

Boston, Massachusetts • August 2-7, 2014



JSM 2014 PROGRAM BOOK



The American Statistical Association* • Institute of Mathematical Statistics* • International Biometric Society (ENAR and WNAR)* • International Chinese Statistical Association
International Indian Statistical Association • International Society for Bayesian Analysis • Korean International Statistical Society • Statistical Society of Canada* • Royal Statistical Society
(*indicates the founding societies of JSM)

Visit
Booth
#313

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Keynote Speakers



ASA PRESIDENT'S INVITED ADDRESS

Stephen Stigler

The University of Chicago
The Seven Pillars of Statistical Wisdom
Monday, August 4, 4:00 p.m.



COPSS FISHER LECTURE

Grace Wahba

University of Wisconsin-Madison
Positive Definite Functions, Reproducing Kernel Hilbert Spaces, and All That
Wednesday, August 6, 4:00 p.m.



ASA PRESIDENTIAL ADDRESS AND FOUNDER & FELLOWS RECOGNITION

Nathaniel Schenker

2014 President, American Statistical Association
Why Your Involvement Matters
Tuesday, August 5, 7:00 p.m.



IMS BLACKWELL LECTURE

Gareth Roberts

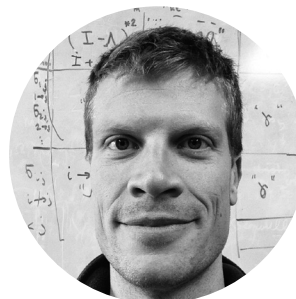
University of Warwick
Rao-Blackwellisation for Improved Monte Carlo for Stochastic Processes
Sunday, August 3, 4:00 p.m.



ASA DEMING LECTURE

Sharon Lohr

Westat
Red Beads and Profound Knowledge: Deming and Quality of Education
Tuesday, August 5, 4:00 p.m.

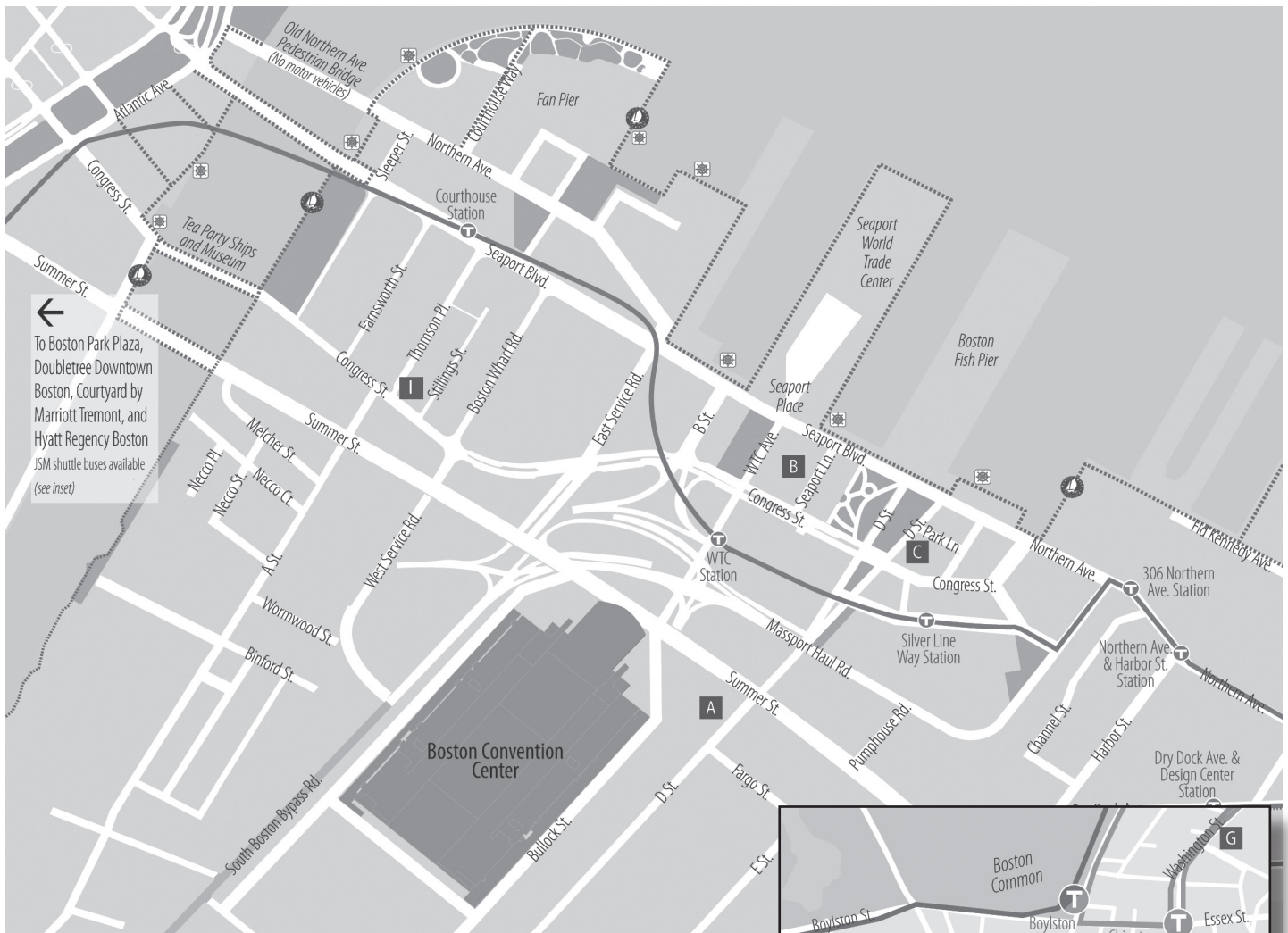


IMS MEDALLION LECTURE

Mathias Drton

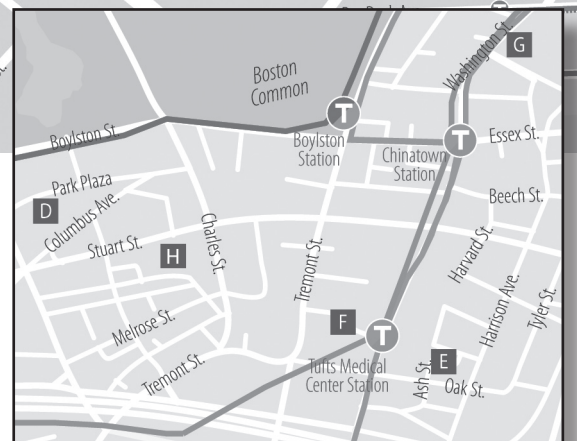
University of Washington
What Do We Know About Linear Structural Equation Models?
Monday, August 4, 10:30 a.m.

Hotel Listing



←
To Boston Park Plaza,
Doubletree Downtown
Boston, Courtyard by
Marriott Tremont, and
Hyatt Regency Boston
JSM shuttle buses available
(see inset)

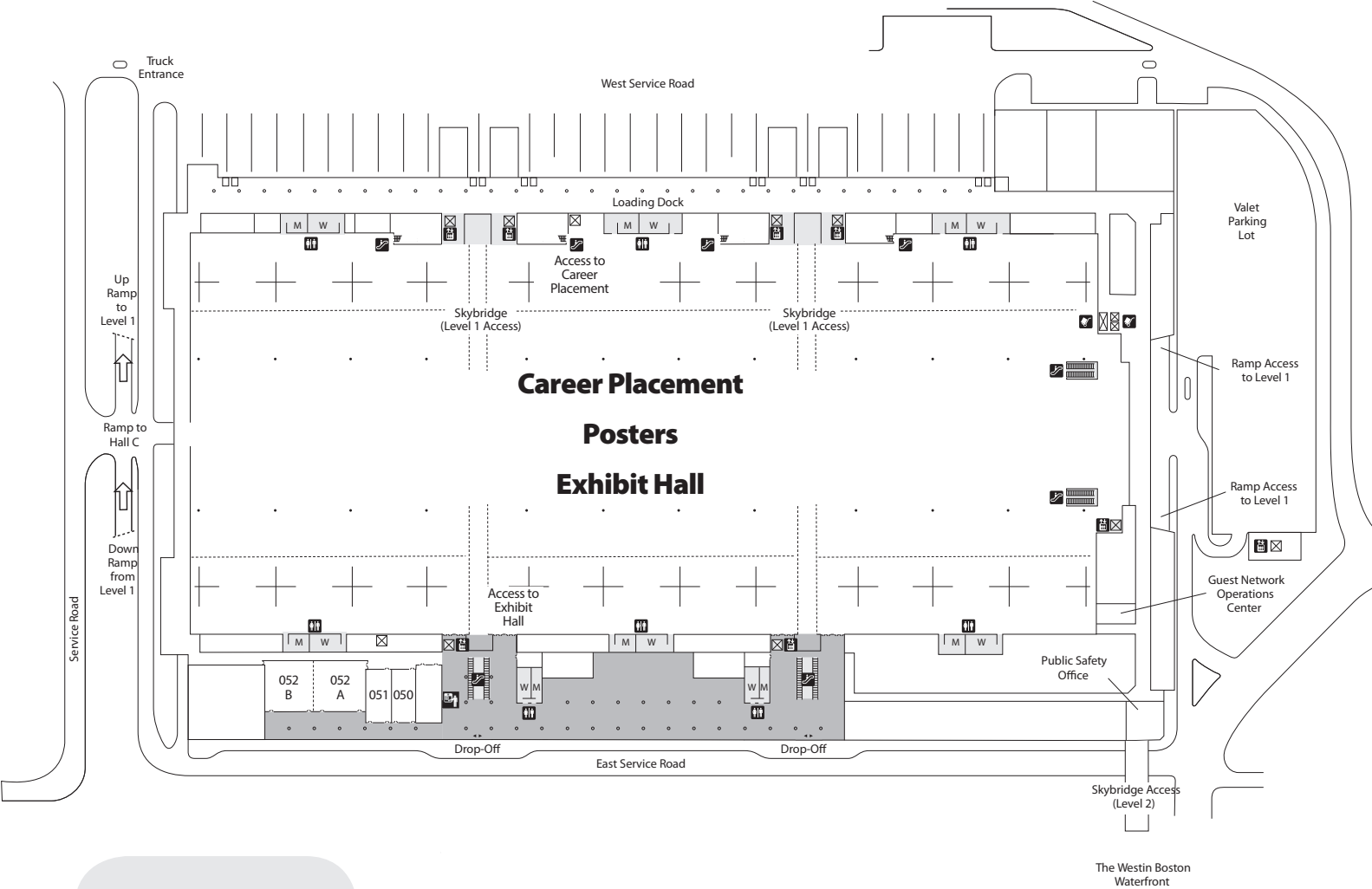
- | | |
|--------------------------------------|-----------------------------------|
| A. WESTIN BOSTON WATERFRONT (HQ) | F. COURTYARD BY MARRIOTT TREMONT* |
| B. SEAPORT BOSTON HOTEL (HQ) | G. HYATT REGENCY BOSTON* |
| C. RENAISSANCE BOSTON WATERFRONT | H. REVERE HOTEL BOSTON COMMON* |
| D. BOSTON PARK PLAZA* | I. RESIDENCE INN DOWNTOWN/SEAPORT |
| E. DOUBLETREE HOTEL BOSTON DOWNTOWN* | |









