublinska, Harvard University

8:30 **A Geoadditive Imputation Approach to Measurement Error Correction with Spatially Misaligned Non-normal Data**
Lauren Hund and Till Baernighausen, Harvard School of Public Health; Frank Tanser, Africa Centre for Health and Population Studies and Brent Coull, Harvard School of Public Health*

8:50 **Modeling Air Pollution Mixtures in Southern California**
Reza Hosseini, Meredith Franklin, Duncan Thomas and Kiros Berhane, University of Southern California*

9:10 **Flexible Bayesian Predictive Process Spatial Factor Models for Misaligned Data Sets**
Qian Ren and Sudipto Banerjee, University of Minnesota*

9:30 **High-Dimensional State Space Models for Dynamic Gene Regulatory networks**
Iris Chen and Hulin Wu, University of Rochester*

9:50 **A Stochastic and State Space Mixture Model of Human Liver Cancer Multiple-Pathway Model Involving both Hereditary and Non-hereditary Cancer**
Xiaowei (Sherry) Yan, Geisinger Center for Health Research and Wai-Yuan Tan, University of Memphis*

10:00 **Floor Discussion**

20. CONTRIBUTED PAPERS: Non-Linear, PK-PD, and Dose-Response Models

Yellowstone | 2nd Floor

Sponsor: ENAR
Chair: Howard Chang, Emory University

8:30 **Non-Linear Models for Multiple Flow Exhaled Nitric Oxide Data**
Sandrah P. Eckel, Kiros Berhane, William S. Linn, Muhammad T. Salam, Yue Zhang, Edward B. Rappaport and Frank D. Gilliland, University of Southern California*

8:45 **An Empirical Approach to Sufficient Similarity: Combining Exposure Data and Mixtures Toxicology Data**
Chris Gennings, Virginia Commonwealth University; Scott Marshall, BioStat Solutions, Inc. and LeAnna G. Stork, Monsanto Company*

9:00 **Comparison of Different Biosimilarity Criteria under Various Study Designs**
Eric Chi, Amgen Inc.; Shein-Chung Chow, Duke University and Hao Zhang, Amgen Inc.*

9:15 **Semiparametric Modeling of Dose-Response Relationships in Ex-Vivo Experiments**
Samiha Sarwat and Jaroslaw Harezlak, Indiana University School of Medicine and Clarissa Valim, Harvard School of Public Health*

9:30 **Nonlinear Models for Meta-Analysis of Summary Exposure-Response Data**
Paul W. Stewart, University of North Carolina at Chapel Hill and Vernon Benignus, U. S. Environmental Protection Agency*

9:45 **Statistical Inference for Dynamic Systems Governed by Differential Equations with Applications to Toxicology**
■ *Siddhartha Mandal* and Pranab K. Sen, University of North Carolina at Chapel Hill and Shyamal D. Peddada, National Institute of Environmental Health Sciences, National Institutes of Health*

10:00 **A B-spline Based Semiparametric Nonlinear Mixed Effects Model**
Angelo Elmi, George Washington University; Sarah Ratcliffe, Samuel Parry and Wensheng Guo, University of Pennsylvania School of Medicine*

21. CONTRIBUTED PAPERS: Longitudinal Data

Congressional C/D | Lobby Level
Sponsor: ENAR
Chair: Benjamin French, University of Pennsylvania

8:30 **A Bayesian Semiparametric Approach for Incorporating Longitudinal Information on Exposure History for Inference in Case-control Studies**
Dhiman Bhadra, Worcester Polytechnic Institute; Michael J. Daniels, University of Florida; Sung Duk Kim, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health; Malay Ghosh, University of Florida and Bhramar Mukherjee, University of Michigan*

8:45 **Shared Parameter Models for Longitudinal Multiple Source Cost Data**
Mulugeta Gebregziabher, Medical University of South Carolina and Ralph H. Johnson VA Medical Center, Charleston; Yumin Zhao and Clara E. Dismuke, Ralph H. Johnson VA Medical Center, Charleston; Kelly J. Hunt, Ralph H. Johnson VA Medical Center, Charleston and Medical University of South Carolina and Leonard E. Egede, Ralph H. Johnson VA Medical Center, Charleston*

9:00 **A Mixture of Markov Models for Heterogeneous Longitudinal Ordinal Data with Applications to Analyzing Longitudinal Bacterial Vaginosis Data**
Kyeongmi Cheon, Paul S. Albert and Marie Thoma, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

9:15 **Semiparametric Regression with Nested Repeated Measures Data**
Rhonda D. VanDyke, Resmi Gupta and Raouf S. Amin, Cincinnati Children's Hospital Medical Center*

9:30 **Analysis of Longitudinal Data using ARMA(1,1) Correlation Model**
Sirisha L. Mushti and N. Rao Chaganty, Old Dominion University*

9:45 **Generalized p-value Method for Testing Zero Variance in Linear Mixed-effects Models**
Haiyan Su, Montclair State University; Xinmin Li, Shan Dong University of Technology; Hua Liang and Wulin Wu, University of Rochester*

10:00 **Variable Selection and Estimation for Multivariate Panel Count Data via the Seamless-L0 Penalty**
Haixiang Zhang, University of Missouri and University of Jilin, China and Jianguo Sun, University of Missouri*

■ = Student Award Winner | * = Presenter

Monday, April 2 (continued)

10:15 am – 10:20 am **Refreshment Break & Visit Our Exhibitors**
Regency Foyer
Ballroom Level

10:30 am – 12:15 pm

22. Correlated High-Dimensional Data
Regency A | Ballroom Level

Sponsor: ASA Section on Statistical Learning and Data Mining
Organizer: Annie Qu, University of Illinois
Chair: Annie Qu, University of Illinois

10:30 **Positive Definite Sparse Estimators of High-dimensional Covariance Matrices**
Adam J. Rothman, University of Minnesota*

10:55 **Statistical Models for Analysis of Human Microbiome Data**
Hongzhe Li, University of Pennsylvania*

11:20 **Joint Statistical Modeling of Multiple High-dimensional Data**
Yufeng Liu, University of North Carolina at Chapel Hill*

11:45 **On Maximum Likelihood Estimation of Multiple Precision Matrices**
Xiaotong Shen, Yunzhang Zhu and Wei Pan, University of Minnesota*

12:10 **Floor Discussion**

23. Current Developments In Bayesian Clinical Trials
Regency B | Ballroom Level

Sponsor: ENAR
Organizer: Karen Price, Eli Lilly & Company
Chair: Karen Price, Eli Lilly & Company

10:30 **Bayesian Applications in Drug Safety Evaluation**
Amy Xia, Amgen, Inc.*

11:00 **Commensurate Priors for Incorporating Historical Information in Clinical Trials using General and Generalized Linear Models**
Brian P. Hobbs, University of Texas MD Anderson Cancer Center; Daniel J. Sargent, Mayo Clinic and Bradley P. Carlin, University of Minnesota*

11:30 **Identifying Potential Adverse Events Dose-Response Relationships via Bayesian Indirect and Mixed Treatment Comparison Models**
Haoda Fu, Karen L. Price, Mary E. Nilsson and Stephen J. Ruberg, Eli Lilly & Company*

12:00 **Discussant:** *George Rochester, U.S. Food and Drug Administration*

24. Causal Inference and Measurement Error
Regency C | 2nd Floor

Sponsor: IMS
Organizer: Tyler Vanderweele, Harvard University
Chair: Tyler Vanderweele, Harvard University

10:30 **Analytic Results on the Bias due to Nondifferential Misclassification of a Confounder**
Elizabeth L. Ogburn and Tyler J. VanderWeele, Harvard University*

10:55 **Measurement Bias in Causal Inference: A Graph-based Perspective**
Judea Pearl, University of California at Los Angeles*

11:20 **Mediation Analysis when Mediator is Mis-measured or Mis-classified and Outcome is Continuous**
Linda Valeri and Tyler J. VanderWeele, Harvard University*

11:45 **Average Causal Effect Estimation Allowing Covariate Measurement Error**
Yi Huang and Xiaoyu Dong, University of Maryland, Baltimore County; Karen Bandeen-Roche, Johns Hopkins University and Cunlin Wang, U.S. Food and Drug Administration*

12:10 **Floor Discussion**

25. Two-Phase Estimation

Columbia B | Ballroom Level

Sponsor: ASA Survey Research and Methodology Section
Organizer: Phillip Kott, RTI International
Chair: Dan Liao, RTI International

10:30 **Investigating Alternative ways of Estimating the Proportion of a Population with Serious Mental Illness from a Two-Phase Sample**
Phillip S. Kott, Dan Liao and Jeremy Aldworth, RTI International*

11:00 **Efficient Design and Inference for Gene X Environment Interaction, using Sequencing Data**
Kenneth Rice, University of Washington and Thomas Lumley, University of Auckland*

11:30 **A Model Assisted Approach to Combining Data from two Independent Surveys**
Jae-kwang Kim, Iowa State University and J.N.K. Rao, Carleton University, Canada*

12:00 **Discussant:** *Fritz Scheuren, NORC*

26. Semi-Competing Risks

Regency D | Ballroom Level

Sponsor: ENAR
Organizer: Qingxia Chen, Vanderbilt University
Chair: Qingxia Chen, Vanderbilt University

10:30 **Bayesian Gamma Frailty Models for Survival Data with Semi-Competing Risks and Treatment Switching**
Yuanye Zhang and Ming-Hui Chen, University of Connecticut; Joseph G. Ibrahim and Donglin Zeng, University of North Carolina at Chapel Hill; Qingxia Chen, Vanderbilt University; Zhiying Pan and Xiaodong Xue, Amgen Inc.*

10:55 **Quantile Regression Methods for Semi-Competing Risks Data**
Limin Peng, Emory University*

11:20 **Nonparametric Cause-specific Association Analyses of Multivariate Untied or Tied Competing Risks Data**
Hao Wang and Yu Cheng, University of Pittsburgh*

11:45 **Estimation of Time-dependent Association for Bivariate Failure Times in the Presence of a Competing Risk**
Jing Ning, University of Texas MD Anderson Cancer Center and Karen Bandeen-Roche, Johns Hopkins University*

12:10 **Floor Discussion**

27. Graduate Student and Recent Graduate Council Invited Session: Careers in Biostatistics

Congressional A | Lobby Level

Sponsor: ENAR
Organizer: Hormuzd Katki, National Cancer Institute, National Institutes of Health
Chair: Reneé Moore, University of Pennsylvania

10:30 **The Graduate Student and Recent Graduate Council**
Hormuzd Katki, National Cancer Institute, National Institutes of Health*

10:55 **Are You a Hedgehog or a Fox? Brief Comments on a Career in Statistical Consulting**
Jennifer Schumi, Statistics Collaborative*

11:20 **Careers of Statisticians and Biostatisticians in the Government**
Telba Irony, U. S. Food and Drug Administration/CDRH*

11:45 **Living and Working in Academia Post Graduation**
Kimberly L. Drews, The George Washington University Biostatistics Center*

12:10 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

28. TOPIC CONTRIBUTED PAPERS: Statistical Challenges of Spatial Multi-Pollutant Data in Environmental Epidemiology

Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Stacey E. Alexeeff, Harvard School of Public Health
Chair: Brent A. Coull, Harvard School of Public Health

10:30 **Methods for Spatially-varying Measurement Error in Air Pollution Epidemiology**
Stacey E. Alexeeff, Harvard School of Public Health; Raymond J. Carroll, Texas A&M University and Brent A. Coull, Harvard School of Public Health*

10:50 **Reduced Bayesian Hierarchical Models: Estimating Health Effects of Simultaneous Exposure to Multiple Pollutants**
Jennifer F. Bobb, Johns Hopkins Bloomberg School of Public Health; Francesca Dominici, Harvard School of Public Health and Roger D. Peng, Johns Hopkins Bloomberg School of Public Health*

11:10 **Spatial Variable Selection Methods for Estimating Health Effects of Speciated Particulate Matter**
Laura F. Boehm, North Carolina State University; Francesca Dominici, Harvard School of Public Health; Brian J. Reich and Montserrat Fuentes, North Carolina State University*

11:30 **Bayesian Spatially-varying Coefficient Models for Estimating the Toxicity of the Chemical Components of Fine Particulate Matter**
Yeonseung Chung, Korea Advanced Institute of Science and Technology; Francesca Dominici, Michelle Bell and Brent Coull, Harvard School of Public Health*

11:50 **A Bivariate Space-time Downscaler under Space and Time Misalignment**
Veronica J. Berrocal, University of Michigan, Alan E. Gelfand, Duke University and David M. Holland, U.S. Environmental Protection Agency*

12:00 **Floor Discussion**

29. TOPIC CONTRIBUTED PAPERS: Sample Size Adjustments for Clinical Trials with Multiple Comparisons

Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Yi Tsong, U.S. Food and Drug Administration
Chair: Jinglin Zhong, U.S. Food and Drug Administration

10:30 **Sample Sizes for Trials involving Multiple Correlated Must-win Comparisons**
Steven A. Julious, University of Sheffield and Nikki E. McIntyre, AstraZeneca*

10:50 **Sample Sizes Accounting for Multiplicity: Importance in Phase 2**
Brian L. Wiens, Srichand Jasti and John W. Seaman, Alcon Laboratories, Inc.*

11:10 **Power and Sample Size Determination in Clinical Trials with Two-Correlated Relative Risks**
Toshimitsu Hamasaki, Osaka University Graduate School of Medicine; Scott Evans, Harvard University School of Public Health; Tomoyuki Sugimoto, Hirosaki University and Takashi Sozu, Kyoto University School of Public Health*

11:30 **Test and Power Considerations for Multiple Endpoint Analyses using Sequentially Rejective Graphical Procedures**
Frank Bretz, Willi Maurer and Ekkehard Glimm, Novartis*

11:50 **Sample Size of Thorough QTc Clinical Trial Adjusted for Multiple Comparisons**
Yi Tsong, U.S. Food and Drug Administration and Xiaoyu Dong, University of Maryland at Baltimore County*

12:10 **Floor Discussion**

30. CONTRIBUTED PAPERS: Adaptive Design/Adaptive Randomization

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Benjamin Saville, Vanderbuilt University

10:30 **Platform-based Clinical Trial Designs for Efficient Drug Development Strategies**
Brian P. Hobbs and. J. Jack Lee, University of Texas MD Anderson Cancer Center*

10:45 **A Bayesian Decision-Theoretic Sequential-Response Adaptive Randomization Design**
Fei Jiang, Rice University; J. Jack Lee, University of Texas MD Anderson Cancer Center and Peter Mueller, University of Texas at Austin*

11:00 **Extending the TITE CRM to Multiple Outcomes**
Joseph S. Koopmeiners, University of Minnesota*

11:15 **A Bayesian Adaptive Allocation Method for Clinical Trials with Dual Objectives**
Roy T. Sabo, Ghalib Bello, Lauren Grant, Cathy Roberts, Amir A. Toor and John M. McCarty, Virginia Commonwealth University*

11:30 **A Simulation Study to Decide the Timing of an Interim Analysis in a Bayesian Adaptive Dose-finding Studies with Delayed Responses**
Xiaobi Huang, Merck & Co., Inc. and Haoda Fu, Eli Lilly and Company*

11:45 **A Trivariate Continual Reassessment Method for Phase I/ II Trials of Toxicity, Efficacy, and Surrogate Efficacy**
Wei Zhong, Joseph S. Koopmeiners and Bradley P. Carlin, University of Minnesota*

12:00 **Floor Discussion**

31. CONTRIBUTED PAPERS: Biomarkers I

Concord | Ballroom Level

Sponsor: ENAR
Chair: Philip Westgate, University of Kentucky

10:30 **Lognormal and Gamma Models to Estimate Means for Skewed Biomarker Data Subject to Assay Pooling**
Emily M. Mitchell and Robert H. Lyles, Emory University; Neil J. Perkins and Enrique F. Schisterman, National Institute of Child Health and Development, National Institutes of Health*

10:45 **Prospective Pooling for Discrete Survival Outcome**
Paramita Saha Chaudhuri, Duke University School of Medicine; David M. Umbach and Clarice R. Weinberg, National Institute of Environmental Health Sciences, National Institutes of Health*

11:00 **An Application of the Rare and Weak Model in Biomarker Discovery in Proteomics Study**
Xia Wang, University of Cincinnati and Nell Sedransk, National Institute of Statistical Sciences*

11:15 **Meta-Regression Models to Detect Biomarkers Confounded by Study-level Covariates in Major Depressive Disorder Microarray Data**
Xingbin Wang, Etienne Sibille and George C. Tseng, University of Pittsburgh*

11:30 **Estimation of C-index for Censored Biomarker Data in Cox Proportional Hazard Model**
Yeonhee Kim, INC Research and Lan Kong, Penn State Hershey College of Medicine*