* Shuttles will be available from these JSM hotels August 2-7.

Boston Convention Center Floor Plans

Level 0

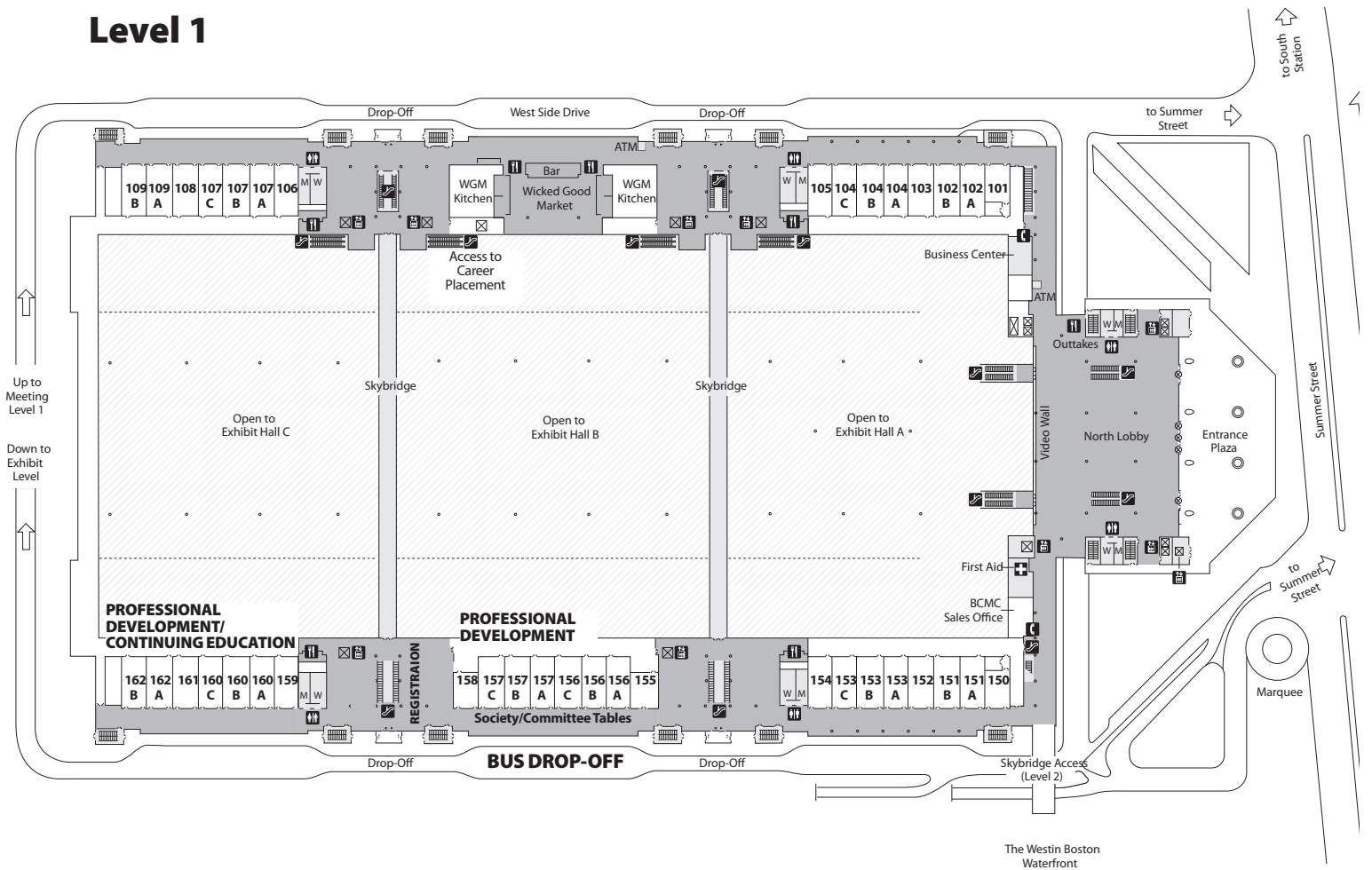


Key







-  ATM
-  Elevator
-  Escalator
-  Restrooms
-  First Aid
-  Dining

Boston Convention Center Floor Plans

Level 1

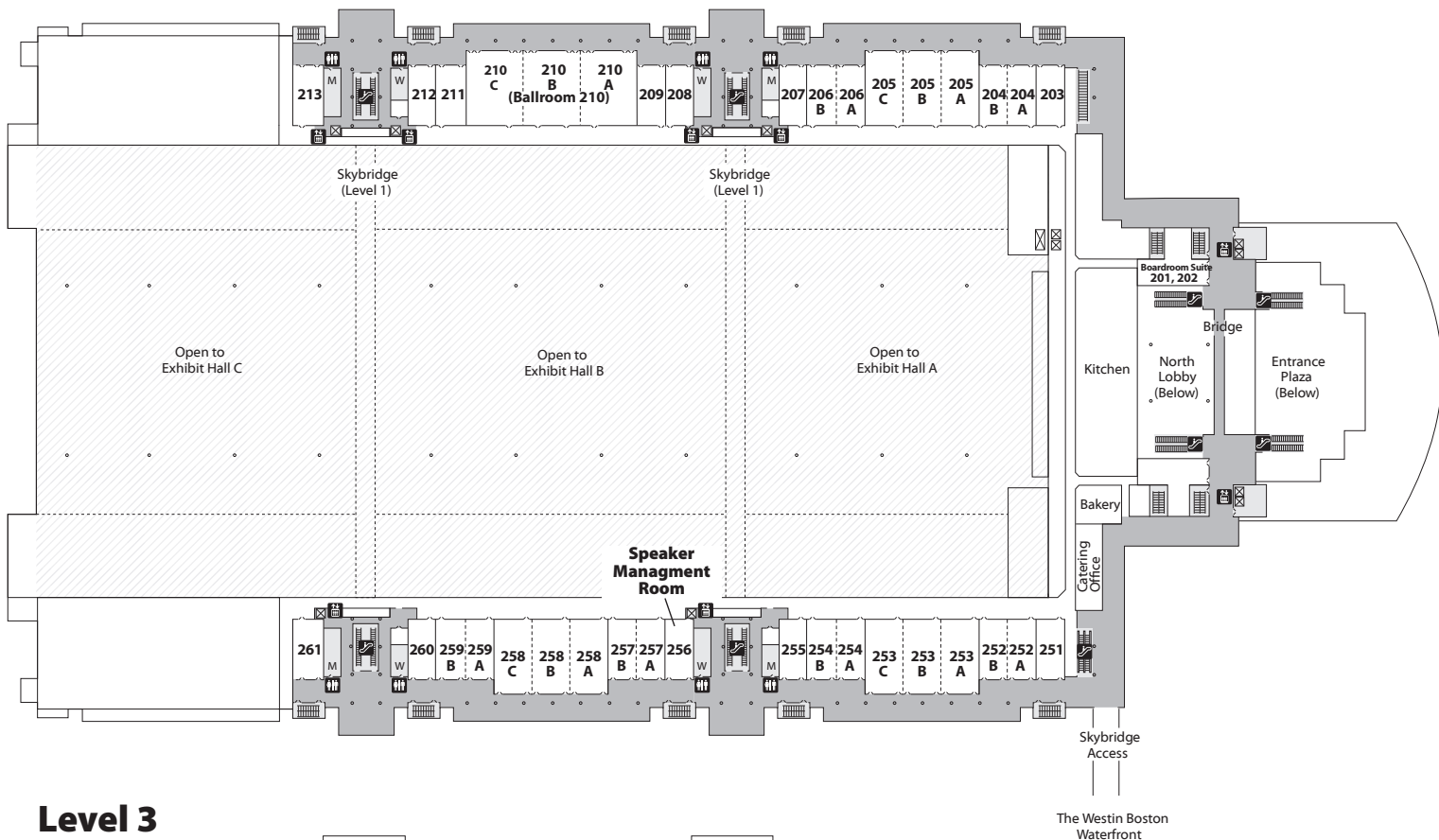


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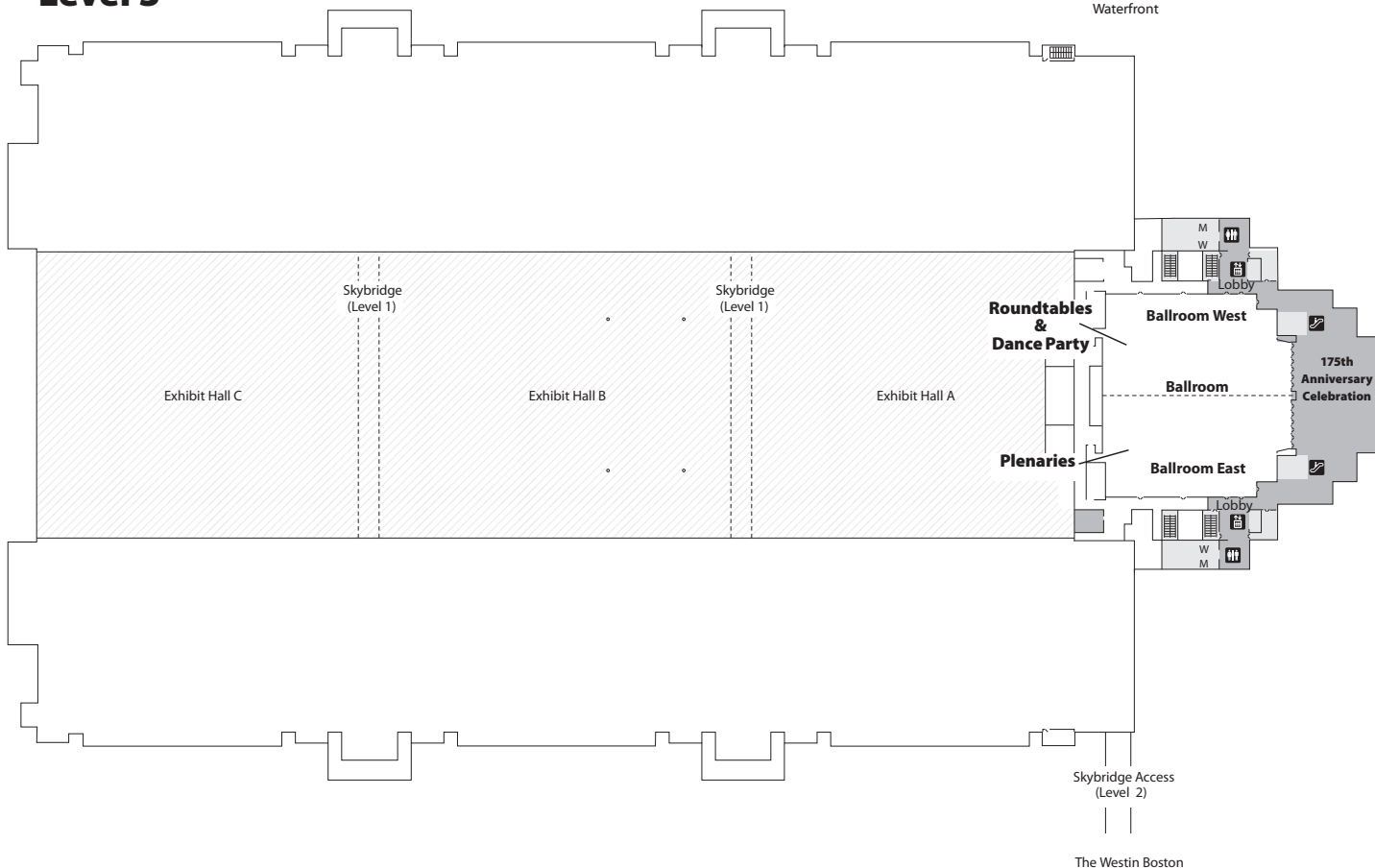