11:45 **Logistic Regression Analysis of Biomarker Data Subject to Pooling and Dichotomization**
Zhiwei Zhang*, U.S. Food and Drug Administration; Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health; Robert H. Lyles, Emory University and Bhramar Mukherjee, University of Michigan

12:00 **Floor Discussion**

■ = Student Award Winner | ✶ = Presenter

32. CONTRIBUTED PAPERS: Causal Inference

Lexington | Ballroom Level

Sponsor: ENAR
Chair: George Michailidis, University of Michigan

10:30 **Causal Inference with Treatment Delay: Evaluating Medication use in Women with High Risk for Preterm Birth via Propensity Score Matching**
Erinn Hade, Bo Lu and Hong Zhu, The Ohio State University*

10:45 **A New Distribution-free Approach for Longitudinal Mediation Analysis with Non-continuous Outcomes and Mediators**
Douglas D. Gunzler, Case Western Reserve University*

11:00 **Large Sample Properties of Multiplicative Treatment Effect Estimate using Propensity-Score Matching**
Diqiong Xie and Michael P. Jones, Universityof Iowa*

11:15 **Principal Stratification for Assessing Mediation with a Continuous Mediator**
Robert Gallop, West Chester University*

11:30 **Targeted Minimum Loss Based Estimation of Causal Effects of Multiple Time Point Interventions**
Mark J. van der Laan, University of California, Berkeley and Susan Gruber, Harvard School of Public Health*

11:45 **A Data-Adaptive Approach for Modeling Propensity Scores**
Yeying Zhu and Debashis Ghosh, The Pennsylvania State University; Nandita Mitra, University of Pennsylvania and Bhramar Mukherjee, University of Michigan*

12:00 **Floor Discussion**

33. CONTRIBUTED PAPERS: Epidemiologic Methods

Yellowstone | Ballroom Level

Sponsor: ENAR
Chair: Ghideon Ghebregiorgis, U.S. Food and Drug Administration

10:30 **Semi-parametric Methods for Relative Risk Center Effect Measures**
Kevin He and Douglas E. Schaubel, University of Michigan*

10:45 **A General Binomial Regression Model for Estimating Standardized Risk Differences from Cohort Data**
Stephanie A. Kovalchik, National Cancer Institute, National Institutes of Health; Ravi Varadhan, Johns Hopkins University School of Medicine; Barbara Fetterman and Nancy E. Poitras, Kaiser Permanente; Sholom Wacholder and Hormuzd A. Katki, National Cancer Institute, National Institutes of Health*

11:00 **prLogistic: An R Package for Estimation of Prevalence Ratios using Logistic Models**
Leila D. Amorim, University of North Carolina at Chapel Hill and Raydonal Ospina, Federal University of Pernambuco, Brazil*

11:15 **Extending Matrix and Inverse Matrix Methods: Another Look at Barron's Approach**
Li Tang and Robert H. Lyles, Emory University; David D. Celantano, Johns Hopkins Bloomberg School of Public Health and Yungtai Lo, Montefiore Medical Center and Albert Einstein College of Medicine*

11:30 **Pattern-Mixture Models for Addressing Outcome Misclassification from Proxies Responding on Behalf of Participants with Informatively Missing Self-Reports**
Michelle Shardell, University of Maryland School of Medicine*

11:45 **Floor Discussion**

Monday, April 2 (continued)

12:15 pm – 1:30 pm **Roundtable Luncheons**
Capitol Room
Lobby Level

1:45 – 3:30 pm

34. Recent Advances On High-Dimensional Medical Data Analysis

Regency A | Ballroom Level

Sponsor: ASA Section on Statistical Learning and Data Mining
Organizer: Hua Liang, University of Rochester
Chair: Hua Liang, University of Rochester

1:45 **Feature Screening via Distance Correlation Learning**
Runze Li, Wei Zhong, Penn State University and Liping Zhu, Shanghai University of Finance and Economics*

2:10 **Time-Varying Signal Detection for Correlated Data**
Annie Qu, University of Illinois at Urbana-Champaign; Lan Xue, Oregon State University and Colin Wu, National Heart, Lung and Blood Institute, National Institutes of Health*

2:35 **SOFARE: Selection of Fixed and Random Effects in High-Dimensional Longitudinal Data Analysis**
Yun Li, University of Michigan; Sijian Wang, University of Wisconsin-Madison; Peter X.K. Song, Naisyin Wang and Ji Zhu, University of Michigan*

3:00 **Variable Selection for Optimal Treatment Decision**
Hao Helen Zhang, University of Arizona; Wenbin Lu, North Carolina State University and Donglin Zeng, University of North Carolina at Chapel Hill*

3:25 **Floor Discussion**

35. Bayesian Approaches with Applications to Genomics

Regency B | Ballroom Level

Sponsor: ENAR
Organizer: Steve Qin, Emory University
Chair: Steve Qin, Emory University

1:45 **Bayesian Inference of Chromosome Local 3D Structures from Hi-C Data**
Ming Hu and Ke Deng, Harvard University; Zhaohui S. Qin, Emory University and Jun S. Liu, Harvard University*

2:10 **Inferring Social Networks from Molecular and Linguistic Data**
Marc A. Suchard, University of California at Los Angeles*

2:35 **Bayesian Approaches for the Integration of Large-Scale Data**
Marina Vannucci, Rice University*

3:00 **Bayesian Hierarchical Graph-Structured Model with Application to Pathway Analysis Using Gene Expression Data**
Hui Zhou and Tian Zheng, Columbia University*

3:25 **Floor Discussion**

36. New Trends in Statistical Analysis of Biological Networks

Regency C | Ballroom Level

Sponsor: ASA Section on Statistical Learning and Data Mining
Organizer: Ali Shojaie, University of Washington
Chair: Peng Wei, University of Texas Health Sciences Center

1:45 **New Tools for Systems-Level Analysis of Regulation and Signaling Dynamics**
Alexander Franks and Alexander Blocker, Harvard University*

2:10 **Dynamic Models for Baboon Grooming Networks**
David L. Banks and Yingbo Li, Duke University*

2:35 **Biologically-Structured Latent Factor Models for Identification of Cellular Mechanism of Action**
Lisa Pham, Eric D. Kolaczyk, Luis E. Carvalho, Boston University; Stephane Robin, ParisAgroTech and Scott E. Schaus, Boston University*

■ = Student Award Winner | ✱ = Presenter

3:00 **Inferring Gene Regulatory Networks by Integrating Perturbation Screens and Steady-State Expression Profiles**
Ali Shojaie, University of Washington; Alexandra Jauhiainen, Michael Kallitsis and George Michailidis, University of Michigan*

3:25 **Floor Discussion**

37. Mathematical Modeling of Disease

Sponsor: IMS
Organizer: Franziska Michor, Dana-F[illegible] Institute
Chair: Franziska Michor, Dana-Fa[illegible]nstitute

CANCELLED

1:45 **Dynamics of Tre[illegible]sponses in Chronic Myeloid Leu[illegible]**
Min Tang[illegible]ka Michor, Dana-Farber Cancer [illegible] Harvard School of Public Hea[illegible]onen, Memorial Sloan-Kettering Can[illegible]er; Alfonso Quintas-Cardama, Jorge Cortes [illegible]d Hagop Kantarjian, University of Texas MD Anderson Cancer Center; Chani Field, Timothy P. Hughes and Susan Branford, University of Adelaide, Adelaide, Australia*

2:15 **Mathematical Modeling of Pancreatic Cancer Progression Reveals Dynamics of Growth and Dissemination and Suggests Optimum Treatment Strategies**
Hiroshi Haeno, Dana-Farber Cancer Institute; Mithat Gonen, Memorial Sloan-Kettering Cancer Center; Meghan Davis, Joseph Herman and Christine Iacobuzio-Donahue, Johns Hopkins University and Franziska Michor, Dana-Farber Cancer Institute*

2:45 **Patient-Specific Mathematical Modeling of Glioma Proliferation and Invasion: Informing Treatment Design and Patient Stratification**
Kristin Swanson, Russ Rockne, Dave M. Corwin, Robert Stewart, Mark Philips, Clay Holdsworth, Andrew Trister, Jason Rockhill and Maciej Mrugala, University of Washington*

3:15 **Floor Discussion**

38. High Dimensional Multi-Drug Combinations: from Preclinical Models to Clinical Trials

Columbia B | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Hong-Bin Fang, University of Maryland
Chair: Hong-Bin Fang, University of Maryland

1:45 **Statistical Methods for Preclinical Multi-Drug Combination**
Ming T. Tan, University of Maryland School of Medicine*

2:15 **Dose-finding Methods for Combinations of Agents**
Mark R. Conaway, University of Virginia*

2:45 **A Bayesian Dose-finding Design for Drug Combination Trials with Delayed Toxicities**
Suyu Liu and Ying Yuan, University of Texas MD Anderson Cancer Center*

3:15 **Discussant:** *Mourad Tighiouart, Samuel Oschin Comprehensive Cancer Institute*

39. Group Testing Methodology: Recent Developments and Applications to Infectious Disease

Congressional A | Lobby Level

Sponsor: ASA Health Policy Statistics Section
Organizer: Elena Bordonali, University of North Carolina at Chapel Hill
Chair: Aiyi Liu, National Institutes of Health

1:45 **Marginal Regression Models for Multiple-Disease Group Testing Data**
Christopher R. Bilder, Boan Zhang, University of Nebraska-Lincoln and Joshua M. Tebbs, University of South Carolina*

2:15 **System of Equations Approach to Pooled Nucleic Acid Testing for Failing Antiretroviral Therapy**
Tanya S. Granston and Susanne May, University of Washington and Davey M. Smith, University of California at San Diego*

2:45 **Two-dimensional Informative Array Testing**
Christopher S. McMahan, Joshua M. Tebbs, University of South Carolina and Christopher R. Bilder, University of Nebraska-Lincoln*

3:15 **Floor Discussion**

40. TOPIC CONTRIBUTED PAPERS: Novel Developments In Statistical Blind Source Separation And Independent Components Analysis

Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Brian Caffo, Johns Hopkins University
Chair: Vadim Zipunnikov, Johns Hopkins University

1:45 **A New Probabilistic Group ICA Method for Modeling Between-Subject Variability in Brain Functional Networks**
Ying Guo and Li Tang, Emory University*

2:05 **Nonparametric Independent Component Analysis with Application to EEG Data**
Seonjoo Lee, Henry Jackson Foundation; Haipeng Shen and Young Truong, University of North Carolina at Chapel Hill*

2:25 **Independent Component Analysis for Functional Imaging Data**
Ani Eloyan, Brian Caffo and Ciprian Crainiceanu, Johns Hopkins University*

2:45 **Independent Component Analysis via Distance Covariance**
David S. Matteson, Cornell University and Ruey S. Tsay, University of Chicago*

3:05 **A Bayesian Random Shape Model for fMRI and MRI Data**
Lijun Zhang, Jian Kang and F. DuBois Bowman, Emory University*

3:25 **Floor Discussion**

41. TOPIC CONTRIBUTED PAPERS: Causal Inference And Survival Analysis

Regency D | Ballroom Level

Sponsor: ENAR
Organizer: Min Zhang, University of Michigan
Chair: Min Zhang, University of Michigan

1:45 **Estimating the Average Treatment Effect on Mean Survival Time when Treatment is Time-Dependent and Censoring is Dependent**
Douglas E. Schaubel and Qi Gong, University of Michigan*

2:05 **Matching Methods for Obtaining Survival Functions to Estimate the Effect of a Time-Dependent Treatment**
Yun Li and Douglas E. Schaubel, University of Michigan*

2:25 **Optimization of Dynamic Treatment Regimes for Recurrent Diseases**
Xuelin Huang and Jing Ning, University of Texas MD Anderson Cancer Center*

2:45 **Prediction of Survival and Variable Importance in Medical Informatics: Targeted Maximum Likelihood Estimation (T-MLE) and SuperLearning Applied to High Dimensional Longitudinal Data to Predict Survival Times among Severe Trauma Patients**
Alan Hubbard, University of California, Berkeley; Mitch Cohen, University of California, San Francisco; Anna Decker and Ivan Diaz, University of California, Berkeley and Matthew Kutcher, University of California, San Francisco*

3:05 **A Semiparametric Recurrent Events Model with Time-varying Coefficients**
Zhangsheng Yu, Indiana University School of Medicine and Lei Liu, University of Virginia*

3:25 **Floor Discussion**

42. CONTRIBUTED PAPERS: Clinical Trials

Concord | Lobby Level

Sponsor: ENAR
Chair: Yanlei Peng, University of South Carolina

1:45 **Estimating Covariate-Adjusted Log Hazard Ratios in Randomized Clinical Trials using Cox Proportional Hazards Models and Nonparametric Randomization Based Analysis of Covariance**
Benjamin R. Saville, Vanderbilt University and Gary G. Koch, University of North Carolina at Chapel Hill*

2:00 **A Bayesian Phase I/II Design for Oncology Clinical Trials of Combinational Biological Agents**
Chunyan Cai, Ying Yuan and Yuan Ji, University of Texas MD Anderson Cancer Center*

2:15 **Empirical Bayesian Methods for Enrollment and Event Projection in Oncology Trials**
Jingyang Zhang, University of Iowa; Luyan Dai and Wei Zhang, Boehringer Ingelheim Pharmaceuticals, Inc.*

2:30 **Analysis of Zero-Inflated Count Data from Clinical Trials with Potential Dropouts**
Jingyuan Yang, Amgen Inc.; Xiaoming Li, Gilead Sciences, Inc. and Guanghan F. Liu, Merck & Co.*

2:45 **A Generalized Continual Reassessment Method for Two-Agent Phase I Trials**
Thomas M. Braun and Nan Jia, University of Michigan*

3:00 **A Hierarchical Bayesian Design in Randomized Phase II Clinical Trials with Multiple Subgroups Using Binary Endpoints**
Qian Shi, Mayo Clinic; Jun Yin, University of Iowa; Daniel J. Sargent, Charles Erlichman and Rui Qin, Mayo Clinic*

3:15 **Variable Selection for Covariate-Adjusted Semiparametric Inference in Randomized Clinical Trials**
Shuai Yuan, Helen Zhang and Marie Davidian, North Carolina State University*

43. CONTRIBUTED PAPERS: Competing Risks

Congressional B | Lobby Level

Sponsor: ENAR
Chair: Donna McClish, Virginia Commonwealth University

1:45 **Frailty-based Competing Risks Model for Multivariate Survival Data**
Malka Gorfine, Technion – Israel Institute of Technology and Li Hsu, Fred Hutchinson Cancer Research Center*

2:00 **Semiparametric Estimation in the Proportional Subdistribution Hazards Model with Missing Cause of Failure**
Jonathan G. Yabes and Chung-Chou H. Chang, University of Pittsburgh*

2:15 **Hierarchical Likelihood Inference on Clustered Competing Risks Data**
Nicholas J. Christian, University of Pittsburgh*

2:30 **Subdistribution Regression with Left-Truncated Semi-Competing Risks Data**
Ruosha Li, University of Pittsburgh and Limin Peng, Emory University*

2:45 **Simulating Clustered Competing Risks Data**
Ruta Brazauskas, John P. Klein and Jennifer G. Le-Rademacher, Medical College of Wisconsin*

3:00 **Analysis of Dependently Censored Data based on Quantile Regression**
Shuang Ji and Limin Peng, Emory University; Ruosha Li, University of Pittsburgh and Michael J. Lynn, Emory University*

3:15 **Floor Discussion**

44. CONTRIBUTED PAPERS: Functional Data Analysis

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Peng Wang, Bowling Green State University

1:45 **Longitudinal Survey Sampling of Functional Data**
David Degras, DePaul University*

2:00 **Corrected Confidence Bands for Functional Data using Principal Components**
■ *Jeff Goldsmith*, Johns Hopkins Bloomberg School of Public Health; Sonja Greven, Ludwig-Maximilians-University and Ciprian Crainiceanu, Johns Hopkins Bloomberg School of Public Health*

2:15 **Optimal Smoothing Bandwidth Selection Methods for Functional Data**
Jingjing Yang, David W. Scott and Dennis D. Cox, Rice University*

2:30 **Multiscale Adaptive Composite Quantile Regression Models for Neuroimaging Data**
Linglong Kong and Hongtu Zhu, University of North Carolina at Chapel Hill*

2:45 **Estimation of Functional Curve Peak Locations for Detection of Cervical Pre-cancer**
Lu Wang and Dennis D. Cox, Rice University*

3:00 **Longitudinal Functional Regression Models with Structured Penalties**
Madan G. Kundu, Jaroslaw Harezlak, Indiana University School of Medicine and Timothy W. Randolph, Fred Hutchinson Cancer Research Center*

3:15 **Functional Mixed-Effects Models for Multiple Outcomes**
Stephanie A. Kliethermes and Jacob J. Oleson, University of Iowa*