-  ATM
-  Elevator
-  Escalator
-  Restrooms
-  First Aid
-  Dining

Boston Convention Center Floor Plans

Level 2









Level 3

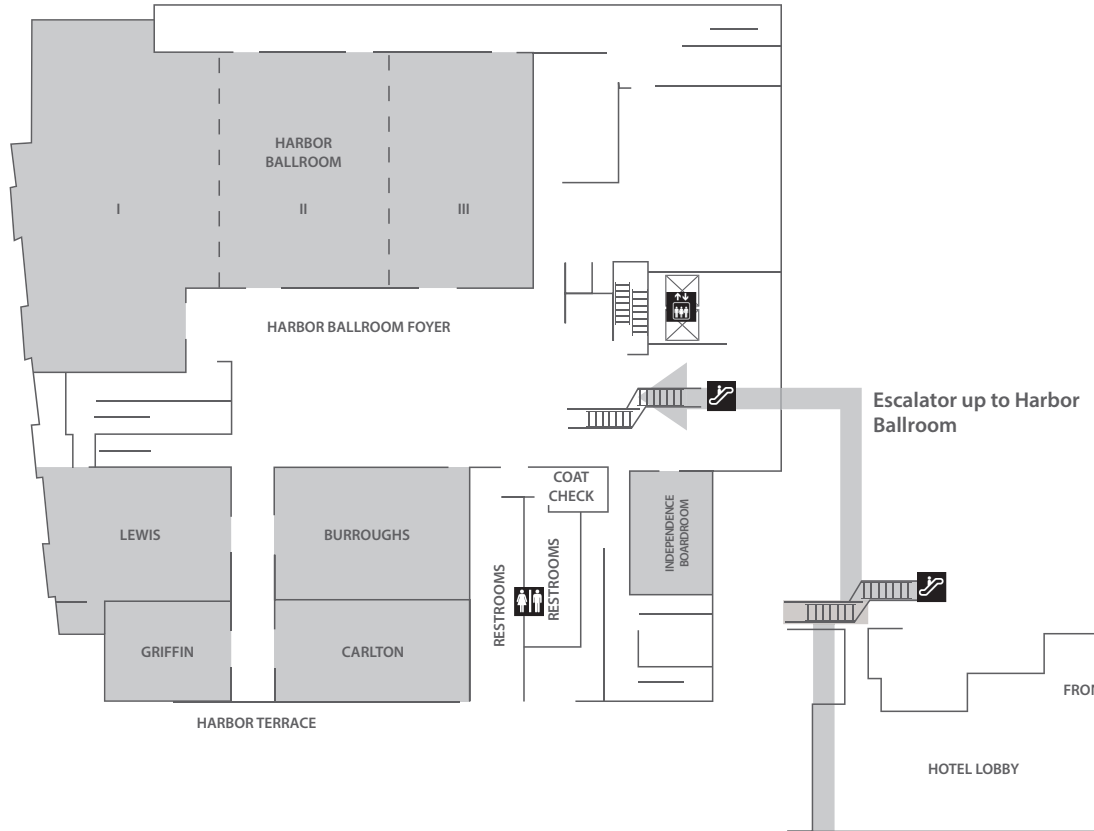


Westin Boston Waterfront

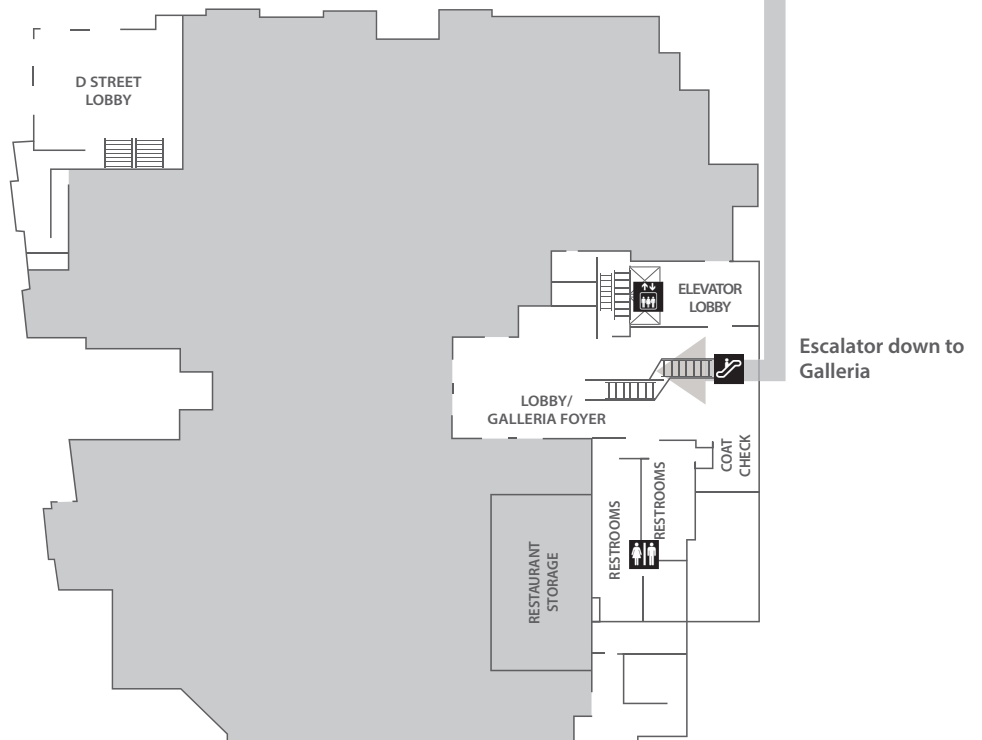
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-  ATM
-  Elevator
-  Escalator
-  Restrooms
-  First Aid
-  Dining

CONFERENCE LEVEL









GALLERIA LEVEL

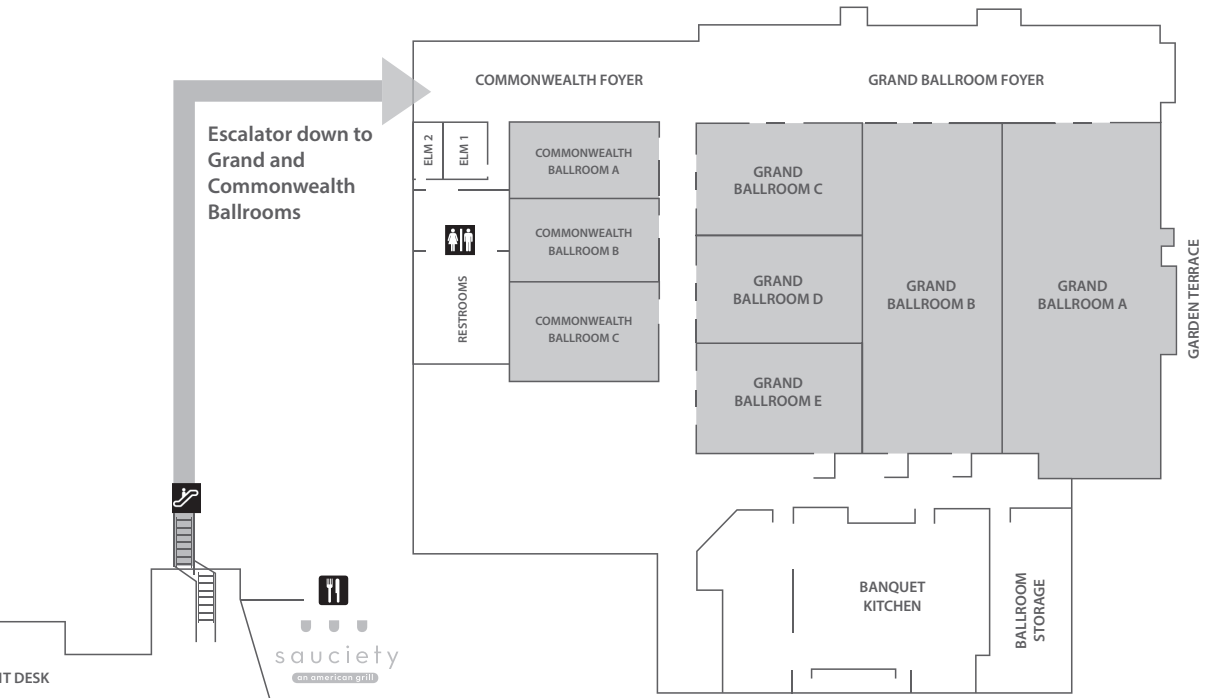


Westin Boston Waterfront

CONCOURSE LEVEL

Key

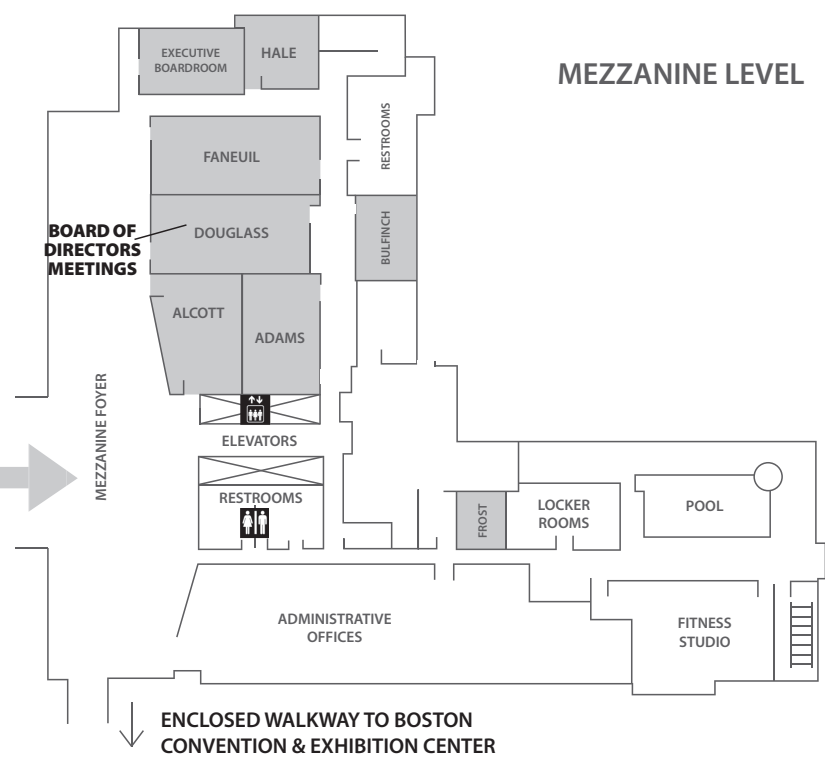
-  ATM
-  Elevator
-  Escalator
-  Restrooms
-  First Aid
-  Dining