45. CONTRIBUTED PAPERS: Genome-Wide Association Studies

Lexington | Ballroom Level

Sponsor: ENAR
Chair: Kristen Foley, U.S. Environmental Protection Agency

1:45 **Genome-wide Association Analysis for Multiple Continuous Secondary Phenotypes**
Elizabeth D. Schifano, Lin Li, David C. Christiani and Xihong Lin, Harvard School of Public Health*

2:00 **Longitudinal Genetic Analysis of Quantitative Traits**
Ruzong Fan, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

2:15 **Incorporating Group Correlations in enome-Wide Association Studies using Smoothed Group LASSO**
Jin Liu, Yale University; Jian Huang, University of Iowa; Shuangge Ma, Yale University and Kai Wang, University of Iowa*

2:30 **A Penalized Likelihood Approach for Pharmacogenetic Studies via Understanding Haplotype Effect Structures for Gene and Gene-Drug Interactions**
Megan L. Neely, Duke University; Howard D. Bondell and Jung-Ying Tzeng, North Carolina State University*

2:45 **The Effect of Population Stratification on Association Studies with Next Generation Sequencing**
Qianying Liu, Lin Chen and Dan L. Nicolae, University of Chicago*

3:00 **Family-Based Association Tests using Genotype Data with Uncertainty**
Zhaoxia Yu, University of California, Irvine*

3:15 **Floor Discussion**

■ = Student Award Winner | * = Presenter

Monday, April 2 (continued)

3:30 pm – 3:45 pm **Refreshment Break & Visit Our Exhibitors**
Regency Foyer
Ballroom Level

3:45 pm – 5:30 pm

46. Statistical Models for OMICS Data
Regency B | Ballroom Level

Sponsor: ENAR
Organizer: Yuan Ji, University of Texas MD Anderson Cancer Center
Chair: Wei Sun, University of North Carolina at Chapel Hill

3:45 **Differential Principal Component Analysis of ChIP-seq**
Hongkai Ji and Yang Ning, Johns Hopkins University Bloomberg School of Public Health*

4:10 **Bayesian Hierarchical Functional Models for High-dimensional Genomics data**
Veera *Baladandayuthapani*, Jeffrey S. Morris and Yuan Ji, University of Texas MD Anderson Cancer Center*

4:35 **A Bayesian Graphical Model for ChIP-Seq Data on Histone Modifications**
Peter Mueller, University of Texas at Austin; Riten Mitra, Shoudan Liang, Lu Yue and Yuan Ji, University of Texas MD Anderson Cancer Center*

5:00 **A Bayesian Network Analysis for Single-Cell Mass Cytometry Data**
Riten Mitra and Yuan Ji, University of Texas MD Anderson Cancer Center and Peter Mueller, University of Texas at Austin*

5:25 **Floor Discussion**

47. Tweedie Award
Regency A | Ballroom Level

Sponsor: IMS
Organizer: Yi Li, University of Michigan
Chair: Yi Li, University of Michigan

3:45 **Statistical Learning with High-dimensional Data**
Hui Zou, University of Minnesota*

4:15 **Adaptive Estimation of Large Covariance Matrices**
Tony Cai, University of Pennsylvania and Ming Yuan, Georgia Institute of Technology*

4:45 **Discussant:** *Peter Hall, University of California-Davis and University of Melbourne*

5:00 **Floor Discussion**

48. Recent Development in Optimal Treatment Strategies — Estimation, Selection, And Inference

Congressional A | Lobby Level

Sponsor: ASA Biometrics Section
Organizer: Wenbin Lu, North Carolina State University
Chair: Hao Helen Zhang, North Carolina State University

3:45 **Evaluating Optimal Treatment Policies based on Gene Expression Profiles**
Ian McKeague and Min Qian, Columbia University*

4:10 **Iterative Outcome Weighted Learning for Estimating Optimal Dynamic Treatment Regime**
Donglin Zeng, Yingqi Zhao and Michael Kosorok, University of North Carolina at Chapel Hill*

4:35 **Up-front vs. Sequential Randomizations for Inference on Adaptive Treatment Strategies**
Abdus S. Wahed and Jin.H.Ko, University of Pittsburgh*

5:00 **Inference for Dynamic Treatment Regimes**
Eric B. Laber, North Carolina State University; Daniel J. Lizotte, University of Waterloo; Min Qian, Columbia University and Susan A. Murphy, University of Michigan*

5:25 **Floor Discussion**

49. Challenging Issues in Functional Connectivity Analysis

Columbia B | Ballroom Level

Sponsor: ASA Statistics in Neuroimaging
Organizer: Hongtu Zhu, University of North Carolina at Chapel Hill
Chair: Hernando Ombao, University of California at Irvine

3:45 **Persistent Homological Network Modeling via Graph Filtration**
Moo K. Chung, University of Wisconsin-Madison*

4:10 **Predicting Neurological Disorders using Functional and Structural Brain Imaging Data**
Brian S. Caffo, Ciprian Crainiceanu, Han Liu, Ani Eloyan, John Muschelli, Fang Han and Tuo Zhao, Johns Hopkins University*

4:35 **Functional Connectivity through Color Independent Component Analysis**
Haipeng Shen, University of North Carolina at Chapel Hill*

5:00 **Spatial and Adaptive Models for Brain Functional Connectivity**
Hongtu Zhu, University of North Carolina at Chapel Hill and Japing Wang, Princeton University*

5:25 **Floor Discussion**

50. Recent Developments in Subgroup Analysis in Randomized Clinical Trials

Regency D | Ballroom Level

Sponsor: ASA Biopharmaceutical Section
Organizer: Mohammed Alosh, U.S. Food and Drug Administration
Chair: Mohammed Alosh, U.S. Food and Drug Administration

3:45 **Key Statistical Considerations for Clinical Trials with Tailoring Objectives**
Alex Dmitrienko, Quintiles and Brian Millen, Eli Lilly and Company*

4:15 **Predictive Analysis of Clinical Trials**
Richard M. Simon, National Cancer Institute, National Institutes of Health*

4:45 **Multiplicity Considerations for Hypotheses Testing for a Targeted Subgroup Trial Design**
Mohammad F. Huque and Mohammed Alosh, U.S. Food and Drug Administration*

5:15 **Discussant:** *Gary Koch, University of North Carolina-Chapel Hill*

51. Recent Advances in Methodology for the Analysis Of Failure Time Data

Regency C | Ballroom Level

Sponsor: ENAR
Organizer: Doug Schaubel, University of Michigan
Chair: Doug Schaubel, University of Michigan

3:45 **Marginal Additive Hazards Model for Case-Cohort Studies with Multiple Disease Outcomes**
Sangwook Kang, University of Connecticut; Jianwen Cai and Lloyd Chambless, University of North Carolina at Chapel Hill*

4:10 **Statistical Methods for Assessing Urgency and Transplant Benefit in the Presence of Dependent Censoring**
Susan Murray and Fang Xiang, University of Michigan*

4:35 **Semiparametrically Efficient Treatment Effect Estimation in the Analysis of Recurrent Events**
Adin-Cristian Andrei, Northwestern University*

5:00 **Estimating Treatment Effects from a Randomized Clinical Trial in the Presence of Post-study Treatment**
Min Zhang, University of Michigan and Yanping Wang, Eli Lilly and Company*

5:25 **Floor Discussion**

52. TOPIC CONTRIBUTED PAPERS: New Methods and Theory in Functional/Longitudinal Data Analysis

Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Yehua Li, University of Georgia
Chair: Yehua Li, University of Georgia

3:45 **Spline Confidence Bands for Functional Derivatives**
Guanqun Cao, Michigan State University; Jing Wang, University of Illinois at Chicago; Li Wang, University of Georgia and David Todem, Michigan State University*

4:05 **Generalized Functional Linear Regression**
Xiao Wang, Purdue University and Pang Du, Virginia Tech*

4:25 **Regularized Smoothing in Functional Linear Models**
Toshiya Hoshikawa and Tailen Hsing, University of Michigan*

4:45 **Simultaneous Variable Selection and Estimation in Semiparametric Modeling of Longitudinal / Clustered Data**
Shujie Ma, University of California-Riverside; Qiongxia Song, University of Texas at Dallas and Lily Wang, University of Georgia*

5:05 **Robust Regularized Singular Value Decomposition for Two Way Functional Data**
Lingsong Zhang, Purdue University; Haipeng Shen, University of North Carolina at Chapel Hill and Jianhua Huang, Texas A&M University*

5:25 **Floor Discussion**

53. TOPIC CONTRIBUTED PAPERS: Multivariate Methods in High Dimensional Data

Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Abdus Sattar, Case Western Reserve University
Chair: Abdus Sattar, Case Western Reserve University

3:45 **A Calibrated Multiclass Extension of AdaBoost**
Daniel B. Rubin, U.S. Food and Drug Administration*

4:05 **Predicting Mortality in an Elderly Population using Machine Learning**
Sherri Rose, Johns Hopkins Bloomberg School of Public Health*

4:25 **Efficient Multi-Marker Tests for Association in Case-Control Studies**
Margaret A. Taub, Johns Hopkins University; Holger Schwender, TU Dortmund University, Dortmund, Germany; Ingo Ruczinski and Thomas A. Louis, Johns Hopkins University*

4:45 **Estimation of a Non-parametric Variable Importance Measure of a Continuous Exposure**
Antoine Chambaz, Université Paris Descartes and CNRS, Pierre Neuvial, Université d'Evry Val d'Essonne and Mark J. van der Laan, University of California, Berkeley*

5:05 **Targeted Maximum Likelihood Estimation: Assessing Causal Effects using High-Dimensional Longitudinal Data Structures**
Marco Carone and Mark J. van der Laan, University of California, Berkeley*

5:25 **Floor Discussion**

54. CONTRIBUTED PAPERS: Bayes and Other Approaches to Variable and Model Selection

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Xin Huang, Fred Hutchinson Cancer Research Center

3:45 **Determining Associations Among Environmental Chemicals, Nutrition and Health Outcomes**
Caroline Carr, Chris Gennings and Roy Sabo, Virginia Commonwealth University and Pam Factor-Litvak, Columbia University*

4:00 **Bayes Variable Selection in Semiparametric Linear Models**
■ *Suprateek Kundu*, University of North Carolina at Chapel Hill and David B. Dunson, Duke University*

4:15 **Sure Screening for Estimating Equations in Ultra-High Dimensions**
■ *Sihai D. Zhao*, Harvard University*

4:30 **Estimating Link Function Parameters in Robust Bayesian Binary Regression**
Vivekananda Roy, Iowa State University*

4:45 **Calibrated Bayes Factors for Model Comparison**
Xinyi Xu, Pingbo Lu, Steven MacEachern and Ruoxi Xu, The Ohio State University*

5:00 **A Systematic Selection Method for the Development of Cancer Staging Systems**
Yunzhi Lin and Richard J. Chappell, University of Wisconsin-Madison and Mithat Gönen, Memorial Sloan-Kettering Cancer Center*

5:15 **Floor Discussion**

55. CONTRIBUTED PAPERS: Clustered/Repeated Measures Survival Analysis

Concord | Ballroom Level

Sponsor: ENAR
Chair: Xuelin Huang, University of Texas MD Anderson Cancer Center

3:45 **Testing for Monotone Time Trend in Recurrent Event Processes**
Candemir Cigsar, Women's College Reserach Institute Princess Margaret Hospital*

4:05 **Contrasting Group-specific Cumulative Mean Associated with Marked Recurrent Events in the Presence of a Terminating Event**
Yu Ma and Douglas E. Schaubel, University of Michigan*

4:25 **Alternating Event Processes during Lifetimes: Population Dynamics and Statistical Inference**
■ *Russell T. Shinohara* and Mei-Cheng Wang, Johns Hopkins University*

4:45 **Semiparametric Probit Model for Clustered Interval-Censored Data with Unknown Distribution of Random Effects**
Haifeng Wu and Lianming Wang, University of South Carolina*

5:05 **A Flexible Copula Model for Bivariate Survival Data**
Zhen Chen, David Oakes, Ollivier Hyrien and Changyong Feng, University of Rochester Medical Center*

5:25 **Floor Discussion**

■ = Student Award Winner | * = Presenter

56. CONTRIBUTED PAPERS: Genomics

Yellowstone | 2nd Floor

Sponsor: ENAR
Chair: Hulin Wu, University of Rochester

3:45 **The Practical Effect of Batch on Prediction**
Hilary S. Parker and Jeffrey T. Leek, Johns Hopkins School of Public Health*

4:00 **Identifying and Correcting Sample Mix-ups in High-Dimensional Data**
Karl W. Broman, Mark P. Keller and Aimee T. Broman, University of Wisconsin-Madison; Danielle M. Greenawalt, Merck & Co., Inc.; Christina Kendziorski, University of Wisconsin-Madison; Eric E. Schadt, Pacific Biosciences, Saunak Sen, University of California, San Francisco; Brian S. Yandell and Alan D. Attie, University of Wisconsin-Madison*

4:15 **Detecting Differential Binding of Transcription Factors with ChIP-seq**
Kun Liang and Sunduz Keles, University of Wisconsin-Madison*

4:30 **Applying Whole Genomic Prediction across Populations for Predictive and Prognostic Purposes**
Robert Makowsky, Kirk Yancy B. Williams, U.S. Food and Drug Administration and Gustavo de los Campos, University of Alabama at Birmingham*

4:45 **Segmenting the Human Genome Based on Mutation Rates**
Prabhani Kuruppumullage Don, Guruprasad Ananda, Francesca Chiaromonte and Kateryna D. Makova, Pennsylvania State University*

5:00 **Identifying Protein Binding Sites from Genomic ChIP-seq Data Using Reversible Jump MCMC**
Rasika V. Jayatillake and Nak-Kyeong Kim, Old Dominion University*

5:15 **Change-point Analysis of Paired Allele-specific Copy Number Variation Data**
Yinglei Lai, The George Washington University*

57. CONTRIBUTED PAPERS: Health Services/Health Policy

Lexington | Ballroom Level

Sponsor: *ENAR*
Chair: *Yulei He, Harvard Medical School*

3:45 **Identifying Individual Changes in Performance with Composite Quality Indicators while Accounting for Regression-to-the-Mean**
Byron Gajewski and Nancy Dunton, University of Kansas*

4:00 **Alcohol Outlets and Violence in the City of Philadelphia: The Role of Land Use**
Tony H. Grubesic, Loni Philip Tabb and Dominique Williams, Drexel University and William Pridemore, Indiana University-Bloomington*

4:15 **Calibrated Sensitivity Analysis for the Instrumental Variables Method for Observational Studies**
Jesse Yenchih Hsu, Scott A. Lorch and Dylan S. Small, University of Pennsylvania*

4:30 **A Research Agenda: Does Geocoding Positional Error Matter in Health GIS Studies?**
Geoffrey M. Jacquez, BioMedware*

4:45 **Methodology for Scoring the EQ-5D**
Eleanor M. Pullenayegum and Feng Xie, McMaster University*

5:00 **Estimating 95% Confidence Interval for Percentile Rank – Using Bootstrap – Application: RSMR & RSRR**
Yahya A. Daoud, Yumi Y. Sembongi, Monica Anand, Dunlei Cheng and Edward B. De Vol, Baylor Heath Care System*

5:15 **Optimization and Simulation of an Evolving Kidney Paired Donation (KPD) Program**
■ *Yijiang J. Li*, Peter X. K. Song, Yan Zhou and Alan B. Leichtman, University of Michigan; Michael A. Rees, University of Toledo Medical Center and John D. Kalbfleisch, University of Michigan*

Tuesday, April 3

8:30 am – 10:15 am

58. Towards Omics-Based Predictors for Patient Management

Columbia B | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Kevin Dobbin, University of Georgia
Chair: Kevin Dobbin, University of Georgia

8:30 **Validating Clinical Performance of Predictors**
Michael L. LeBlanc, Fred Hutchinson Cancer Research Center*

9:00 **A Regulatory Perspective on Omics-Based Predictors**
Gene A. Pennello, U.S. Food and Drug Administration*

9:30 **Statistical Issues in the Design of Clinical Trials to Establish the Utility of Biomarker-based Tests for Guiding Therapy Decisions**
Lisa M. McShane, National Cancer Institute, National Institutes of Health*

10:00 **Discussant:** *Tracy Lively, National Cancer Institute*

59. Functional Data Analysis

Capitol Room | Lobby Level

Sponsor: IMS
Organizer: Hans-Georg Muller, University of California, Davis
Chair: Damla Senturk, UCLA

8:30 **Methodology and Theory for Partial Least Squares Applied to Functional Data**
Peter Hall, The University of Melbourne and the University of California, Davis and Aurore Delaigle, The University of Melbourne*