LOBBY LEVEL









MEZZANINE LEVEL

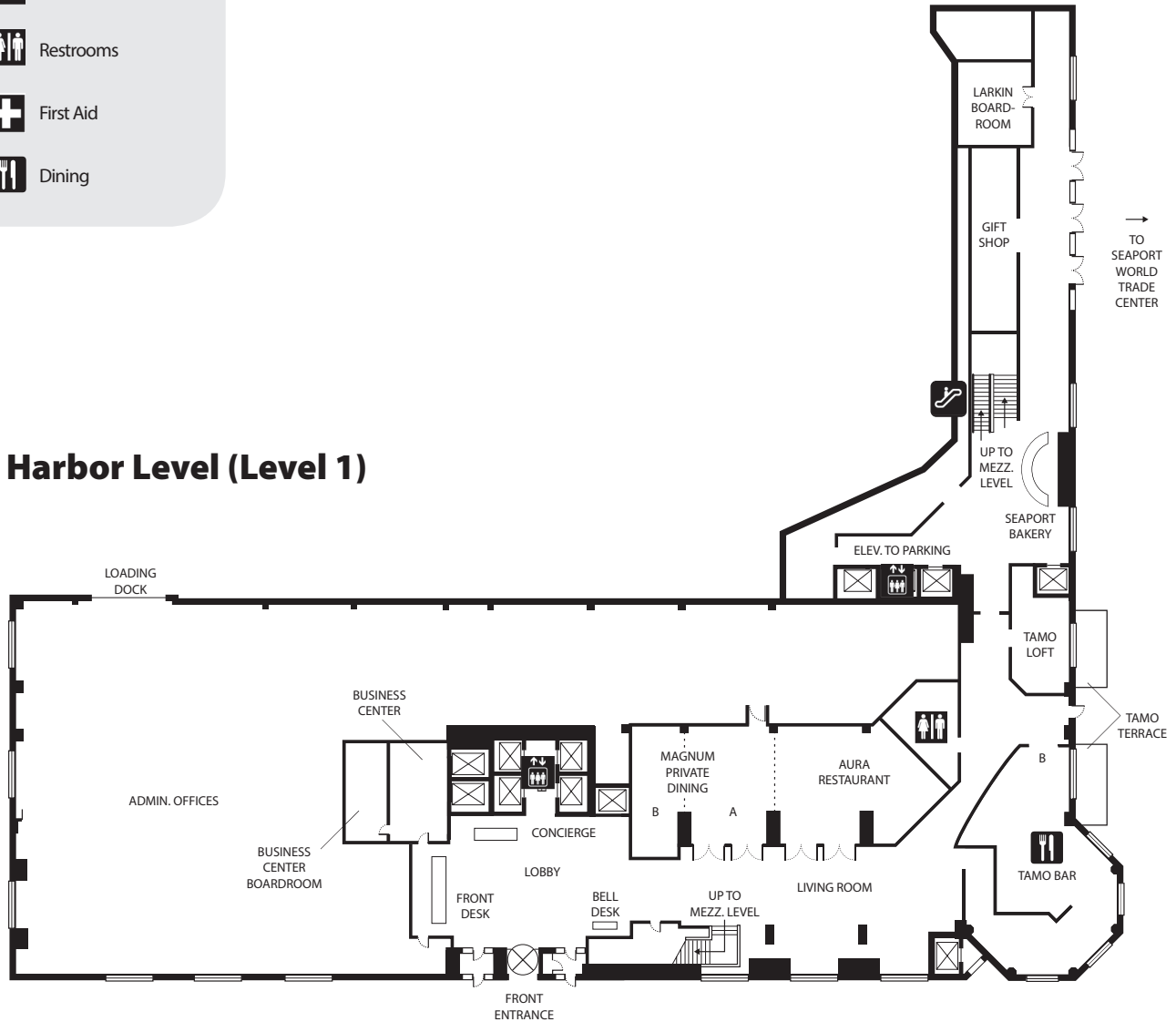


Seaport Hotel Floor Plans

Key

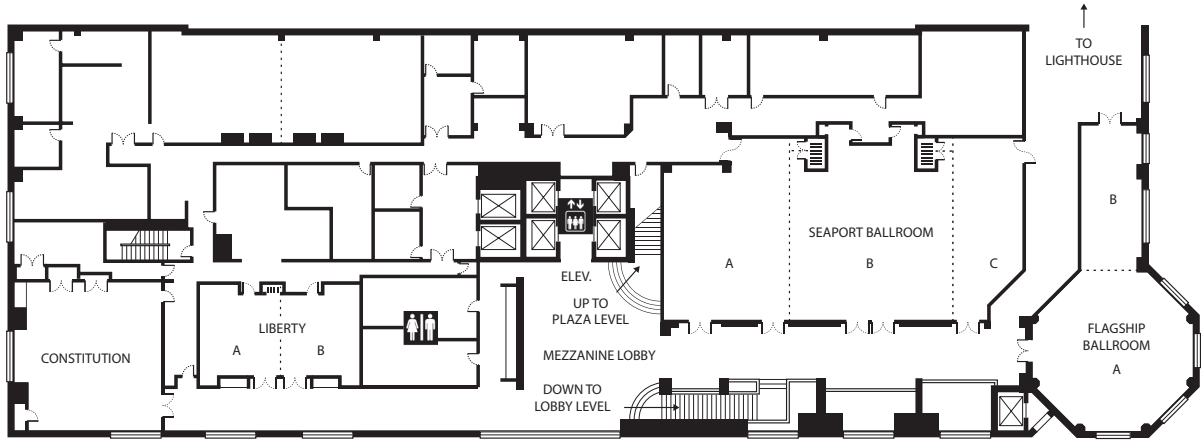
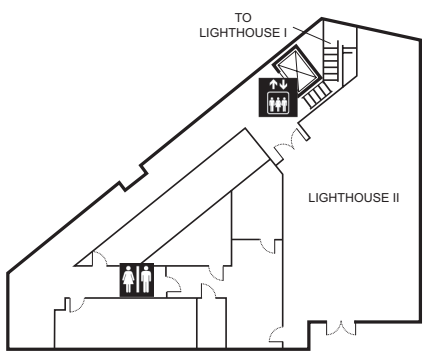
-  ATM
-  Elevator
-  Escalator
-  Restrooms
-  First Aid
-  Dining

Harbor Level (Level 1)

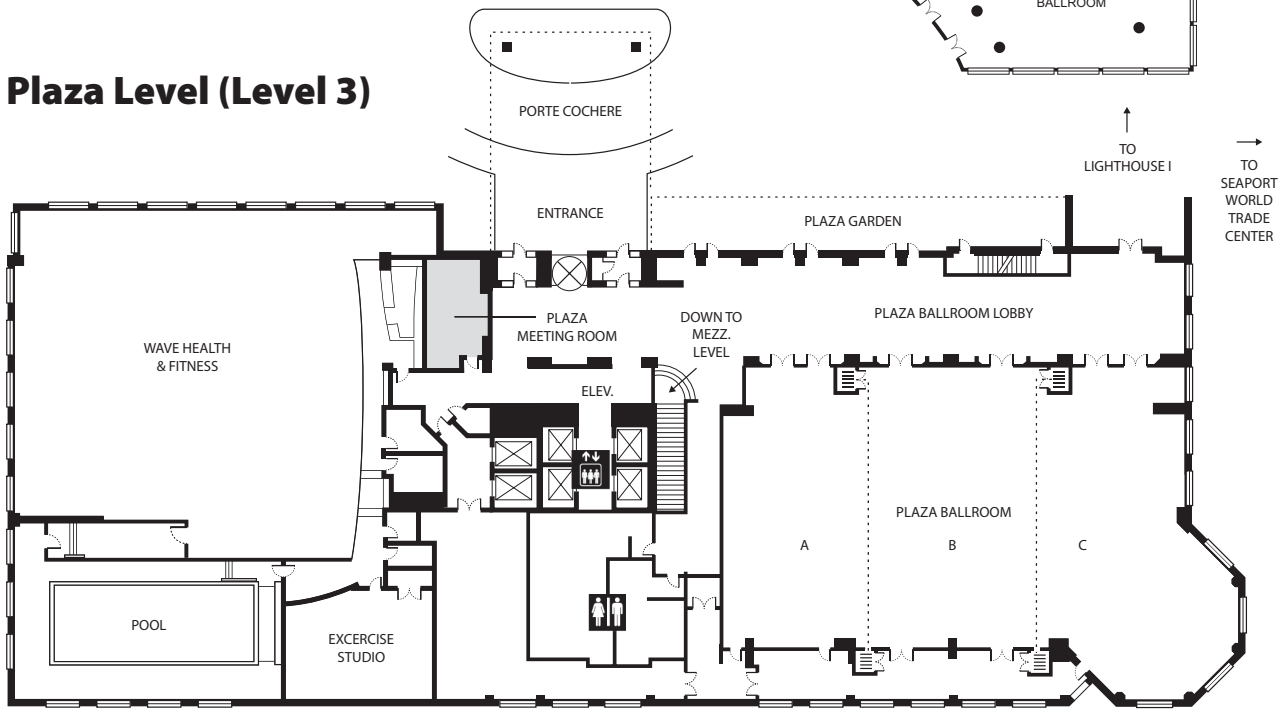
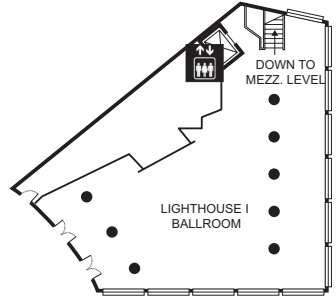


Seaport Hotel Floor Plans

Mezzanine Level (Level 2)



Plaza Level (Level 3)



What You Need to Know

Emergency Telephone Messages

In case of emergency, messages may be left during registration hours by calling (617) 954-3450. Messages will be posted at the Cyber Center, located in the registration area.

Convention Housing

Westin Boston Waterfront (HQ)	(617) 532-4600
Seaport Boston Hotel	(617) 385-4000
Renaissance Boston Waterfront	(617) 338-4111
Boston Park Plaza	(617) 426-2000
Doubletree Boston Hotel Downtown	(617) 956-7900
Courtyard by Marriott Tremont	(617) 426-1400
Hyatt Regency Boston	(617) 912-1234
Hostelling International Boston	(617) 536-9455
Revere Hotel Boston Common	(617) 482-1800
Residence Inn Boston Downtown/Seaport	(617) 478-0840

Shuttle Information

Shuttle information signs will be posted in the lobby of each hotel. Check the sign in your hotel lobby for additional information and changes. If you have questions about the shuttle or need to make an advance reservation for a wheelchair-accessible shuttle, please call Kushner & Associates at (310) 210-2139.

Assistance for Those with Disabilities

Please contact a staff member at the Help Desk in the registration area of the Boston Convention & Exhibition Center if you have a disability that may impede your participation.

Child Care

While JSM will not have organized child care available, services may be organized through Boston's Best BabySitters via www.bbbabysitters.com and (617) 268-7148 or through your hotel's concierge desk.

Policies

Electronic Devices

All cell phones, pagers, and other electronic devices should be turned off before attending any session or meeting.

Smoking

Smoking is not permitted at any JSM function, unless the event is held outside.

Photographs and Videotaping

Taking photographs or using video equipment during any JSM session or event is prohibited.

Recycling

Please use the paper, plastic, and aluminum trash containers located throughout the Boston Convention & Exhibition Center. Also, participating in the towel and linen programs at area hotels makes a significant difference in the amount of energy and water used. Finally, place the JSM badges and badge holders in one of the designated bins in the registration area before leaving the meetings.

JSM Proceedings

Eligibility guidelines and author instructions for JSM 2014 presenters are available at www.amstat.org/meetings/jsm/2014/proceedings. The submission site will open on August 21, 2014, and close on September 26, 2014.

JSM 2015

The 2015 Joint Statistical Meetings will be held in Seattle, Washington, August 8–13 at the Washington State Convention & Trade Center. Check out the details at Booth #206 in the exhibit hall.

Membership

Information about all JSM sponsoring societies is available at the society booths in the registration area and exhibit hall. Each society provides a variety of publications and activities to anyone interested in applied and or theoretical statistics, and student membership is offered at substantially reduced rates.

Hours of Operation

Registration and ASA Membership/Help Desk/Press Desk

CC-Southeast Lobby B2, Level 1

JSM registration includes the Program Book; access to the exhibit hall; and admission to the Opening Mixer, Student Mixer (students only), and the JSM Dance Party & Lounge.

Saturday	7:30 a.m. – 6:00 p.m.
Sunday	7:30 a.m. – 8:30 p.m.
Monday	7:30 a.m. – 6:00 p.m.
Tuesday – Wednesday	7:30 a.m. – 4:30 p.m.
Thursday	7:30 a.m. – 10:30 a.m.

Speaker Management Room

CC-256

Speakers are required to check in four hours prior to their presentations to upload their materials to the speaker management system or confirm their materials were uploaded correctly. Session chairs also should check in to confirm all speakers have uploaded their materials.

Sunday	9:00 a.m. – 7:00 p.m.
Monday – Wednesday	7:00 a.m. – 6:00 p.m.
Thursday	7:00 a.m. – 10:30 a.m.

What You Need to Know

Career Placement Service

CC-Hall B2

Saturday	9:00 a.m. – 5:00 p.m. (job posting and résumé submission only)
Sunday	1:00 p.m. – 6:00 p.m.
Monday – Tuesday	8:00 a.m. – 5:30 p.m.
Wednesday	8:00 a.m. – 2:30 p.m. (onsite registration closes at noon)

EXPO 2014

CC-Hall B2

Visit publishers, software companies, and recruiters. See state-of-the-art products designed for the statistical community.

Sunday	1:00 p.m. – 6:00 p.m.
Monday – Tuesday	9:00 a.m. – 5:30 p.m.
Wednesday	9:00 a.m. – 2:30 p.m.

Cyber Center

CC-Southeast Lobby B2, Level 1

There are 15 terminals with Internet access available for your emailing needs, as well as three printers. The cyber center is available with support from IBM.