8:55 **Time-Dynamic Functional Additive Model**
Jane-Ling Wang and Xiaoke Zhang, University of California at Davis and Byeong Park, Seoul National University*

9:20 **Continuously Additive Models for Functional Regression**
Hans-Georg Mueller, University of California at Davis; Yichao Wu, North Carolina State University and Fang Yao, University of Toronto*

9:45 **Movelets: A Dictionary of Movement**
Bai Jiawei, Jeffrey Goldsmith and Ciprian M. Crainiceanu, Johns Hopkins University*

10:10 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

60. The Analysis of Social Network Data in Public Health

Columbia A | Ballroom Level

Sponsor: ASA Section on Statistical Learning and Data Mining
Organizers: Debashis Ghosh, Penn State University
Chair: Yeying Zhu, Penn State University

8:30 **Network Based Methods for Accessing Hard-to-Reach Groups**
Tyler H. McCormick, University of Washington and Tian Zheng, Columbia University*

9:00 **Using Retrospective Sampling to Study Factors Affecting Relationships in Large Longitudinal Social Networks**
A James O'Malley and Sudeshna Paul, Harvard Medical School*

9:30 **Point Process Modeling for Directed Interaction Networks**
Patrick O. Perry, New York University and Patrick J. Wolfe, Harvard University*

10:00 **Discussant:** *Melanie Wall, Columbia University*

61. Novel Methodological Issues in Analyzing and Designing Longitudinal Biomarker Studies

Regency D | Ballroom Level

Sponsor: ASA Biopharmaceutical Section
Organizers: Paul Albert and Enrique Schisterman, National Institutes of Health
Chair: Enrique Schisterman, National Institutes of Health

8:30 **Outcome Dependent Sampling for Longitudinal Binary Response Data Based on a Time-Varying Auxiliary Variable**
Jonathan S. Schildcrout, Vanderbilt University; Sunni L. Mumford and Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health; Patrick J. Heagerty, University of Washington and Paul J. Rathouz, University of Wisconsin*

8:55 **A Principal Interactions Analysis Framework for Repeated Measures Data on Quantitative Traits: Application to Longitudinal Studies of Gene-Environment Interactions**
Bhramar Mukherjee and Yi-An Ko, University of Michigan*

9:20 **Pooling Designs for Outcomes Under a Gaussian Random Effects Model**
Yaakov Malinovsky, University of Maryland, Baltimore County; Paul S. Albert and Enrique F. Schisterman, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

9:45 **A Bayesian Order Restricted Model for Hormonal Dynamics During Menstrual Cycles of Healthy Women**
Anindya Roy, University of Maryland Baltimore County; Michelle Danaher, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health and University of Maryland Baltimore County; Zhen Chen, Sunni Mumford and Enrique Schiesterman, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

10:10 **Discussant:** *Paul Albert, National Institutes of Health*

62. Advances in Cancer Risk Prediction Models

Congressional A | Lobby Level

Sponsor: *ENAR*
Organizer: *Donna Ankerst, University of Munich*
Chair: *Donna Ankerst, University of Munich*

8:30 **Model Validation and Updating**
Ewout W. Steyerberg, Erasmus University Medical Center, Rotterdam, the Netherlands*

8:55 **Deploying Statistical Prediction Models**
Michael W. Kattan, Cleveland Clinic*

9:20 **On Joint Risk Prediction**
Ruth Pfeiffer, National Cancer Institute, National Institutes of Health*

9:45 **Dynamic Prediction: Updating Medical Prediction Models in Real Time Using Routinely Collected Clinical Data (Or: Why Can't Nomograms be More Like Netflix?)**
Andrew J. Vickers, Memorial Sloan-Kettering Cancer Center*

10:10 **Floor Discussion**

63. Adaptive Design in Vaccine Trials
Columbia C | Ballroom Level

Sponsor: ASA Biometrics Section
Organizers: Zhi Wen and Estelle Russek-Cohen, U.S. Food and Drug Administration
Chair: Zhi Wen, U.S. Food and Drug Administration

8:30 **A 2-Stage Adaptive Design for Assessing Vaccine Efficacy with Uncertain Incidence Rate**
Ivan SF Chan, Merck Research Laboratories; Xiaoming Li, Gilead Sciences and Keaven M. Anderson, Merck Research Laboratories*

9:00 **Adaptive Designs for Vaccine Clinical Trials**
Ghideon Ghebregiorgis, U.S. Food and Drug Administration*

9:30 **Determining which Subpopulations Benefit from a Vaccine, Using Adaptive Designs**
Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health*

10:00 **Floor Discussion**

64. TOPIC CONTRIBUTED PAPERS: Mixing: Inferences Using Frequentist and Bayesian Methods and for Mixed Discrete and Continuous Data
Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Gang Zheng, National Heart, Lung, and Blood Institute, National Institutes of Health
Chair: Gang Zheng, National Heart, Lung, and Blood Institute, National Institutes of Health

8:30 **Efficient Longitudinal Estimation of Incidence and Prevalence rate of Major Depressive Disorder in HOME HEALTHCARE Study.**
Dr. Samiran Ghosh, Sr. Biostatistician Winthrop University Hospital and Associate Professor of Research, SUNY Stony Brook

8:50 **Joint Analysis of Binary and Quantitative Traits with Data Sharing and Outcome-Dependent Sampling**
Jungnam Joo, National Cancer Center, Korea*

9:10 **Bayes Factor Based on a Maximum Statistic for Case-Control Genetic Association Studies**
Linglu Wang, The George Washington University*

9:30 **Analysis of Case-Control Qualitative and Quantitative Trait Data for Genetic Association**
Minjung Kwak, National Heart Lung and Blood Institute, National Institutes of Health*

9:50 **Hybrid Inference for Association Studies**
Qizhai Li, Academy of Mathematics and Systems Science, Chinese Academy of Sciences; Jing Qin, National Institute of Allergy and Infectious Diseases, National Institutes of Health and Ao Yuan, Howard University*

10:00 **Floor Discussion**

65. CONTRIBUTED PAPERS: Bayesian Methods for Longitudinal and/or Survival Data
Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Madan Gopal Kundu, Indiana University Purdue University, Indianapolis

8:30 **Posterior Predictive Model Assessment for Incomplete Longitudinal Data**
Arkendu Chatterjee and Michael Daniels, University of Florida*

8:45 **A Novel Bayesian Approach for Analyzing Interval-Censored Failure Time Data Under the Proportional Hazards Model**
Xiaoyan Lin, Bo Cai and Lianming Wang, University of South Carolina and Zhigang Zhang, Memorial Sloan-Kettering Cancer Center*

9:00 **Semiparametric Bayesian Survival Analysis Using Models with Log-Linear Median**
■ *Jianchang Lin* and Debajyoti Sinha, Florida State University; Stuart Lipsitz, Brigham and Women's Hospital and Adriano Polpo, University of São Paulo*

9:15 **A Model-based Approach to Limit of Detection in Studying Environmental Chemical Exposures and Time to Pregnancy**
Sungduk Kim, Zhen Chen, Enrique F. Schisterman, Neil Perkins, Rajeshwari Sundaram and Germaine M. Buck Louis, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

9:30 **A Semiparametric Bayesian Approach for Joint Modeling of Longitudinal Trait and Event Time: Application to Soybean Data**
Kiranmoy Das, Temple University*

■ = Student Award Winner | * = Presenter

9:45 **Hierarchical Bayesian Approach for Analysis of Longitudinal Count Data with Overdispersion Parameters: A Simulation Study**
Mehreteab F. Aregay, University of Leuven, Belgium; Geert Molenberghs, I-BioStat Belgium and Ziv Shkedy, Hasselt University, Belgium*

10:00 **Bayesian Modeling Dependence in Longitudinal Data via Partial Autocorrelations and Marginal Variances**
■ *Yanpin Wang* and Michael Daniels, University of Florida*

66. CONTRIBUTED PAPERS: Complex Study Designs and Bias Corrections
Yellowstone | 2nd Floor

Sponsor: ENAR
Chair: Yvonne Zubovic, Indiana University Purdue University Fort Wayne

8:30 **Two-Stage Designs for Adaptive Comparative Effectiveness Trials**
John A. Kairalla, University of Florida; Mitchell A. Thomann and Christopher S. Coffey, University of Iowa and Keith E. Muller, University of Florida*

8:45 **More Efficient Estimators for Case-Cohort Studies**
SoYoung Kim and Jianwen Cai, University of North Carolina at Chapel Hill*

9:00 **Estimating Multiple Treatments Effects Using Two-Phase Regression Estimators**
Cindy Yu, Iowa State University; Jason Legg, Amgen Inc. and Bin Liu, Iowa State University*

9:15 **A Semi-parametric Approach to Select Optimal Sampling Schedules for Measuring the Mean Profile and Variability in Longitudinal Studies**
Meihua Wu and Brisa N. Sánchez, Trivellore E. Raghunathan and Ana V. Diez-Roux, University of Michigan*

9:30 **An Improved Paired Availability Design for Historical Controls**
Stuart G. Baker, National Cancer Institute, National Institutes of Health and Karen S. Lindeman, Johns Hopkins University*

9:45 **Bias Correction and Likelihood Based Inference Under Model Misspecification**
■ *Yang Ning*, Johns Hopkins University and Kung-Yee Liang, National Yang-Ming University*

10:00 **Floor Discussion**

67. CONTRIBUTED PAPERS: High Dimensional Data
Yosemite | 2nd Floor

Sponsor: ENAR
Chair: Eileen Liao, University of California at Los Angeles

8:30 **Sparse Meta-Analysis With Applications to High-Dimensional Data**
■ *Qianchuan He*, University of North Carolina at Chapel Hill; Helen Hao Zhang, North Carolina State University; Danyu Lin and Christy L. Avery, University of North Carolina at Chapel Hill*

8:50 **Universal Probabilistic Dependency Discovery: Theory and Application**
Hesen Peng, Emory University; Yun Bai, Philadelphia College of Osteopathic Medicine and Tianwei Yu, Emory University*

9:10 **Investigating Pyrosequence Data from Ecological Applications**
Karen Keating, Gary L. Gadbury, Ari Jumpponen and Karen A. Garrett, Kansas State University*

9:30 **Exploration of Reactant-Product Lipid Pairs in Mutant-Wild Type Lipidomics Experiments**
Lianqing Zheng and Gary L. Gadbury, Kansas State University; Jyoti Shah, University of North Texas and Ruth Welti, Kansas State University*

9:50 **Factor Analysis Regression for Predictive Modeling with High Dimensional Data**
Netsanet T. Imam, Randy L. Carter and Russell W. Bessette, State University of New York at Buffalo*

10:10 **Floor Discussion**

68. CONTRIBUTED PAPERS: High Dimensional Data: Machine Learning, Multivariate Methods and Computational Methods

Bryce | 2nd Floor

Sponsor: ENAR
Chair: Frank B Yoon, Mathematica Policy Research, Inc.

8:30 **Majorization Minimization by Coordinate Descent for Concave Penalized Generalized Linear Models**
Dingfeng Jiang and Jian Huang, University of Iowa*

8:45 **Reducing Dimension to Improve Computational Efficiency in High Dimensional Studies**
Kevin K. Dobbin, University of Georgia*

9:00 **Additive Kernel Machine Regression Based Analysis of Genomic Data**
Jennifer Clark and Mike Wu, University of North Carolina at Chapel Hill*

9:15 **Variable Selection for High-Dimensional Multivariate Outcomes with Application to Genetic Pathway/Network Analysis**
■ *Tamar Sofer*, Harvard School of Public Health; Lee Dicker, Rutgers University and Xihong Lin, Harvard School of Public Health*

9:30 **Enhancements of Sparse Clustering with Resampling**
■ *Wenzhu Bi*, George C. Tseng, Julie C. Price and Lisa A. Weissfeld, University of Pittsburgh*

9:45 **Generalized Reduced Rank Regression for Multivariate Response**
Zakaria S. Khondker, University of North Carolina at Chapel Hill and PAREXEL International; Hongtu Zhu and Joseph G. Ibrahim, University of North Carolina at Chapel Hill*

10:00 **Floor Discussion**

69. CONTRIBUTED PAPERS: Variable and Model Selection Methods

Concord | Ballroom Level

Sponsor: ENAR
Chair: Yang Feng, Columbia University

8:30 **Simultaneous Rank Determination and Variable Selection in Multivariate Reduced-rank Regression**
Kun Chen, Kansas State University and Kung-Sik Chan, University of Iowa*

8:45 **Variable Selection for Fixed and Random Effects in Multilevel Models When Missing Data is Present**
Miguel Marino, Harvard University and Yi Li, University of Michigan*

9:00 **Variable Selection in Parametric and Non-Parametric Regression**
Trang T. Duong, The University of West Georgia*

9:15 **Penalized Variable Selection with U-estimates**
Xiao Song, University of Georgia and Shuangge Ma, Yale University School of Public Health*

9:30 **Variable Selection with Iterated Penalization for Semiparametric Regression Models**
Ying Dai and Shuangge Ma, Yale University School of Public Health*

9:45 **Sparsity Recovery from Multivariate Smoothing Functions Using the Nonnegative Garrote Method**
Zaili Fang, Inyoung Kim and Patrick Schaumont, Virginia Polytechnic Institute and State University*

10:00 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

Tuesday, April 3 (continued)

10:15 – 10:30 am **Refreshment Break & Visit Our Exhibitors**
Regency Foyer
Ballroom Level

10:15 am – 12:15 pm

70. Presidential Invited Address
Regency Ballroom | Ballroom Level

Sponsor: ENAR
Organizer/Chair: Karen Bandeen-Roche, Johns Hopkins Bloomberg School of Public Health

10:30 **Introduction**

10:35 **Distinguished Student Paper Awards and RAB Poster Awards**

10:55 **Engaging, Inspiring, and Training the Next Generation: Past Successes, Future Challenges and Opportunities**
Marie Davidian, Department of Statistics, North Carolina State University

1:45 – 3:30 pm

71. Recent Advances in Statistical Methods for Diagnostic Medicine
Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Haitao Chu, University of Minnesota
Chair: Joseph Koopmeiers, University of Minnesota

1:45 **Semiparametric Estimation of the Covariate-Specific ROC Curve in Presence of Ignorable and Non-Ignorable Verification Bias**
Xiao-Hua Andrew Zhou and Danping Liu, University of Washington*

2:15 **Estimation and Design for Logistic Regression Under an Imperfect Population Identifier**
Paul S. Albert, Aiyi Liu and Tonia Nansel, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

2:45 **Designing Studies to Evaluate Biomarkers for Selecting Patient Treatment**
Holly Janes, Margaret Pepe, Ying Huang and Marshall Brown, Fred Hutchinson Cancer Research Center*

3:15 **Floor Discussion**

72. JABES Special Session on Climate Change and Health
Columbia B | Ballroom Level

Sponsor: ENAR
Organizer: Montserrat Fuentes, North Carolina State University
Chair: Bo Li, Purdue University

1:45 **Estimating the Health Impact of Climate Change with Calibrate Climate Model Output**
Montserrat Fuentes, North Carolina State University

2:10 **Flexible Distributed Lag Models using Random Functions with Application to Estimating Mortality Displacement from Heat-Related Deaths**
Roger Peng, Johns Hopkins University

2:35 **A Compartmental Model for Meningitis: Separating Transmission from Climate Effects on Disease**
Roman Jandarov, Murali Haran, and Mathew J. Ferrari, Penn State University

3:00 **Bivariate Downscaling with Asynchronoous Measurements**
Yunwen Yang, Drexel University and Xuming He, University of Michigan*

3:25 **Floor Discussion**

73. Grant Funding Opportunities for Biostatisticians

Capitol Room | Lobby Level

Sponsor: ASA Section for Teaching in the Health Sciences
Organizer: Michelle Dunn, National Cancer Institute, National Institutes of Health
Chair: Angela Marriotto, National Cancer Institute

1:45 **New Opportunities for Research Funding at NSF**
Haiyan Cai, National Science Foundation*

2:10 **Overview of NIH Application Processes**
Michelle C. Dunn, National Cancer Institute, National Institutes of Health*

2:35 **Peer Review at the National Institutes of Health**
Tomas Drgon, Center for Scientific Review, National Institutes of Health*

3:00 **NIH Statistical Methodological Grant Application and Review**
Xihong Lin, Harvard School of Public Health*

3:25 **Floor Discussion**

74. Causal Mediation Analysis: Definitions, Identification, Inference and Controversies

Columbia A | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Eric Tchetgen Tchetgen, Harvard School of Public Health
Chair: Ilya Shipster, Harvard School of Public Health

1:45 **Alternative Graphical Causal Models and the Identification of Direct Effects**
Thomas Richardson, University of Washington and James Robins, Harvard School of Public Health*

2:10 **Why is Mediation Analysis Not Easy?**
Vanessa Didelez, University of Bristol, UK*

2:35 **Causal Mediation Analysis for Dichotomous and Time-to-event Outcomes**
Tyler VanderWeele, Harvard School of Public Health*

3:00 **Semiparametric Theory for Causal Mediation Analysis: Robustness, Efficiency and Sensitivity**
Eric J. Tchetgen Tchetgen and Ilya Shpitser, Harvard University*

3:25 **Floor Discussion**

75. Advances in Brain Imaging and Signal Biomarkers For Behavior

Congressional A | Lobby Level

Sponsor: IMS
Organizer: Hernando Ombao, University of California at Irvine
Chair: Dipak Dey, University of Connecticut

1:45 **How Restful is Resting State fMRI? — A Population Functional Change-Point Analysis Investigation**
John A.D. Aston, University of Warwick and Claudia Kirch, Karlsruhe Institute of Technology*

2:10 **Predicting Disease Status Using a Novel Support Vector Classifier for Longitudinal Neuroimaging Data**
DuBois Bowman and Shuo Chen, Emory University*

2:35 **Developing fMRI-based Biomarkers for Pain**
Martin A. Lindquist, Columbia University*

3:00 **Novel Measures of Dependence in Time Series as Biomarkers**
Hernando Ombao and Mark Fiecas, Brown University and Cristina Gorrostieta, University of California at Irvine*

3:25 **Floor Discussion**

76. Recent Development in Imputation Methods and Their Applications

Regency D | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Qixuan Chen, Columbia University
Chair: Sijian Wang, University of Wisconsin

1:45 **A Multiple Imputation Approach to Misreporting and Mismeasurement from Multiple Sources**
Yulei He, Mary Beth Landrum and Alan Zaslavsky, Harvard Medical School*

■ = Student Award Winner | ★ = Presenter

2:10 **Doubly Robust Nonparametric Multiple Imputation for Ignorable Missing Data**
Qi Long, Emory University; Chiu-Hsieh Hsu, University of Arizona and Yisheng Li, University of Texas MD Anderson Cancer Center*

2:35 **Why are There Multiple Hypothesis Testing Combining Rules for Multiply Imputed Data Sets?**
Xiao-Li Meng, Harvard University and Xianchao Xie, Two Sigma Investments, LLC*

3:00 **Imputing Modes for Missing Data Based on the Laplace Approximation to the Marginal Likelihood**
Myunghee Cho Paik, Columbia University*

3:25 **Floor Discussion**

77. TOPIC CONTRIBUTED PAPERS: Joint Modeling and Its Applications

Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Yangxin Huang, University of South Florida
Chair: Yangxin Huang, University of South Florida

1:45 **An Estimation Method of Marginal Treatment Effects on Correlated Longitudinal and Survival Outcomes**
Qing Pan, George Washington University and Grace Y. Yi, University of Waterloo*

2:00 **A Semiparametric Marginalized Model for Longitudinal Data with Informative Dropout**
Mengling Liu, New York University School of Medicine and Wenbin Lu, North Carolina State University*

2:15 **Bayesian Semiparametric Nonlinear Mixed-Effects Joint Models for Data with Skewness, Missing Responses and Measurement Errors in Covariates**
Yangxin Huang and Getachew A. Dagne, University of South Florida*

2:30 **Bayesian Hybrid Inference for Longitudinal and Survival Joint Models**
Gang Han, Moffitt Cancer Center & Research Institute; Yangxin Huang, University of South Florida and Catherine Phelan, Moffitt Cancer Center & Research Institute*

2:45 **Joint Spatial Modeling of Recurrent Infection and Growth in Forest Ecology**
Farouk S. Nathoo, University of Victoria*

3:00 **Bayesian Joint Model of Multivariate Ordinal Data with Competing Risks Survival Time**
Satrajit Roychoudhury, Novartis Pharmaceuticals Corporation*

3:15 **A Joint Latent Class Model of Survival and Longitudinal Data**
Yue Liu, Lei Liu and Jianhui Zhou, University of Virginia*

78. CONTRIBUTED PAPERS: Bayesian Methods I

Yellowstone | 2nd Floor

Sponsor: ENAR
Chair: Jung-Ying Tzeng, North Carolina State University

1:45 **Bayesian Kappa Regression**
Elande Baro, University of Maryland Baltimore County; Zhen Chen, Sung Duk Kim and Bo Zhang, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

2:00 **Sparse Data in Safety Data Analyses**
Xiaowen Hu, Southern Methodist University; Luyan Dai and Tom Tang, Boehringer Ingelheim Pharmaceutivals*

2:15 **Minkowski-Weyl Priors for Models with Parameter Constraints: An Analysis of the BioCycle Study**
■ *Michelle R. Danaher*, University of Maryland, Baltimore County and Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health; Anindya Roy, University of Maryland Baltimore County; Zhen Chen, Sunni L. Mumford and Enrique F. Schisterman, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

2:30 **A Predictive Bayesian Approach to the Design and Analysis of Bridging Studies**
A. Lawrence Gould, Jin Tian, Li Xin Zhang and William W. B. Wang, Merck Research Laboratories*

2:45 **Bayesian Semiparametric Regression for Evaluating Pathway Effects on Zero Inflated Clinical Outcomes**
Lulu Cheng and Inyoung Kim, Virginia Tech*

3:00 **Bayesian Sampling-Based Methods for Inverse Prediction from Longitudinal CD4 Profile Data**
Miranda L. Lynch and Victor DeGruttola, Harvard School of Public Health*

3:15 **Robust Bayesian Inference for Longitudinal Multivariate Data with Normal/Independent Distributions**
Sheng Luo and Junsheng Ma, University of Texas at Houston; Karl D. Kieburtz, University of Rochester Medical Center and Barbara C. Tilley, University of Texas at Houston*

79. CONTRIBUTED PAPERS: Correlated / Longitudinal Data

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Hongjie Zhu, Duke University

1:45 **A Semiparametric Latent Variable Transformation Approach for Modeling Multiple Outcomes of Mixed Types**
Anna Snavely, Harvard University and Yi Li, Harvard University and University of Michigan*

2:00 **Analysis of Asynchronous Longitudinal Observations**
Hongyuan Cao, University of Chicago; Donglin Zeng and Jason P. Fine, University of North Carolina at Chapel Hill*

2:15 **Hierarchical Multiple Informant Models**
Jonggyu Baek and Brisa N. Sanchez, University of Michigan and Emma V. Sanchez-Vaznaugh, San Francisco State University*

2:30 **Measures of Discrimination for Latent Group-Based Trajectory Models**
Nilesh Shah and Chung-Chou Chang, University of Pittsburgh*

2:45 **Challenges in Estimation of Genetic Effects from Family-based Case-Control Data**
Roula Tsonaka and Jeanine J. Houwing-Duistermaat, Leiden University Medical Center*

3:00 **The Analysis of Correlated Non-Gaussian Outcomes from Clusters of Size Two: Non-Multilevel-Based Alternatives?**
Tom Loeys, Ghent University and Geert Molenberghs, University of Leuven*

3:15 **Conditional Inference Functions for Mixed-Effects Models with Unspecified Random-Effects Distribution**
Peng Wang, Bowling Green State University; Guai-feng Tsai, U.S. Food and Drug Administration and Annie Qu, University of Illinois at Urbana-Champaign*

80. CONTRIBUTED PAPERS: Imaging

Bryce | 2nd Floor

Sponsor: ENAR
Chair: Ani Eloyan, Johns Hopkins University

1:45 **A Bayesian Hierarchical Framework for Modeling Brain Connectivity of Neuroimaging Data**
Shuo Chen, F. DuBois Bowman and Lijun Zhang, Emory University*

2:00 **Simple Modifications of a t-test for Improved Power with FDR Control in fMRI**
Shuzhen Li, Medtronic, Inc.; Lynn E. Eberly, University of Minnesota and Brian S. Caffo, Johns Hopkins University*

2:15 **Adaptive Thresholding for fMRI Data**
Joke Durnez and Beatrijs Moerkerke, Ghent University, Belgium*

2:30 **Application of Cluster Analysis in Dementia Research**
Jay Mandrekar, Mayo Clinic*

2:45 **Three-dimensional Recognition of Stem Cells Using an Entropy Based Nonparametric Hypothesis Testing Approach**
Ran Liu and Dipak K. Dey, University of Connecticut*

3:00 **A Bayesian Approach to Determining Functional Connectivity in the Human Brain with Incorporation of Structural Connectivity**
Wenqiong Xue and F. DuBois Bowman, Emory University*

3:15 **Floor Discussion**

■ = Student Award Winner | ✱ = Presenter

81. CONTRIBUTED PAPERS: Longitudinal and Time Series Data Analysis

Concord | Ballroom Level

Sponsor: ENAR
Chair: Raymond Hoffmann, Medical College of Wisconsin

1:45 **State-Space Time Series Clustering Using Discrepancies Based on the Kullback-Leibler Information and the Mahalanobis Distance**
Eric D. Foster and Joseph E. Cavanaugh, University of Iowa*

2:00 **Developmental Trajectories of Marijuana Use from Adolescence to Adulthood: Personality and Social Role Outcomes**
Judith S. Brook, Jung Yeon Lee and Elaine N. Brown, NYU School of Medicine; Stephen J. Finch, State University of NewYork, Stony Brook and David W. Brook, New York University School of Medicine*

2:15 **Modeling the Evolution of Neurophysiological Signals**
Mark Joseph A. Fiecas and Hernando Ombao, Brown University*

2:30 **Markov Regression Models for Count Time Series with Excess Zeros: A Partial Likelihood Approach**
Ming Yang, Gideon Zamba and Joseph Cavanaugh, University of Iowa*

2:45 **Semiparametric Approach to a Non-linear Random Effects Quantile Regression Model**
Mi-Ok Kim and Rhonda Vandyke, Cincinnati Children's Hospital Medical Center*

3:00 **Building a New Control Chart for Biosurveillance**
Yiying Fan, Cleveland State University*

3:15 **Robust Estimation of Mixed Effects Model for Finite Normal Mixtures**
Tingting Zhan, Temple University; Inna Chervoneva, Thomas Jefferson University and Boris Iglewicz, Temple University*

82. CONTRIBUTED PAPERS: Survival Analysis and Risk Prediction

Yosemite | 2nd Floor

Sponsor: ENAR
Chair: Hilary Parker, Johns Hopkins School of Public Health

1:45 **Partly Conditional Estimation of the Effect of a Time-Dependent Factor in the Presence of Dependent Censoring**
■ *Qi Gong* and Douglas E. Schaubel, University of Michigan*

2:00 **Regression Analysis of Clustered Interval-Censored Failure Time Data with the Additive Hazards Model**
Junlong Li, University of Missouri; Chunjie Wang, Mathematics School and Institute of Jilin University and Jianguo Sun, University of Missouri*

2:15 **Landmark Risk Prediction of Residual Life for Breast Cancer Survival**
Layla Parast and Tianxi Cai, Harvard University*

2:30 **Estimating Restricted Mean Job Tenures for Compensatory Damages in Promotion Discrimination Cases: Application to Alexander vs. Milwaukee**
Qing Pan and Joseph Gastwirth, George Washington University*

2:45 **Statistical Methods of Time-Conditional Survival**
Victoria Gamerman and Phyllis A. Gimotty, University of Pennsylvania*

3:00 **100 Years On: A New Look at Survivorship on the Titanic**
Stephen D. Walter, Hedy Jiang, McMaster University and Corinne A. Riddell, McGill University*

3:15 **Adjusted Survival Analysis with Inverse Probability Weights in Community-based Primary Care Practices**
Zugui Zhang, Edward Ewen and Paul Kolm, Christiana Care Health System*

Tuesday, April 3 (continued)

3:30 pm – 3:45 pm **Refreshment Break & Visit Our Exhibitors**
Regency Foyer
Ballroom Level

3:45 – 5:30 pm

83. Statistical Methods and Applications in Rare Variant Sequencing Studies
Columbia B | Ballroom Level

Sponsor: ENAR
Organizers: Xihong Lin, Harvard School of Public Health and Michael Wu, University of North Carolina at Chapel Hill
Chair: Xihong Lin, Harvard School of Public Health

3:45 **Joint Moment Test for Rare Variants**
Daniel J. Schaid, Mayo Clinic*

4:10 **A Novel Permutation Strategy to Correct for Confounders in Case-Control Studies of Rare Variation**
Michael P. Epstein, Richard Duncan, Yunxuan Jiang and Karen N. Conneely, Emory University; Andrew S. Allen, Duke University and Glen A. Satten, Centers for Disease Control and Prevention*

4:35 **Investigating the Impact of the Rare Spectrum of Variation on Drug Repositioning and Drug Response**
Matthew R. Nelson, GlaxoSmithKline*

5:00 **Kernel Machine Based Testing of Rare Variant by Environment Interactions**
Michael C. Wu, University of North Carolina at Chapel Hill*

5:25 **Floor Discussion**

84. Causal Inference Methods for HIV Research
Columbia A | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Miguel Hernan, Harvard School of Public Health
Chair: Miguel Hernan, Harvard School of Public Health

3:45 **Practical Applications of Principal Stratification in HIV Research**
Bryan E. Shepherd, Vanderbilt University*

4:15 **Estimation of Joint Effects of Multiple Time-Varying Exposures in Infectious Disease Research**
Stephen R. Cole, University of North Carolina at Chapel-Hill and Chanelle J. Howe, Brown University*

4:45 **Mediation Analysis for Observational Event Time Data**
Jing Zhang and Joseph W. Hogan, Brown University; Catherine Gichunge, Edwin Sang and Abraham Siika, Moi University*

5:15 **Discussant:** *James Robbins, Harvard University*

85. Modern Statistical Machine Learning for Complex and High Dimensional Data
Capitol Room | Lobby Level

Sponsor: ASA Section on Statistical Learning and Data Mining
Organizer: Yufeng Liu, University of North Carolina at Chapel Hill
Chair: Yufeng Liu, University of North Carolina at Chapel Hill

3:45 **High-Dimensional Pharmacoepidemiology**
David Madigan, Columbia University*

4:10 **HDLSS Discrimination with Adaptive Data Piling**
Myung Hee Lee, Colorado State University; Jeongyoun Ahn, University of Georgia and Yongho Jeon, Yonsei University*

4:35 **Likelihood Adaptive Modified Penalty and Its Properties**
Tengfei Li, Fudan University, Yang Feng and Zhiliang Ying, Columbia University*

5:00 **Regularized Multiple-Index Model for Group Variable Selection**
Sijian Wang, University of Wisconsin, Madison*

5:25 **Floor Discussion**

■ = Student Award Winner | * = Presenter

86. Statistical Challenges in Reproductive and Environmental Epidemiology

Congresional A | Lobby Level

Sponsor: ASA Section on Statistics and the Environment
Organizer: Raji Sundaram, National Institute of Child Health and Development, National Institutes of Health
Chair: Raji Sundaram, National Institute of Child Health and Development, National Institutes of Health

3:45 **Conceptual & Methodologic Challenges Underlying the Assessment of Environmental Reproductive and Developmental Toxicants: An Overview**
Germaine M. Louis, National Institute of Child Health and Development, National Institutes of Health*

4:10 **Modeling Time-To-Pregnancy in Terms of Variability of Menstrual Length**
Amita Manatunga, Emory University; Huichao Chen, Harvard University; Limin Peng and Michele Marcus, Emory University*

4:35 **Analysis of In-Vitro Fertilization Data with Multiple Outcomes Using Discrete Time to Event Analysis**
Arnab Maity, North Carolina State University; Paige Williams, Harvard School of Public Health; Louise Ryan, Commonwealth Scientific and Industrial Research Organisation; Stacey Missmer, Brent Coull and Russ Hauser, Harvard School of Public Health*

5:00 **Bayesian Borrowing of Information Across High-Dimensional Exposures and Outcomes**
Amy H. Herring, University of North Carolina at Chapel Hill; David B. Dunson, Duke University and Andrew F. Olshan, University of North Carolina at Chapel Hill*

5:25 **Floor Discussion**

87. Combining Population Data from Multiple Sources

Columbia C | Lobby Level

Sponsor: ASA Survey Research and Methodology Section
Organizer: Michael Elliott, University of Michigan
Chair: Trivellore Raghunathan, University of Michigan

3:45 **Combining Information from Multiple Complex Surveys**
Qi Dong, Trivellore Raghunathan and Michael Elliott, University of Michigan*

4:10 **Estimating Effectiveness of Health Care Combing Information from Different Surveys**
Trivellore Raghunathan and Irina Bondarenko, University of Michigan*

4:35 **Longitudinal Analysis of Linked Data: A Case Study**
Guangyu Zhang, Jennifer Parker and Nathaniel Schenker, National Center for Health Statistics*

5:00 **Combining Data from Probability and Non-probability Surveys**
Michael R. Elliott, Alexa Resler, Carol Flannagan and Jonathan Rupp, University of Michigan*