Saturday	7:30 a.m. – 6:00 p.m.
Sunday	7:30 a.m. – 10:30 p.m.
Monday – Tuesday	7:30 a.m. – 10:00 p.m.
Wednesday	7:30 a.m. – 6:00 p.m.
Thursday	7:30 a.m. – 10:30 a.m.

ASA Marketplace (inside EXPO 2014)

CC-Hall B2

The ASA Marketplace is your store for the official JSM 2014 T-shirt and other JSM and ASA souvenirs.

Sunday	1:00 p.m. – 6:00 p.m.
Monday – Tuesday	9:00 a.m. – 5:30 p.m.
Wednesday	9:00 a.m. – 2:30 p.m.

Greater Boston Convention and Visitors Bureau Visitor Services Desk

CC-North Lobby

Operated by Advantage Boston, this center provides extensive information and referrals for restaurants and sightseeing. Stop by the desk and pick up current maps and travel information.

Sunday	9:00 a.m. – 5:00 p.m.
Monday – Wednesday	9:00 a.m. – 6:00 p.m.

Introductory Overview Lectures

Sunday, August 3, 4:00 p.m. – 5:50 p.m.

CC-258C

Session 44 – The Industrial Internet and Cyber-Physical Systems: An Opportunity for Statisticians in the Era of Big Data and Data Science

Tuesday, August 5, 8:30 a.m. – 10:20 a.m.

CC-258A

Session 263 – Modern Perspectives on Estimation for Surveys

Wednesday, August 6, 8:30 a.m. – 10:20 a.m.

CC-258C

Session 427 – Privacy and Big Data

Thursday, August 7, 8:30 a.m. – 10:20 a.m.

CC-258C

Session 577 – Astrostatistics

Late-Breaking Sessions

Monday, August 4, 10:30 a.m. – 12:20 p.m.

CC-258C

Session 141 – Statistical Science and the President's BRAIN Initiative

Wednesday, August 6, 10:30 a.m. – 12:20 p.m.

CC-258A

Session 471 – Recent Concerns About Reproducibility and Replicability: The Statistical Aspects



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**Are you an
ASA member?**

**Do you have a
master's degree
or doctorate
in statistics,
biostatistics, or
a related field?**

**Are you
committed to
the ethical
practice of
statistics?**

If so, you are eligible for the ASA's GStat accreditation—an entry level of accreditation.

The GStat application is quick! Simply provide the following:

- Contact information
- Résumé or CV
- A list of degrees and courses
- Demographic information (optional)

GStat holders are granted access to the same benefits as PStat® holders:

- Free access to LearnSTAT OnDemand (online professional development courses)
- Reduced registration fees for ASA conferences, including JSM and CSP
- Special recognition at JSM, including a ribbon designation and exclusive reception

Also, GStat holders can request the ASA Accreditation Committee to review their progress toward meeting PStat® requirements.

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*www.amstat.org/
accreditation*

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sas

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Virtual Message Center Access

Access the JSM Career Placement Service Message Center from anywhere! Employers and applicants will be able to communicate and arrange interviews anywhere there is Internet access. No need to come to the onsite placement service to check or send messages; just come for your scheduled interviews!

Registered Employers

Alcoa Technical Center

Axio Research, LLC

Biogen Idec

California State University, Fullerton

Carolinas Health System

CNA

East China Normal University

Exponent

FM Global

Food and Drug Administration, Center for Biologics Evaluation and Research

Fred Hutchinson Cancer Research Center

Harvard Business School

Institute for Defense Analyses

Lawrence Livermore National Laboratory

National Security Agency

NORC at the University of Chicago

Shell Global Solutions

Southwestern University of Finance and Economics, School of Statistics

The EMMES Corporation

U.S. Census Bureau

University of Central Oklahoma

Westat

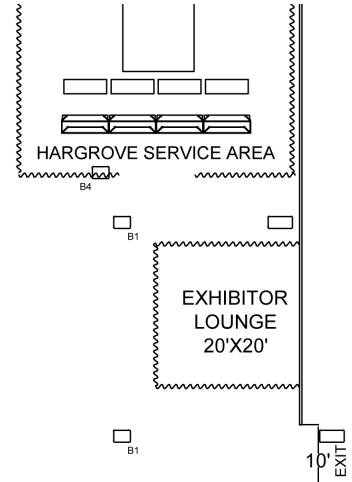
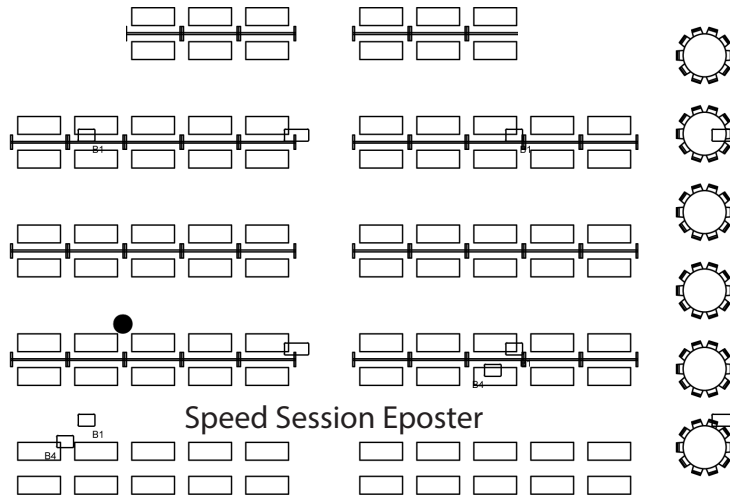
EXPO 2014 Floor Plan

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Food Concessions



POSTER SESSION



118
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	B1								
119	218	219	318	319	418	419	518	519	618
117	216	217	316	317	416	417	516	517	616
115	214	215	314	315	414	415	514	515	614
	B1				B1				B1
113	212	213	312	313	412	413	512	513	612

627
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523	622
521	620

108
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	B1								
109	206	209	308	309	408	409	508	509	608
107	206	207	306	307	406	407	506	507	606
105	204	205	304	305	404	405	504	505	604
103	202	203	302	303	402	403	502	503	602
	B1				B1				B1
101	200	201	300	301	400	401	500	501	600

609
607
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603

EXHIBITOR CHECK-IN

ENTRANCE

Who's Who at EXPO 2014

Booth	Exhibitor Name	Booth	Exhibitor Name
100, 102, 104	JMP software from SAS	404	USDA/NASS
101, 103, 105	SAS Institute Inc.	405, 407	StatPoint Technologies
106, 108	SAS Institute, PUBS		
107, 109	SAS Institute, EDU	409	SAGE
112, 114	RStudio Inc.	413	Valesta Clinical Research Solutions
113	inVentiv Health Clinical	414	AAAS Science & Technology Policy Fellowships
115	Cloud ERA Limited		
116	Aptech Systems	415	Salford Systems
117	National Science Foundation	416	De Gruyter
118	Berry Consultants	417	Bureau of Economic Analysis
119	Frontline Systems Inc.	418	Barrington James LTD
120, 122	Cengage Learning	419	WebAssign
124	Johnson & Johnson	500, 502, 504	Wiley
126	Liberty Mutual Insurance	501, 503, 505	Springer
128	Alcoa Technical Center	506	University of Washington, Dept. of Biostatistics
130	U.S. Food and Drug Administration/CDER	506	Fred Hutchinson Cancer Research Center
132	North Carolina State University		
134	Infinite Trading, Inc.	507	Penn State World Campus
136	Advanced Clinical	509	The Lotus Group
200	Institute of Mathematical Statistics (IMS)	512	Hawkes Learning Systems
201	American Statistical Association	513	ProQuest
202	Statistical Society of Canada	514	OpenStax College
203	American Statistical Association-175	515	Skytree, Inc.
204	SIAM	516	American Institutes for Research (AIR)
204	ASA-SIAM	517	IBGE
206	JSM 2015	518	Annual Reviews
212	Statistics.com	519	Aptiv Solutions
213, 215, 217, 219	IBM	602	University of Michigan Program in Survey Methodology
214	U.S. Census Bureau	603	Pratt & Whitney
216	Stat-Ease, Inc.	604	Bureau of Labor Statistics (BLS)
218	STAT-HAWKERS	605	MathWorks
300, 302	Minitab	606	Prosoft Clinical
301	Westat	607	Deloitte Consulting LLP
303	Revolution Analytics	608	DataRobot
304	Gilead Sciences	609	Experis Business Intelligence & Analytics
305, 307, 309, 406, 408	CRC Press-Taylor & Francis Group		
306, 308	W.H. Freeman & Company	612	Numeric
312, 314	Elsevier	613	Oxford University Press
313, 412	Cytel Inc.	614	American Mathematical Society
315, 317, 319	StataCorp LP	615	QI Macros for Excel
316, 318	Cambridge University Press	617	XLSTAT
400, 402	NCSS	618, 616	National Security Agency
401, 403	Pearson	619	CAMO Software Inc.

Who's Who at EXPO 2014

AAAS Science & Technology Policy Fellowships (414)

The AAAS Science & Technology Policy Fellowships provide scientists and engineers with a unique opportunity to apply their knowledge and skills to national and international issues, while learning first-hand about establishing and implementing policy. Fellows serve year-long assignments in all three branches of the federal government in Washington, DC.

ASA-SIAM (204)

The ASA-SIAM series publishes works of interest to statisticians, biostatisticians, applied mathematicians, engineers, and scientists in a broad array of topical areas. Series titles are always 30% off for ASA members and will be 20% off for nonmember attendees at JSM. Ask about our discounts on adopted course texts!