5:25 **Floor Discussion**

88. Spatial Uncertainty in Public Health Problems

Regency D | Ballroom Level

Sponsor: ASA Section on Statistics and the Environment
Organizer: Li Zhu, National Cancer Institute, National Institutes of Health
Chair: Li Zhu, National Cancer Institute, National Institutes of Health

3:45 **Spatial Uncertainty in Health Data: Does It Matter and Why Should I Worry About It?**
Geoffrey Jacquez, Biomedware*

4:10 **Relating Public Health to Environmental Factors: Quantifying Uncertainty when Exposure is Predicted**
Linda J. Young and Kenneth K. Lopiano, University of Florida and Carol A. Gotway, U.S. Centers for Disease Control and Prevention*

4:35 **Spatial Uncertainty and Spatial Measures of Performance**
Lance Waller, Emory University*

5:00 **Visualizing Statistics and Uncertainty Patterns with Micromaps**
Daniel B. Carr, George Mason University and Linda W. Pickle, StatNet Consulting LLC*

5:25 **Floor Discussion**

89. TOPIC CONTRIBUTED PAPERS: New Statistical Tools for High Dimensional Problems

Congressional B | Lobby Level

Sponsor ENAR
Organizer: Yichao Wu, North Carolina State University
Chair: Yichao Wu, North Carolina State University

3:45 **Discovering Graphical Granger Causality in Sparse High-dimensional Networks with Inherent Grouping Structure**
George Michailidis and Sumanta Basu, University of Michigan and Ali Shojaie, University of Washington*

4:05 **Quantile Regression in Ultra-high Dimension**
Lan Wang, University of Minnesota; Yichao Wu, North Carolina State University and Runze Li, The Pennsylvania State University*

4:25 **Statistical Tools for Identifying and Predicting Multiple Pathways**
Joseph S. Verducci, Samuel Handelman and Steven Bamattre, The Ohio State University*

4:45 **Selecting the Number of Principal Components in Functional Data**
Yehua Li, University of Georgia; Naisyin Wang, University of Michigan and Raymond J. Carroll, Texas A&M University*

5:05 **Robust Estimation of Large Gaussian Graphical Model**
Peng Tang, Georgia Institute of Technology; Huijing Jiang, IBM T.J. Watson Research Center and Xiwnei Deng, Virginia Tech*

5:25 **Floor Discussion**

90. CONTRIBUTED PAPERS: Bayesian Methods II

Yellowstone | 2nd Floor

Sponsor: ENAR
Chair: Kyu Ha Lee, Harvard School of Public Health

3:45 **A Bayesian Approach for Rank Aggregation**
Ke Deng and Xuxin Liu, Harvard University; Jiong Du, Peking University and Jun S. Li, Harvard University*

4:00 **Bayesian Inference for Case-Control Studies with Multiple Non-Gold Standard Exposure Assessments: With an Application in Occupational Health**
Jing Zhang, University of Minnesota*

4:15 **A Nonparametric Bayesian Model for Local Clustering**
Juhee Lee, University of Texas MD Anderson Cancer Center; Peter Mueller, University of Texas at Austin and Yuan Ji, University of Texas MD Anderson Cancer Center*

4:30 **A Bayesian Characterization for a Weighted Sum of Environmental Chemicals**
Stephanie M. Pearson and Roy T. Sabo, Virginia Commonwealth University*

4:45 **Estimating Reproductive Inhibition Potency in Aquatic Toxicity Testing When Excess Zeros Observed**
Jing Zhang, A. John Bailer and James T. Oris, Miami University*

5:00 **Bayesian Armitage-Doll Multistage Carcinogenesis Model in Estimating Cancer Mortality**
Zhiheng Xu and Vicki Hertzberg, Emory University*

5:15 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

91. CONTRIBUTED PAPERS: Diagnostic and Screening Tests

Bryce | 2nd Floor

Sponsor: ENAR
Chair: Patrick Perry, New York University

3:45 **Discrete Survival Analysis with Misclassified Events**
Abidemi Adeniji, University of Pittsburgh*

4:00 **A New Approach to Adjust for Verification Bias in Assessment of Binary Diagnostic Tests**
Qingxia Chen, Vanderbilt University*

4:15 **Diagnostic Tests Based on Multiple Cutpoints for Not Proper ROC Curves**
Peter R. Dawson and Phyllis A. Gimotty, University of Pennsylvania*

4:30 **Estimation of the Volume Under the ROC Surface with Three Ordinal Diagnostic Categories Using Kernel Smoothing**
Le Kang and Lili Tian, University at Buffalo*

4:45 **Soft ROC Curves**
Yixin Fang, New York University; Narayanaswamy Balakrishnan, McMaster University and Xin Huang, Fred Hutchinson Cancer Research Center*

5:00 **Evaluating Incomplete Multiple Imperfect Diagnostic Tests with a Probit Latent Class Model**
Yi Zhang, University of North Carolina at Chapel Hill; Haitao Chu, University of Minnesota and Donglin Zeng, University of North Carolina at Chapel Hill*

5:15 **Floor Discussion**

92. CONTRIBUTED PAPERS: Meta-Analysis

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Brian Neelon, Duke University

3:45 **Meta-Analysis of Binary Rare Adverse Event**
Dulal K. Bhaumik, University of Illinois at Chicago; Anup K. Amatya, New Mexico State University; Sharon-Lise Normand, Harvard University; Joel Greenhouse, Carnegie Mellon University; Eloise Kaizar, The Ohio State University; Brian Neelon, Duke University and Robert Gibbons, University of Chicago*

4:00 **Regulatory Network Analysis by Meta-Analysis of Multiple Transcriptomic Studies in Major Depressive Disorder**
Ying Ding, Etienne Sibille and George Tseng, University of Pittsburgh*

4:15 **Meta-Analysis Framework for the Dimension Reduction of Genomic Data**
Dongwan D. Kang and George C. Tseng, University of Pittsburgh*

4:30 **Meta-Analysis of Observational Studies with Unmeasured Confounders**
Lawrence C. McCandless, Simon Fraser University, Canada*

4:45 **Comprehensive Comparative Study of Microarray Meta-Analysis Methods**
Lun-Ching Chang, Hui-Min Lin and George C. Tseng, University of Pittsburgh*

5:00 **Imputation of Truncated p-values for Meta-Analysis Methods and Its Genomic**
■ *Shaowu Tang* and George C. Tseng, University of Pittsburgh*

5:15 **Merging Clustered or Longitudinal Cohort Data with Cohort-specific Missing Covariates**
Fei Wang, Lu Wang and Peter X.-K. Song, University of Michigan*

93. CONTRIBUTED PAPERS: Missing Data I

Concord | Ballroom Level

Sponsor: ENAR
Chair: Zhi (Kevin) He, University of Michigan

3:45 **A Multiple Imputation Based Approach to Sensitivity Analyses and Effectiveness Assessments in Longitudinal Clinical Trials**
Teshome Birhanu, I-BioStat, Universiteit Hasselt, Belgium; Ilya Lipkovich, Eli Lilly & Company; Geert Molenberghs, I-BioStat, Universiteit Hasselt, Belgium and I-BioStat, Katholieke Universiteit Leuven, Belgium and Craig H. Mallinckrodt, Eli Lilly & Company*

4:00 **Estimation of Rate of Change in Longitudinal Studies with Varying Degrees of Missingness and Informative Dropout: A Simulation Study**
Jamie E. Collins, Boston University; Robin Bliss and Elena Losina, Brigham and Women's Hospital*

4:15 **On Cluster Size, Ignorability, Ancillarity, Completeness, Separability, and Degeneracy: Sequential Trials, Random Sample Sizes, and Missing Data**
Geert Molenberghs, I-BioStat, Universiteit Hasselt & Katholieke Universiteit Leuven, Belgium; Michael G. Kenward, London School of Hygiene and Tropical Medicine; Marc Aerts, I-BioStat, Universiteit Hasselt, Belgium; Geert Verbeke, I-BioStat, Katholieke Universiteit Leuven & Universiteit Hasselt, Belgium; Anastasios A. Tsiatis and Marie Davidian, North Carolina State University and Dimitris Rizopoulos, Erasmus University Rotterdam*

4:30 **Diagnostic Plots for Evaluation of Bias in Missing Data from Clinical Trials**
Gerry W. Gray, U.S. Food and Drug Administration*

4:45 **Time-to-event Analysis with Partial Adjudication of Potential Events Using Fractional Imputation**
Jason C. Legg, Amgen Inc. and Jae Kwang Kim, Iowa State University*

5:00 **Multiple Imputation for Generalized Linear Models with Censored Covariates**
Paul W. Bernhardt, Huixia Wang and Daowen Zhang, North Carolina State University*

5:15 **Multiple Imputation for Measurement Error with Internal and External Calibration Samples**
Roderick J. Little, University of Michigan*

94. CONTRIBUTED PAPERS: Semiparametric and Nonparametric Methods for Survival Analysis

Yosemite | 2nd Floor

Sponsor: ENAR
Chair: Lily Wang, University of Georgia

3:45 **A Family of Weighted Generalized Inverse Weibull Distribution**
Broderick O. Oluyede, Georgia Southern University and Jing Kersey, East Georgia College*

4:00 **Stratified and Unstratified Log-Rank Tests in Survival Analysis**
Changyong Feng, David Oakes and Yao Yu, University of Rochester Medical Center*

4:15 **Nonparametric Estimation of the Mean Function for Recurrent Events Data with Missing Event Category**
Feng-Chang Lin, Jianwei Cai and Jason P. Fine, University of North Carolina at Chapel Hill and HuiChuan J. Lai, University of Wisconsin-Madison*

4:30 **Median Tests for Censored Survival Data: Contingency Table Approach**
Shaowu Tang and Jong-Hyeon Jeong, University of Pittsburgh*

4:45 **Pointwise Confidence Intervals for a Survival Distribution for Right Censored Data with Small Samples or Heavy Censoring**
Michael P. Fay, Erica Brittain and Michael A. Proschan, National Institute of Allergy and Infectious Diseases, National Institutes of Health*

5:00 **Further Thoughts on the Proportional Mean Residual Life Model**
David Oakes, University of Rochester Medical Center*

5:15 **Frailty Models with Covariates Subject to Limit of Detection**
Abdus Sattar, Case Western Reserve University; Liang Li, Cleveland Clinic Foundation and Pingfu Fu, Case Western Reserve University*

■ = Student Award Winner | ★ = Presenter

Wednesday, April 4

8:30 – 10:15 am

95. New Statistical Challenges in Functional Data Analysis

Yellowstone | 2nd Floor

Sponsor: ASA Biometrics Section
Organizer: Ana-Maria Staicu, North Carolina State University
Chair: Michele Guindani, University of Texas MD Anderson Cancer Center

8:30 **Bayesian Variable Selection for Identifying Genetic Effects on Functional Connectivity**
Brian J. Reich, North Carolina State University; Michele Guindani, University of Texas MD Anderson Cancer Center; Abel Rodriguez, University of California at Santa Cruz and Vince Calhoun, University of New Mexico*

8:55 **Regression Models for Spatially Correlated Multilevel Functional Data**
Ana-Maria Staicu, North Carolina State University; Damla Sentürk, University of California at Los Angeles and Raymond J. Carroll, Texas A&M University*

9:20 **Varying Coefficient Models for Sparse Noise-Contaminated Longitudinal Data**
Damla Senturk, University of California, Los Angeles and Danh Nguyen, University of California, Davis*

9:45 **Longitudinal High Dimensional Data Analysis**
Vadim Zipunnikov, Johns Hopkins University; Sonja Greven, Ludwig-Maximilians-University; Brian Caffo, Johns Hopkins University; Daniel S. Reich, Johns Hopkins University and National Institute of Neurological Disorders and Stroke, National Institutes of Health and Ciprian M. Crainiceanu, Johns Hopkins University*

10:10 **Floor Discussion**

96. Estimation of Covariance Matrices with Applications to Longitudinal Data and Graphical Models

Columbia B | Ballroom Level

Sponsor: IMS
Organizer: Michael Daniels, University of Florida
Chair: Dhiman Bhadra, Worcester Polytechnic Institute

8:30 **Estimating Large Correlation Matrices by Banding the Partial Autocorrelation Matrix**
Yanpin Wang and Michael Daniels, University of Florida*

9:00 **Antedependence Models for Normal and Categorical Longitudinal Data**
Dale L. Zimmerman, University of Iowa*

9:30 **Doubly Regularized Estimation and Selection in Linear Mixed-Effects Models for High-Dimensional Longitudinal Data**
Yun Li, University of Michigan; Sijian Wang, University of Wisconsin; Peter X.K. Song, Naisyin Wang and Ji Zhu, University of Michigan*

10:00 **Floor Discussion**

97. Analyses of Incomplete Longitudinal Data – How Robust are the Results?

Capitol Room | Lobby Level

Sponsor: ASA Biometrics Section
Organizer: Donna Kowalski, Astellas Pharma Global Development, Inc
Chair: Donna Kowalski, Astellas Pharma Global Development, Inc

8:30 **Bayesian Influence Measures for Joint Models for Longitudinal and Survival Data**
Joseph G. Ibrahim and Hongtu Zhu, University of North Carolina at Chapel Hill and Niansheng Tang, Yunnan University, China*

9:00 **Robust Analyses of Randomized Clinical Trials with Incomplete Longitudinal Data**
Devan V. Mehrotra, Merck Research Laboratories*

9:30 **On the Usefulness of Sensitivity Analyses**
James M. Robins, Harvard School of Public Health*

10:00 **Floor Discussion**

98. Statistics in Mental Health Research: A Memorial to Dr. Andrew Leon

Columbia A | Ballroom Level

Dr. Andrew Leon, originally scheduled to participate in this session, passed away unexpectedly on Sunday, February 19, 2012. The remaining participants would like to dedicate their session to his memory.

Sponsor: ENAR
Organizers: Naihua Duan, Columbia University and Robert Gibbons, University of Chicago
Chair: Naihua Duan, Columbia University

8:30 **Efficient Longitudinal Estimation of Incidence and Prevalence Rate of Major Depressive Disorder in Home Healthcare Study**
Samiran Ghosh, Winthrop University Hospital and SUNY Stony Brook, Marty Bruce, Weill Cornell Medical College*

8:55 **Modeling Between- and Within-Subject Mood Variance in Ecological Momentary Assessment (EMA) Data using Mixed-Effects Location-Scale Models**
Donald Hedeker, Robin J. Mermelstein and Hakan Demirtas, University of Illinois at Chicago*

9:20 **Are Antidepressants Effective and Do They Cause Suicidal Thoughts and Behavior? Methodology and Findings for Synthesizing Findings Across Multiple Randomized Antidepressant Trials**
Hendricks Brown, University of Miami; Robert D. Gibbons, University of Chicago; Kwan Hur, University of Chicago and Hines VA Hospital Center for Medication Safety; John J. Mann, Columbia University and Bengt O. Muthen, University of California at Los Angeles*

9:45 **The Future of Mental Health Measurement**
Robert D. Gibbons, University of Chicago*

12:00 **Floor Discussion**

99. High-Impact Statistical Methods and the Fight Against HIV in the Developing World

Congressional A | Lobby Level

Sponsor: ENAR
Organizer: Joseph Hogan, Brown University
Chair: Joseph Hogan, Brown University

8:30 **Using Auxiliary Biomarkers to Improve Pooling Strategies for HIV Viral Load Testing**
Tao Liu, Joseph W. Hogan, Shangxuan Zhang and Rami Kantor, Brown University*

8:55 **The Role of Network Analyses in Research on Prevention of HIV Infection**
Ravi Goyal, Joseph Blitzstein and Victor DeGruttola, Harvard University*

9:20 **Estimation from Double-Sampled Semi-Competing Risk Data**
Constantin T. Yiannoutsos, Menggang Yu and Hai Liu, Indiana University School of Medicine*

9:45 **Traditional and 'Causal' Models for Evaluating the Effectiveness of the Switch to Second Line Therapy in a Large, Ongoing HIV/AIDS Treatment and Care Program in a Resource Limited Setting**
Sehee Kim and Donna Spiegelman, Harvard School of Public Health; Claudia Hawkins, Northwestern University; Aisa Muya and Eric Aris, Management and Development for Health Dar es Salaam, Tanzania; Ester Mungure and Aveika Akum, Harvard School of Public Health; Guerino Chalamilla, Management and Development for Health Dar es Salaam, Tanzania and Wafaie W. Fawzi, Harvard School of Public Health*

10:10 **Floor Discussion**

100. Memorial Session for Tom Ten Have

Regency A | Ballroom Level

Sponsor: ENAR
Organizers: Dylan Small and Marshall Joffe, University of Pennsylvania
Chair: Dylan Small, University of Pennsylvania

8:30 **Celebrating the Life of Thomas R. Ten Have**
J. Richard Landis, University of Pennsylvania*

8:55 **Sizing Sequential, Multiple Assignment, Randomized Trials for Survival Analysis**
Zhiguo Li, Duke University and Susan Murphy, University of Michigan*

9:20 **Post-Randomization Modification of Intent-to-Treat Effects in Randomized Clinical Trials**
Rongmei Zhang, U.S. Food and Drug Administration; Marshall Joffe and Thomas Ten Have, University of Pennsylvania*

9:45 **Mediation Analysis on the Basis of Initial Randomization**
Marshall Joffe, University of Pennsylvania

10:10 **Floor Discussion**

101. TOPIC CONTRIBUTED PAPERS: Advanced Statistical Modeling for Complex OMICS Data

Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Hua Zhou, North Carolina State University
Chair: Hua Zhou, North Carolina State University

8:30 **Bayesian Model for Identifying Spatial Interactions of Chromatins**
Shili Lin and Liang Niu, The Ohio State University*

8:50 **Testing and Estimation of Partial Correlation Networks**
Fred A. Wright and Min Jin Ha, University of North Carolina at Chapel Hill*

9:10 **Statistical Methods for Inference from Multiple ChIP-seq Samples**
Sunduz Keles, University of Wisconsin, Madison*

9:30 **Statistical Models for Analyzing Sequencing Applications**
Zhaohui S. Qin, Emory University*

9:50 **A Gene-Trait Similarity Regression Method for Common and Rare Variants with General Trait Values**
Jung-Ying Tzeng, North Carolina State University*

10:10 **Floor Discussion**

102. CONTRIBUTED PAPERS: Biomarkers II

Concord | Ballroom Level

Sponsor: ENAR
Chair: Margaret A. Taub, Johns Hopkins University

8:30 **The Application of Non-Linear Models to Understanding Sociodemographic Distributions of Health Over Time**
David Rehkopf, Stanford University*

8:45 **Adjusting for Matching and Covariates in Linear Discriminant Analysis**
Josephine K. Asafu-Adjei, Harvard School of Public Health; Allan R. Sampson and Robert A. Sweet, University of Pittsburgh*

9:00 **Adjustment for Measurement Error in Evaluating Diagnostic Biomarkers by Using an Internal Reliability Sample**
■ *Matthew T. White* and Sharon X. Xie, University of Pennsylvania*

9:15 **Integrating Multiple Modalities of High Throughput Assays Using Item Response Theory: An Application to Identify Genes Altered in Ovarian Cancer**
Pan Tong, University of Texas Health Science Center at Houston and Kevin R. Coombes, University of Texas MD Anderson Cancer Center*

9:30 **Estimating the Correlation Between Two Variables Subject to Limit of Detection**
Courtney E. McCracken, Emory University and Stephen W. Looney, Georgia Health Sciences University*

9:45 **Modeling Complex Structures in Neuropsychiatric Testing Data for Subjects with Pediatric Disorders**
Vivian H. Shih, Laurie A. Brenner, Carrie E. Bearden, Catherine A. Sugar and Steve S. Lee, University of California at Los Angeles*

10:00 **Floor Discussion**

103. CONTRIBUTED PAPERS: Dynamic Treatment Regimens

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Douglas Gunzler, Case Western Reserve University

8:30 **Q-learning for Estimating Optimal Dynamic Treatment Rules from Observational Data**
Erica E. Moodie, McGill University and Bibhas Chakraborty, Columbia University*

8:50 **Weighted Log-rank Statistic to Compare Shared-Path Adaptive Treatment Strategies**
Kelley M. Kidwell and Abdus S. Wahed, University of Pittsburgh*

9:10 **A Comparison of Q- and A-Reinforcement Learning Methods for Estimating Optimal Treatment Regimes**
Phillip J. Schulte, Marie Davidian and Anastasios A. Tsiatis, North Carolina State University*

9:30 **Estimating Individualized Treatment Rules Using Outcome Weighted Learning**
■ *Yingqi Zhao* and Donglin Zeng, University of North Carolina at Chapel Hill; A. John Rush and Michael R. Kosorok, University of North Carolina at Chapel Hill*

9:50 **Choice of Optimal Estimators in Structural Nested Mean Models With Application to Initiating HAART in HIV Positive Patients After Varying Duration of Infection**
Judith J. Lok, Victor DeGruttola, Ray Griner and James M. Robins, Harvard School of Public Health*

10:10 **Floor Discussion**

104. CONTRIBUTED PAPERS: Missing Data II

Columbia C | Ballroom Level

Sponsor: ENAR
Chair: R. Lakshmi Vishnuvajjala, U.S. Food and Drug Administration

8:30 **A Joint Longitudinal-Survival Model to Analyze Risk Factors for Death of Patients on the Liver Transplant Waiting List**
Arwin Thomasson, Peter Reese, David Goldberg and Sarah Ratcliffe, University of Pennsylvania*

8:45 **Missing Covariates and the Plausibility of the Missing at Random Assumption**
Jonathan W. Bartlett and James R. Carpenter, London School of Hygiene & Tropical Medicine, UK; Kate Tilling, University of Bristol, UK; Michael G. Kenward, London School of Hygiene & Tropical Medicine, UK and Stijn Vansteelandt, Ghent University, Belgium*

9:00 **Missing Value Imputation in Phenome Data**
Ge Liao and George C. Tseng, University of Pittsburgh*

9:15 **Weighted Semiparametric Estimation of the Cox Model for Interval-Censored Data with Missing Covariates**
Lu Wang and Bin Nan, University of Michigan; Peng Zhang, Peking University and Andrew Zhou, University of Washington*

9:30 **Goodness-of-Fit Test to Distribution-Free Models for Longitudinal Studies with Informative Missing Data**
Pan Wu and Xin M. Tu, University of Rochester*

9:45 **Joint Empirical Likelihood Confidence Regions for the Evaluation of Continuous-Scale Diagnostic Tests in the Presence of Verification Bias**
Binhuan Wang and Gengsheng Qin, Georgia State University*

10:00 **Floor Discussion**

105. CONTRIBUTED PAPERS: Multiple Testing

Lexington | Ballroom Level

Sponsor: ENAR
Chair: Elizabeth L. Ogburn, Harvard University

8:30 **Step-up-down Multiple Testing Procedures and Their Control of False Rejections**
Alexander Y. Gordon, University of North Carolina at Charlotte*

8:45 **An Improved Hochberg Procedure for Multiple Tests of Significance**
Dror M. Rom, PSI Center for Statistical Research*

■ = Student Award Winner | ✱ = Presenter

9:00 **Robust Identification of Conditional Gene Expression in Development of Onthophagus Beetles**
Guilherme V. Rocha, Karen Kafadar and Armin Moczek, Indiana University; Emilie Snell-Rood, University of Minnesota; Teiya Kijimoto and Justen Andrews, Indiana University*

9:15 **Estimating the Number of Genes that are Differentially Expressed in Both of Two Independent Experiments**
Megan C. Orr, Peng Liu and Dan Nettleton, Iowa State University*

9:30 **An Adaptive Resampling Test for Detecting the Presence of Significant Predictors**
Ian W. McKeague and Min Qian, Columbia University*

9:45 **Joint Modeling of Multiple Partially Observed Outcomes from Clinical Trials**
Nicholas J. Horton, Smith College; Kypros Kypri, University of Newcastle, Australia; Frank B. Yoon, Mathematica Policy Research; Garrett M. Fitzmaurice and Stuart R. Lipsitz, Harvard Medical School and Sharon-Lise T. Normand, Harvard Medical School and Harvard School of Public Health*

10:00 **A Tight Prediction Interval for False Discovery Proportion under Dependence**
Shulian Shang, Mengling Liu and Yongzhao Shao, New York University*

106. CONTRIBUTED PAPERS: Power / Sample Size Calculations

Bryce | 2nd Floor

Sponsor: ENAR
Chair: Gerry W. Gray, U.S. Food and Drug Administration

8:30 **Sample Size Estimation in Randomized Clinical Trials (RCTs) Designed to Establish the Interaction Between Prognostic Factor and Treatment: Impact of Prognostic Factor Distribution Misspecification**
William M. Reichmann, Boston University School of Public Health and Brigham and Women's Hospital; Michael P. LaValley and David R. Gagnon, Boston University School of Public Health and Elena Losina, Brigham and Women's Hospital and Boston University School of Public Health*

8:45 **Comparison of Four-Period and Two- Period Crossover Studies for Comparing Within-Subject Variances of Two Treatments**
Donald J. Schuirmann, U.S. Food and Drug Administration*

9:00 **Use of Longitudinal Registry Data for Optimal Design of Clinical Trials: An Example in Huntington's Disease**
Elizabeth L. Turner and Chris Frost, London School of Hygiene and Tropical Medicine*

9:15 **Assessing Probability of Success for Clinical Trials with Correlated Binary Endpoints**
Michael Dallas, Guanghan Liu, Ivan Chan and Joseph Heyse, Merck Research Laboratories*

9:30 **Interim Design Resampling for Sample Size Re-estimation**
Sergey Tarima, Peng He, Tao Wang and Aniko Szabo, Medical College of Wisconsin*

9:45 **A General Approach for Estimating Stopping Probability of Large Confirmatory Group Sequential Clinical Trial in Life-Threatening Conditions Monitoring Binary Efficacy and Safety Outcomes**
Yanqiu Weng, Wenle Zhao and Yuko Y. Palesch, Medical University of South Carolina*

10:00 **GEE Method for Longitudinal Data Analysis in SMART Trials and the Associated Sample Size Formula**
Zhiguo Li, Duke University*

Wednesday, April 4 (continued)

10:15 – 10:30 am **Refreshment Break & Visit Our Exhibitors**
Regency Foyer
Lobby Level

10:30 – 12:15 pm

107. Imaging, Omics, and High-Dimensionality
Columbia B | Ballroom Level

Sponsor: IMS
Organizer: Bin Nan, University of Michigan
Chair: Bin Nan, University of Michigan

10:30 **Multiple Comparison Procedures for iQTL analysis**
Debashis Ghosh and Wen-Yu Hua, Penn State University and Thomas E. Nichols, University of Warwick*

10:55 **Test for SNP-set Effects with Applications to Sequencing Association Studies**
Xihong Lin, Harvard School of Public Health*

11:20 **Analyzing Joint and Individual Variation in Multiple Data Sets**
Andrew B. Nobel, Eric S. Lock and J. S. Marron, University of North Carolina at Chapel Hill*

11:45 **What is in the News: Automatic and Sparse Summarization of Large Document Corpora**
Luke Miratrix, University of California at Berkeley; Jinzhu Jia, Peking University; Brian Gawalt, Laurent El Ghaoui and Jas Sekhon, University of California at Berkeley*

12:10 **Floor Discussion**

108. Statistical Methods for Modeling SEER Population-Based Cancer Data
Congressional A | Lobby Level

Sponsor: ASA Section on Statistics and the Environment
Organizer: Kathy Cronin, National Cancer Institute, National Institutes of Health
Chair: Kathy Cronin, National Cancer Institute, National Institutes of Health

10:30 **Introduction: An Overview of Population-based SEER Cancer Registry Data**
Hyunsoon Cho and Nadia Howlader, National Cancer Institute, National Institutes of Health*

10:55 **Using SEER Data to Develop Models of Absolute Cancer Risk**
Mitchell H. Gail, National Cancer Institute, National Institutes of Health*

11:20 **Detecting Multiple Change Points in Piecewise Constant Hazard Functions**
Yi Li, University of Michigan and Melody Goodman, Washington University St. Louis*

11:45 **Mammography, Modeling and Politics**
Jeanne Mandelblatt, Lombardi Cancer Center at Georgetown University; Kathy Cronin, National Cancer Institute, National Institutes of Health; Don Berry, University of Texas MD Anderson Cancer Center; Harry DeKoning, Erasmus University Medical Center; Sandra Lee, Harvard University; Sylvia Plevritis, Stanford University; Clyde Schechter, Albert Einstein College of Medicine; Natasha Stout, Harvard Pilgrim Healthcare; Marvin Zelen, Harvard University and Eric Feuer, National Cancer Institute, National Institutes of Health*

12:10 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

109. Powerful Statistical Models and Methods in Next Generation Sequencing

Columbia A | Ballroom Level

Sponsor: ASA Biometrics Section
Organizer: Lin Chen, University of Chicago
Chair: Pei Wang, Fred Hutchinson Cancer Research Center

10:30 **Analytical Challenges in Association Studies with Whole-Genome Sequencing**
Dan L. Nicolae, University of Chicago*

11:00 **Association Analysis of Genome-wide Genetic Data**
Li Hsu, Fred Hutchinson Cancer Research Center*

11:30 **Exponential Combination Procedure for Set-Based Tests in Sequencing Studies**
Lin S. Chen, University of Chicago; Li Hsu, Fred Hutchinson Cancer Research Center and Dan L. Nicolae, University of Chicago*

12:00 **Floor Discussion**

110. Recent Advances in Clinical Trial Design: Utilities And Pitfalls

Yellowstone | 2nd Floor

Sponsor: ASA Biopharmaceutical Section
Organizer: Yeh-Fong Chen, U.S. Food and Drug Administration
Chair: Yeh-Fong Chen, U.S. Food and Drug Administration

10:30 **Complex Clinical Trial Designs: An Overview**
H.M. James Hung, U.S. Food and Drug Administration*

10:55 **A Doubly Enriched Clinical Trial Design Merging Placebo Lead-in and Randomized Withdrawal**
Roy N. Tamura, Eli Lilly and Company and Anastasia Ivanova, University of North Carolina at Chapel Hill*

11:20 **Utility and Pitfalls with Adaptive Selection Design**
Sue-Jane Wang, U.S. Food and Drug Administration*

11:45 **A Two Part Design for Evaluating Antiepileptic Drugs**
Eugene Laska, New York University School of Medicine*

12:10 **Floor Discussion**

111. Individualized Risk Prediction Using Joint Models of Longitudinal and Survival Data

Columbia C | Ballroom Level

Sponsor: ENAR
Organizer: Hormuzd Katki, National Cancer Institute, National Institutes of Health
Chair: Raji Sundaram, National Institute of Child Health and Development, National Institutes of Health

10:30 **A Joint Model of Cervical Cancer, PAP Smears, and HPV Tests for Use in Developing Cancer Screening Guidelines**
Hormuzd A. Katki, National Cancer Institute, National Institutes of Health and Rajeshwari Sundaram, National Institute of Child Health and Human Development, National Institutes of Health*

10:55 **Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout—A Joint Modeling Approach**
Alexander C. McLain and Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health*

11:20 **Different Parameterizations for Joint Models for Longitudinal and Survival Data, and How They Affect Individualized Predictions**
Dimitris Rizopoulos, Erasmus University Medical Center*

11:45 **Joint Latent Class Models of Longitudinal and Time-to-Event Data in the Context of Individual Dynamic Predictions**
Cécile Proust-Lima and Mbéry Séne, INSERM, France; Jeremy MG Taylor, University of Michigan and Hélène Jacqmin-Gadda, INSERM, France*

12:10 **Floor Discussion**

112. Recent Advances in Dynamic Treatment Regimes Research

Capitol A | Lobby Level

Sponsor: ENAR
Organizer: Bibhas Chakraborty, Columbia University
Chair: Bibhas Chakraborty, Columbia University

10:30 **Practical Issues in the Design, Conduct, and Analysis of Randomized Oncology Trials Comparing Dynamic Treatment Regimes**
Peter Thall, University of Texas MD Anderson Cancer Center*

10:55 **A Policy Search Method for Estimating Treatment Policies**
Xi Lu and Susan A. Murphy, University of Michigan*

11:20 **Comparing Dynamic Treatment Regimes Via the G-Formula**
Miguel A. Hernan, Harvard School of Public Health*

11:45 **Realistic as Treated Dynamic Treatment Regimes**
Andrea Rotnitzky, Universidad Di Tella and Harvard University and Sebastien Haneuse, Harvard School of Public Health*

12:00 **Floor Discussion**

113. TOPIC CONTRIBUTED PAPERS: A Review of Established and New Methods of Multiple Imputation of Missing Data with the Emphasis on Available Software Packages

Congressional B | Lobby Level

Sponsor: ENAR
Organizer: Victoria Liublinska, Harvard University
Chair: Donald B. Rubin, Harvard University

10:30 **Flexible Imputation with MICE**
Stef van Buuren, TNO*

10:50 **Multiple Imputation by Ordered Monotone Blocks with Application to the Anthrax Vaccine Adsorbed Trial**
Fan Li, Duke University; Michela Baccini and Fabrizia Mealli, University of Florence; Constantine Frangakis, Johns Hopkins University; Elizabeth Zell, Centers for Disease Control and Prevention and Donald B. Rubin, Harvard University*