Advanced Clinical (136)

Advanced Clinical is a global clinical research organization providing full-service CRO, patient recruitment and retention, strategic staffing, and functional service provider solutions. Advanced Clinical is built around delivering a truly better clinical trial experience to pharmaceutical, biopharmaceutical, biotechnology, and medical device organizations. Visit www.advancedclinical.com.

Alcoa Technical Center (128)

Alcoa Technical Center, the world's largest light metals R&D center, is located 20 miles from Pittsburgh, PA, within 2,019 acres of rolling countryside. It's Alcoa's largest research, development, and engineering laboratory, employing approximately 600 scientists, engineers, and technical support personnel. The diverse work force holds more than 250 advanced degrees.

American Institutes for Research (AIR) (516)

AIR is one of the leading behavioral and social science research and evaluation organizations. Our goal is to use the best science available to bring the most effective ideas to enhancing everyday life. Making the world a better place is not wishful thinking; it is the goal that drives us.

American Mathematical Society (614)

The American Mathematical Society fulfills its mission through programs and services that promote research and scholarship in the mathematical sciences, strengthen mathematics education, and foster awareness of and appreciation for mathematics and its connections to other disciplines and everyday life.

American Statistical Association (201)

Learn more about what the ASA is offering this year! Stop by for information about membership, programs, and activities.

American Statistical Association-175 (203)

Join us at the ASA 175th anniversary booth to help celebrate this monumental occasion with us. Explore the ASA's long history and learn about the people, places, and events that helped shape it.

Annual Reviews (518)

Annual Reviews journals offer insightful reviews written by experts in 44 disciplines in the biomedical, life, physical, and social sciences.

Aptech Systems (116)

GAUSS is a fast, powerful, highly adaptive suite of analytical software and tools. Its flexible matrix language, intuitive interfaces, and power-

ful applications enable swift transformation of data and ideas into action. From prototype to production, GAUSS has the tools you need get the job done.

Aptiv Solutions (519)

Aptiv Solutions is a global CRO focused on enhancing clinical trial decisionmaking, efficiency, and productivity for biopharmaceutical and medical device sponsors. Supporting the entire development cycle, it is the only CRO to offer design, simulation, and execution of adaptive clinical trials and a novel statistical sampling approach to risk-based monitoring.

Barrington James LTD (418)

Barrington James is a global specialist recruitment consultancy working across the health care sector. Our structure, with separate divisions and dedicated consultants for the markets we serve, ensures a thorough, professional, and intelligent approach to both permanent and interim solutions. Our tailored methodologies include contingency database search and executive search.

Berry Consultants (118)

Berry Consultants is a statistical consulting company specializing in the Bayesian approach that is radically changing the way research is done throughout the medical industry in both device and drug development. We are experts in creating innovative flexible designs and developing software solutions (FACTS) for clinical trial simulation.

Bureau of Economic Analysis (417)

BEA is one of the world's leading statistical agencies. The data produced by BEA are among the most important tools used in decision-making by policymakers in Congress and the executive agencies, including the Council of Economic Advisors, Federal Reserve, Office of Management and Budget, and Treasury.

Bureau of Labor Statistics (BLS) (604)

The Bureau of Labor Statistics is the federal government's principal fact-finding agency in the field of labor economics and statistics. Visit our booth for free information and a demo of our new kids' page.

CAMO Software Inc. (619)

CAMO Software's analytical modeling, prediction, and optimization solutions are the preferred choice for more than 25,000 data analysts worldwide across a wide range of industries. CAMO Software's flagship simulation and prediction software product is The Unscrambler, which is recognized for its ease of use, exceptional data visualization, and advanced multivariate methods.

CRC Press-Taylor & Francis Group (305, 307, 309, 406, 408)

Chapman & Hall/CRC - Taylor & Francis Group is a premier books and journals publisher, as well as a publishing partner with the ASA for its journals. Stop by our booth to browse our newest books at a discount of up to 50% or to pick up a journal sample copy.

Cambridge University Press (316, 318)

Cambridge's publishing in books and journals combines state-of-the-art content with the highest standards of scholarship, writing, and production. Visit our booth to browse new titles, available at a 20% discount, and to pick up sample issues of our journals. Visit www.cambridge.org/us/academic to see everything we do.

Who's Who at EXPO 2014

Cengage Learning (120, 122)

Cengage Learning is a leading educational content, software, and services company for the K–12, higher education, professional, and library markets, with operations in more than 20 countries. We provide superior content, personalized services, and course-driven digital solutions that accelerate student engagement and transform the learning experience.

Cloud ERA Limited (115)

Cloud Era Limited is a London-based company specializing in scientific software-as-a-service. Its flagship product, Elastic-R (*www.elastier.com*), is a pioneering virtual data science platform enabling real-time collaboration, rapid statistical web applications design, and reproducible research. Elastic-R has a wide range of applications in biostatistics, education, MOOC design, finance, and IoT.

Cytel Inc. (313, 412)

At JSM 2014, Cytel introduces new East capabilities, including adaptive sample size re-estimation designs. We'll also demonstrate solving difficult research questions with exact statistics using StatXact, the world's most popular nonparametric inference package, and LogXact, the fast logistic regression software.

DataRobot (608)

DataRobot combines three ingredients to help you build the best predictive models: easy access to the latest techniques in R/Python, cloud platform to generate 1000s of alternative models simultaneously, and an automated cross-validation framework to evaluate them. You also can code, train, and benchmark your own R/Python models.

De Gruyter (416)

The independent academic publisher De Gruyter can look back on a more than 260-year history. The De Gruyter Group publishes more than 1,300 new titles each year in the humanities, STM, and law; more than 650 journals; and a variety of digital products.

Deloitte Consulting LLP (607)

Deloitte Consulting LLP is one of the world's leading management consulting firms for executable strategy, operations, technology, and human capital advisory services. The consulting practice is built around integrated core capabilities—people, process, and technology and industry expertise—the capabilities needed to help clients tackle their most complex challenges.

Elsevier (312, 314)

Mathematics is the study of quantity, structure, space, and change and includes key growth areas such as natural science, engineering, medicine, and social sciences. Elsevier's content in mathematics has inspired new mathematical discoveries and sometimes led to the development of entirely new disciplines.

Experis Business Intelligence & Analytics (609)

Since 1982, Experis Business Analytics has provided tactical and strategic services that help our clients get the most value from their data. Our services enable our clients to integrate, analyze, and distribute their data across the organization, as well as to key stakeholders outside the organization.

Fred Hutchinson Cancer Research Center (506)

The Fred Hutchinson Cancer Research Center is an independent, non-profit, and internationally recognized research institution dedicated to the development and advancement of biomedical research.

Frontline Systems Inc. (119)

See new, powerful analytics software you can use in Excel, Office 365, and SharePoint from Excel Solver developer Frontline Systems. Analytic Solver Platform deeply integrates data mining and predictive analytics, Monte Carlo simulation, and conventional and stochastic optimization for better decisionmaking. Solver SDK Platform helps you build Web-based analytics applications.

Gilead Sciences (304)

Gilead is a leading biopharmaceutical company with a rapidly expanding product portfolio of investigational drugs and approximately 5,800 employees in offices across four continents. Today, our research and development effort is the largest it has ever been, with more than 75 phase 2 and 3 clinical studies evaluating compounds.

Hawkes Learning Systems (512)

With more than 30 years of experience specializing in mathematics courseware, Hawkes Learning Systems provides the best learning tools to help students succeed. Hawkes' unique approach to mastery learning motivates students and promotes grade improvement by engaging them in the learning process. At Hawkes, we firmly believe: Students matter. Success counts.

IBGE (517)

The Brazilian Institute of Geography and Statistics (IBGE) is the main provider of official statistics for Brazil. It also coordinates the country's national statistical system.

IBM (213, 215, 217, 219)

IBM SPSS predictive analytics software is a recognized leader in helping organizations predict what will happen next to drive better business outcomes. IBM SPSS predictive analytics solutions enable organizations to align structured and unstructured data, anticipate future outcomes, and act, embedding analytics into operational processes to achieve maximum ROI and results.

Infinite Trading, Inc. (134)

Institute of Mathematical Statistics (IMS) (200)

The Institute of Mathematical Statistics (IMS) is a nonprofit scholarly society. Its purpose is to foster the development and dissemination of the theory and applications of statistics and probability. The IMS publishes five core journals and collaborates with other organizations on an additional 17 publications.

inVentiv Health Clinical (113)

inVentiv Health Clinical is a leading provider of global drug development services to pharmaceutical, biotechnology, generic drug, and medical device companies that offers therapeutically specialized capabilities for phase I–IV clinical development, bioanalytical services, and strategic resourcing from a single clinical professional to an entire functional team.

Who's Who at EXPO 2014

JMP software from SAS (100, 102, 104)

JMP is statistical discovery software from SAS that links dynamic data visualization with powerful statistics, in memory and on the desktop. Its interactive and visual approach enables it to reveal insights difficult to gain from raw tables of numbers or static graphs.

JSM 2015 (206)

Seattle is the gateway to the Pacific Northwest, surrounded by expansive water, two mountain ranges, and three national parks. Seattle provides access to cutting-edge restaurants and world-class, unique attractions. Whether visiting for leisure, business, or to attend a convention, Seattle offers the best of both urban and outdoor experiences. Stop by to enter a drawing for an Alaskan cruise for two!

Johnson & Johnson (124)

Johnson & Johnson, through its operating companies, is the world's most comprehensive and broadly based manufacturer of health care products, as well as a provider of related services, for the consumer, pharmaceutical, and medical devices and diagnostics markets.