11:10 **New Multiple Imputation Methods in SOLAS, Including a Combination of Two Hot-Deck Methods with Appealing Properties**
Donald B. Rubin and Victoria Liublinska, Harvard University*

11:30 **Convergence Properties of Sequential Regression Multiple Imputation Approach**
Trivellore Raghunathan and Jian Zhu, University of Michigan*

11:50 **Making Multiple Imputation Accessible to Non-Statisticians**
Leland Wilkinson, University of Illinois at Chicago*

12:10 **Floor Discussion**

114. CONTRIBUTED PAPERS: Accelerated Failure Time Models

Congressional C/D | Lobby Level

Sponsor: ENAR
Chair: Michael Fay, NIAID

10:30 **Accelerated Failure Time Model for Case-Cohort Design with Longitudinal Covariates Measured with Error**
Xinxin Dong, University of Pittsburgh; Lan Kong, Penn State Hershey College of Medicine and Abdus S. Wahed, University of Pittsburgh*

10:45 **Accelerated Failure Time Modeling of Genetic Pathway Data Using Kernel Machines for Risk Prediction**
Jennifer A. Sinnott and Tianxi Cai, Harvard University*

11:00 **A Semiparametric Accelerated Failure Time Partial Linear Model and Its Application to Breast Cancer**
Yubo Zou and Jiajia Zhang, University of South Carolina and Guoyou Qin, Fudan University, Shanghai, PR China*

11:15 **Parametric Inference on Accelerated Failure Time Model with Random Effects**
KyungAh Im and Jong-Hyeon Jeong, University of Pittsburgh and Rhonghui Xu, University of California-San Diego*

■ = Student Award Winner | ✶ = Presenter

11:30 **Bayesian Semiparametric Accelerated Failure Time Model for Arbitrarily Censored Data Subject to Covariate Measurement Error**
Xiaoyan Lin and Lianming Wang, University of South Carolina*

11:45 **Subsample Ignorable Maximum Likelihood for Accelerated Failure Time Models with Missing Predictors**
Nanhua Zhang, University of South Florida and Roderick J. Little, University of Michigan*

12:15 **Floor Discussion**

115. CONTRIBUTED PAPERS: Environmental and Ecological Applications

Lexington | Ballroom Level

Sponsor: ENAR
Chair: Eleanor Pullenayegum, McMaster University

10:30 **The Effect of Air Pollution Control on Life Expectancy in the United States: An Analysis of 545 U.S. Counties for the Period 2000 to 2007**
Andrew W. Correia and Francesca Dominici, Harvard University*

10:45 **Modeling Space-Time Quantile Surfaces for Nonstationary Random Fields**
Dana Sylvan, Hunter College of the City University of New York*

11:00 **Fast Copula-Based Spatial Regression for Discrete Geostatistical Data**
John Hughes, University of Minnesota*

11:15 **Mortality Effects of Particulate Matter Constituents in a National Study of U.S. Urban Communities**
Jenna R. Krall, Johns Hopkins Bloomberg School of Public Health; Francesca Dominici, Harvard School of Public Health; Michelle L. Bell, Yale University and Roger D. Peng, Johns Hopkins Bloomberg School of Public Health*

11:30 **Estimating Covariance Parameters and Generalized Least Squares Estimators in Linear Models with Spatially Misaligned Data**
Kenneth K. Lopiano and Linda J. Young, University of Florida and Carol A. Gotway, Centers for Disease Control*

11:45 **Comparing Maps Across Time: Spatio-Temporal Moran's I in STARMA Models**
Nathan M. Holt and Linda J. Young, University of Florida and Carol A. Gotway, Centers for Disease Control and Prevention*

12:00 **Modeling Low-rank Spatially Varying Cross-covariances using Predictive Process with Application to Soil Nutrient Data**
■ *Rajarshi Guhaniyogi*, University of Minnesota; Andrew O. Finley and Rich Kobe, Michigan State University and Sudipto Banerjee, University of Minnesota*

116. CONTRIBUTED PAPERS: Next Generation Sequencing

Concord | Ballroom Level

Sponsor: ENAR
Chair: Simone Gray, U.S. Environmental Protection Agency

10:30 **Statistical Modeling of Closely Located Protein Binding Sites using Paired-End Tag (PET) ChIP-Seq Data, with Application to the Study of sigma70 Factor in Escherichia coli**
Dongjun Chung, Jeff Grass, Kevin Myers, Patricia Kiley, Robert Landick and Sunduz Keles, University of Wisconsin, Madison*

10:50 **A Generalized Linear Model for Peak Calling in ChIP-Seq Data**
Jialin Xu and Yu Zhang, The Pennsylvania State University*

11:10 **A Dynamic Signal Profile Algorithm Combined with a Bayesian Hidden Ising Model for ChIP-seq Data Analysis**
Qianxing Mo, Baylor College of Medicine*

11:30 **Determining Probability of Rare Variants: Design Implications for Family-based Sequencing Studies**
Wenyi Wang and Gang Peng, University of Texas MD Anderson Cancer Center*

11:50 **A Powerful Test for Multiple Rare Variants Association Studies that Incorporate Sequencing Qualities**
Z. John Daye, Hongzhe Li, University of Pennsylvania School of Medicine and Zhi Wei, New Jersey Institute of Technology*

12:10 **Floor Discussion**

117. CONTRIBUTED PAPERS: Nonparametric Methods
Yosemite | 2nd Floor

Sponsor: ENAR
Chair: Ruosha Li, University of Pittsburgh

10:30 **Bounded Influence Nonlinear Signed-Rank Regression**
Huybrechts Frazier Bindele, Auburn University*

10:45 **Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-Validation**
■ *Ganggang Xu* and Jianhua Huang, Texas A&M University, College Station*

11:00 **Unconditional Tests to Measure Agreement for Categorial Data in Applications to a Brain Trauma Study**
Guogen Shan, Brain Trauma Foundation; Gregory Wilding and Changxing Ma, University at Buffalo; Alison Schonberger and Jamshid Ghajar, Brain Trauma Foundation*

11:15 **General Pivotal Goodness of Fit Test Based on Kernel Density Estimation**
Hani M. Samawi and Robert Vogel, Georgia Southern University*

11:30 **Berry-Esseen-Type Bounds for General Nonlinear Statistics, with Applications to Pearson's and Non-Central Student's and Hotelling's**
Iosif Pinelis, Michigan Technological University*

11:45 **Bayesian Quantile Regression using Mixture of Polya Trees**
Minzhao Liu and Michael Daniels, University of Florida*

12:00 **Confidence Intervals Under Order Restriction**
Yong Seok Park, John D. Kalbfleisch and Jeremy MG Taylor, University of Michigan*

118. CONTRIBUTED PAPERS: Semi-Parametric and Non-Parametric Models
Bryce | 2nd Floor

Sponsor: ENAR
Chair: Jing Zhang, University of Minnesota

10:30 **Locally Efficient Estimation of Marginal Treatment Effects Using Auxiliary Covariates in Randomized Trials with Correlated Outcomes**
Alisa J. Stephens, Eric Tchetgen Tchetgen and Victor De Gruttola, Harvard University*

10:45 **Kernel Machine Quantile Regression of Multi-Dimensional Genetic Data**
Dehan Kong, Arnab Maity and Jung-Ying Tzeng, North Carolina State University*

11:00 **An Improved Method for Choosing the Smoothing Parameter in a Semi-Parametric Change-point Model**
Sung Won Han, Theresa Busch and Mary Putt, University of Pennsylvania*

11:15 **Semiparametric Bayesian Joint Modeling of a Binary and Continuous Outcome**
Beom Seuk Hwang and Michael L. Pennell, The Ohio State University*

11:30 **Semiparametric Single Index Interaction Model in 1-m Matched Case-Crossover Studies**
Chongrui Yu and Inyoung Kim, Virginia Polytechnic Institute and State University*

11:45 **Generalized Method of Weighted Moments: A Robust Estimator of Polytomous Logistic Model**
Xiaoshan Wang and Pranab K. Sen, University of North Carolina at Chapel Hill*

12:00 **Floor Discussion**

■ = Student Award Winner | ★ = Presenter

NOTES

NOTES


Abbott


ALLERGAN


AMGEN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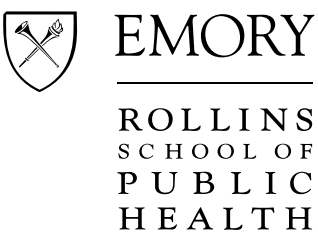
Transforming Discovery Into Care


Bristol-Myers Squibb Company


Cytel
STATISTICAL SOFTWARE & SERVICES


Lilly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NOVARTIS


QUINTILES


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Statistics
Collaborative


Statistics
in Medicine


Takeda


TEVA

Mathematical Statistician
Department of Health and Human Services
Food and Drug Administration/Center for Biologics Evaluation & Research
Office of Biostatistics and Epidemiology

Mathematical Statistician
The Therapeutics Evaluation Branch (TEB) of the Division of Biostatistics at the Food and Drug Administration's Center for Biologics Evaluation and Research (CBER) is soliciting applications from statisticians with knowledge of biomedical applications. Two new positions are being established that will offer the opportunity for research and statistical collaboration in the evaluation of products related to cellular, tissue and gene therapies, and blood products. The candidate may apply their expertise in areas such as clinical trial design and analysis, pre-clinical studies, analysis methods related to biologics product manufacturing issues, and statistical evaluation of medical devices related to testing blood products including modern molecular diagnostic devices for use in blood donor screening and in transplantation medicine.

CBER Mathematical Statisticians work in an environment dedicated to the public health and to upholding the highest scientific standards in review and research involving new biological products. TEB Mathematical Statisticians are responsible for evaluating study designs and final results of clinical trials assessing new cellular, tissue, gene therapies and blood products. They are also responsible for assessing proposed new design and analytical approaches, and for developing innovative approaches potentially better suited to a novel product. They collaborate with medical colleagues and scientific experts on the development of scientific and regulatory policy, and frequently have the opportunity to represent CBER in collaborations with outside groups. Good written and oral communication skills are essential. Experience with medical devices or biotechnology product development would be helpful. The successful candidate will interact extensively with other FDA scientists and reviewers, industry scientists, and scientists in other government agencies and in academia. This person will represent CBER at meetings and workshops focusing on methods and policies for design and evaluation of clinical trials or pre-clinical studies.

Qualifications:
A degree that included 24 semester hours of mathematics and statistics, at least 12 semester hours of which were in mathematics and 6 semester hours were in statistics.
OR
A combination of education and experience: at least 24 semester hours of mathematics and statistics, including at least 12 hours in mathematics and 6 hours in statistics, plus appropriate experience or additional education.

Candidates may also be hired under Title 42. Title 42 209(g) Service Fellowship appointment: candidates must possess a Ph.D. or equivalent degree plus comparable post-doctoral health-related research/regulatory review experience.

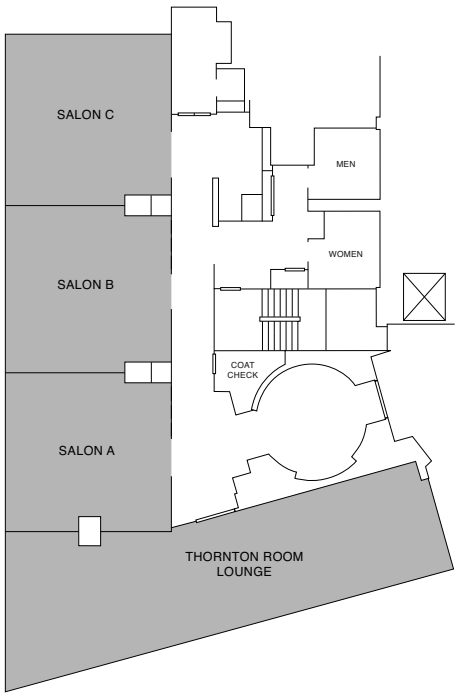
Candidates for Civil Service or Commissioned Corps appointments must be U.S. Citizens. U.S. Citizens and non-U.S. Citizens may be eligible for service fellowship appointments.

Salary Range:
The salary range (GS-13) is $89,033-$115,742. Salary will be set commensurate with education and experience.

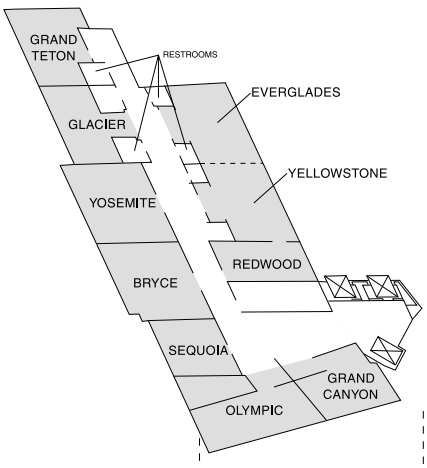
Location: Rockville, Maryland

How to Apply:
Submit resume or curriculum vitae with cover letter by April 30, 2012 to:
Food and Drug Administration, CBER/Office of Biostatistics and Epidemiology
Attn: Brian Hively, 1401 Rockville Pike, HFM-210, Rockville, MD 20852, or send e-mail to brian.hively@fda.hhs.gov or fax to 301-827-5218. If you have any questions please call 301-827-3034.

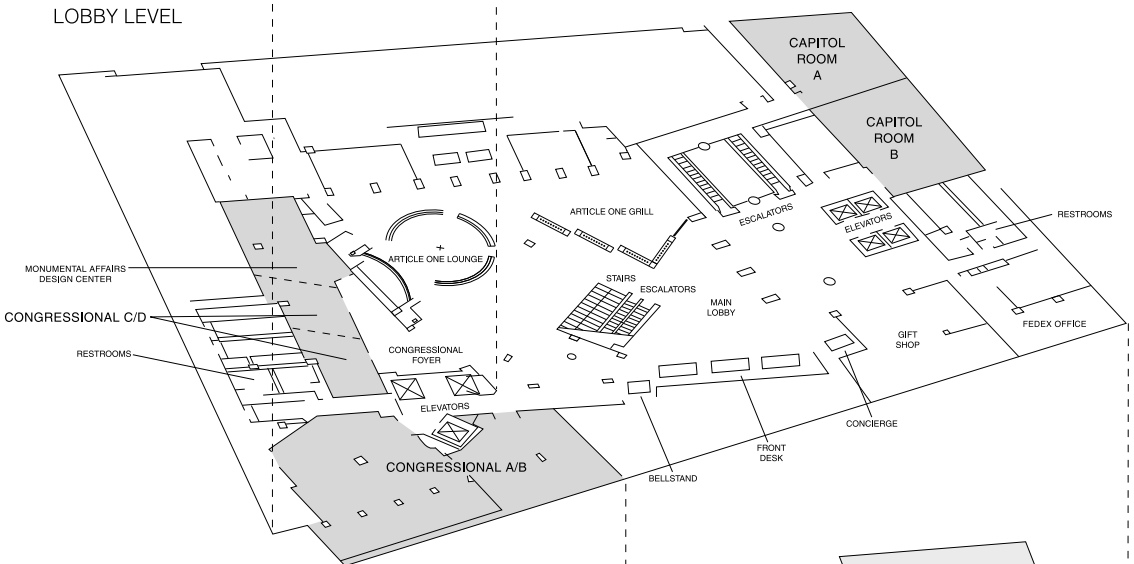
11TH FLOOR THORNTON ROOM



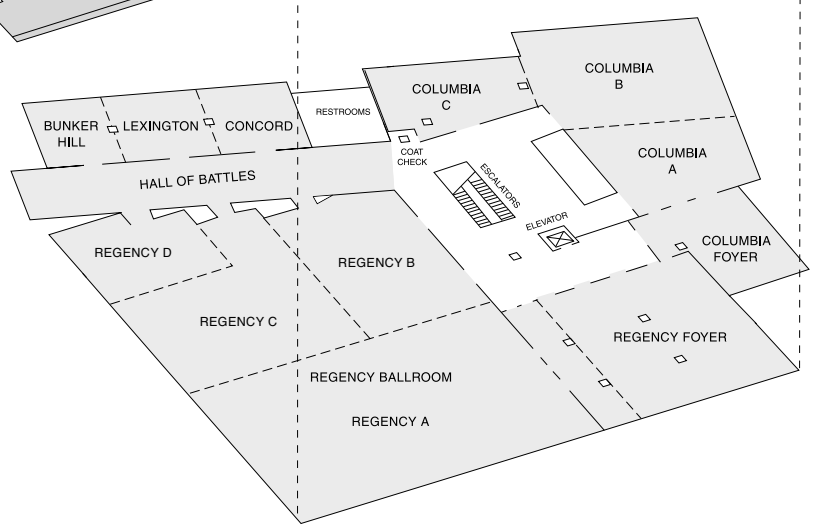
2ND FLOOR CONFERENCE LEVEL



LOBBY LEVEL



BALLROOM LEVEL



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