Liberty Mutual Insurance (126)

At Liberty Mutual Insurance, doing the right thing is essential to all we do. Our commitment to a talented, diverse work force has helped us become a global insurance leader. As a Fortune 100 company, we have the resources and training our employees need to drive our business forward.

MathWorks (605)

MathWorks is the leading developer of technical computing and simulation software. MATLAB and Simulink are widely used in academia and the automotive, aerospace, communications, electronics, industrial automation, and biomedical industries. Engineers and scientists worldwide rely on MATLAB and Simulink to accelerate the pace of learning, discovery, innovation, and development.

Minitab (300, 302)

Minitab 17 is the leading software for statistics education, used at more than 4,000 colleges and universities worldwide. Its user-friendly design helps students learn statistical concepts. Learning with Minitab also helps prepare students for jobs with thousands of distinguished companies that use Minitab. Get the free trial version at www.minitab.com/academic.

NCSS (400, 402)

NCSS is showing a new version of PASS with 29 new procedures, 3D graphics throughout, and much more. Stop by and see why PASS is the leading sample size software in the world. We also will be displaying the latest edition of the NCSS statistical package.

National Science Foundation (117)

The National Science Foundation's Division of Mathematical Sciences (DMS) supports innovative research in all areas of mathematical and statistical sciences. Most of these projects are awarded to individual or small groups of investigators working with students and postdoctoral researchers. DMS also invests in work force development, broadening participation, conferences, and research institutes and networks.

National Security Agency (618, 616)

The National Security Agency/Central Security Service (NSA/CSS) leads the U.S. government in cryptology that encompasses both signals intelligence and information assurance products and services and enables computer network operations to gain a decision advantage for the nation and our allies under all circumstances.

North Carolina State University (132)

The North Carolina State University Department of Statistics is committed to providing outstanding training both on campus and worldwide. Our new online graduate program will begin in Fall 2014 and feature a master's of statistics degree and two graduate certificates—one in applied statistics and data management and one in statistics education.

Numeric (612)

Numeric has been representing analytics professionals to our client companies since 1999. Recognized for excellence in analytics staffing, Numeric is well known throughout the United States for providing niche talent. Our clients are Fortune 500 companies in a wide range of industries, including retail, financial, advertising, and insurance.

OpenStax College (514)

OpenStax College is committed to improving student access to quality learning materials. An initiative of Rice University and supported by philanthropic foundations, OpenStax College provides free textbooks that are developed and peer-reviewed by educators to ensure they are readable, accurate, and meet the scope and sequence requirements of your course.

Oxford University Press (613)

Oxford University Press is the publisher of some of the most respected and prestigious books and journals in the world. Visit our booth or visit us at www.oup.com/us for more information.

Pearson (401, 403)

Pearson, the world's leading learning company, partners with K–20 institutions and educators to provide educational solutions and services that help improve learning outcomes. Pearson serves learners of all ages around the globe, employing 41,000 people in more than 70 countries. Visit www.pearsoned.com.

Penn State World Campus (507)

Penn State World Campus offers an online graduate certificate and master's in applied statistics. Improve your data analysis proficiency by exploring core areas of applied statistics (e.g., DOE, ANOVA, analysis of discrete data, MANOVA). Focus on your choice of electives: data mining, predictive analytics, biostatistics techniques, and statistical consulting. Visit worldcampus.psu.edu/stat.

Pratt & Whitney (603)

Pratt & Whitney, a United Technologies Corp. company, is a world leader in the design, manufacture, and service of aircraft engines, auxiliary and ground power units, and small turbojet engines. We value the use of statistical methods in all aspects of design and manufacturing to achieve performance, safety, and reliability.

Who's Who at EXPO 2014

ProQuest (513)

ProQuest connects people with vetted, reliable research information. The company's products are a gateway to the world's knowledge, including dissertations, governmental and cultural archives, news, historical collections, and ebooks. ProQuest includes Bowker, Dialog, EBL, ebrary, and Serials Solutions businesses, as well as tools such as RefWorks, PivotT, Intota, and Summon services.

Prosoft Clinical (606)

Prosoft Clinical is a pharmaceutical product design and development organization with CRO capabilities. Since 1995, Prosoft has provided services to the pharmaceutical, biotech, and medical device industries in areas including dermatology, cardiovascular, respiratory, allergy, immunology, CNS, and oncology.

QI Macros for Excel (615)

QI Macros for Excel draws control charts, histograms with Cp, Cpk, Pareto charts, and more. It contains more than 90 templates, including Gage R&R, PPAP, and FMEA. Used by thousands of manufacturers. At only \$229/copy, it is the most affordable and robust SPC software solution on the market.

RStudio Inc. (112, 114)

RStudio provides open source and enterprise-ready professional software for the R statistical computing environment. RStudio products, including RStudio IDE and the web application framework RStudio Shiny, simplify R application creation and web deployment for data scientists and data analysts. Visit www.rstudio.com.

Revolution Analytics (303)

Revolution Analytics is the leading commercial provider of software and services based on open source R, the world's most widely used statistics software. Revolution R Enterprise brings Big Data scalability, performance, and cross-platform enterprise readiness to R to meet the production needs of data scientists in data-driven industries worldwide.

SAGE (409)

SAGE is a leading international publisher of journals, books, and digital media for academic, educational, and professional markets. Since 1965, SAGE has helped educate a global community spanning a wide range of subject areas, including business, humanities, social sciences, technology, and medicine. Visit us at www.sagepub.com.

SAS Institute Inc. (101, 103, 105)

SAS will exhibit its analytical software for statistics, data mining, text analytics, econometrics, and statistical quality control. Please visit the SAS booth to learn more about recent and upcoming software, including SAS/STAT and SAS/ETS releases, and meet some of the SAS R&D statisticians.

SAS Institute, EDU (107, 109)

SAS is the leader in business intelligence and analytical software and services. The SAS Global Academic Program works with professors, students, and researchers to support industry partnerships with academia; deliver technology and resources for teaching and learning; and educate students about business intelligence, analytics, and data mining for business advantage. Visit www.sas.com/academic.

SAS Institute, PUBS (106, 108)

- Explore new books and opportunities
- Get assistance finding the right books for your needs
- Save 20% on your book order
- Speak with an onsite author recruiter about writing a book for SAS

We look forward to seeing you!

SIAM (204)

The mission of SIAM's book program is to make relevant research accessible and promote the interaction between applied mathematics and other disciplines such as statistics, engineering, science, and computing. Visit our booth for 20–30% discounts on books, including the ASA-SIAM Series. Ask about our discounts on adopted course texts!

STAT-HAWKERS (218)

Please visit our booth to get an elephant and/or a T-shirt.

Salford Systems (415)

Salford Systems offers accurate, ultra-fast data mining for statisticians who want to add to classical statistical methods. Are you working with larger data sets? Do your data include missing values, nonlinear relationships, local patterns, interactions? The SPM software suite includes CART, MARS nonlinear regression, TreeNet gradient boosting, RandomForests, GPST, RuleLearnerT, and ISLET.

Skytree, Inc. (515)

Skytree is disrupting the advanced analytics market with a machine learning platform giving organizations the power to discover deep analytic insights, predict trends, make recommendations, and reveal untapped customers. Predictive analytics is a must-have technology in the age of Big Data, and Skytree leads the way with enterprise-grade machine learning.

Springer (501, 503, 505)

Visit the Springer booth to become further acquainted with an abundant selection of top-notch titles by award-winning authors. Plus, this year we have giveaways, contests, and more! Follow us on Twitter^{3/4}@SpringerStats^{3/4} to stay up to date with our activities at the booth.

Stat-Ease, Inc. (216)

Stat-Ease, Inc. provides statistical software, training, and consulting services on design of experiments (DOE). Stat-Ease's top-rated package, Design-Expert software (now v9!), sets up and analyzes powerful general and two-level factorials that identify critical factors for improvement of products and processes and handles response surface optimization for process, mixture, and combined mixture/process variables.

StatPoint Technologies (405, 407)

StatPoint Technologies develops STATGRAPHICS predictive analytics software products. 30+ years delivering exceptional interactive data analysis tools: engineers, scientists, economists, research analysts, forecasters, and other statistical modelers reject conjecture. Visit us for a demonstration of the newly released V17, offering 32 new procedures, including more than a dozen statlets for dynamic visualization.

Who's Who at EXPO 2014

StataCorp LP (315, 317, 319)

Stata statistical software provides everything research professionals need for statistical analysis, data management, graphics, and statistical programming. Whether you prefer a GUI interface, a command line, or scripts, Stata puts the statistics you want at your fingertips. One complete package—no separate modules to buy. Perpetual licenses.

Statistical Society of Canada (202)

The Statistical Society of Canada is devoted to the development of the professional interests of statisticians and probabilists. It has six sections: Actuarial Science, Biostatistics, Business & Industrial Statistics, Probability, Statistical Education, and Survey Methods. The SSC also offers two levels of accreditation: Professional Statistician (P.Stat.) and Associate Statistician (A.Stat.).

Statistics.com (212)

The Institute for Statistics Education at Statistics.com is a pioneer and the leading provider of online education in statistics with 100+ courses in introductory and advanced analytics and statistics, including certificate programs. Students from around the world study with renowned authorities via private forum. Now, new courses and certificates in data science.

The Lotus Group (509)

The Lotus Group is a recruiting company specializing in statistician and programmer jobs within the pharmaceutical industry. We provide excellent customer service to both our client companies and candidates, as we help forge solid relationships. Our many long-standing connections have enabled us to help develop successful careers for our candidates.

USDA/NASS (404)

USDA, National Agricultural Statistics Service (NASS) disseminates data on every facet of U.S. agriculture. The agency conducts surveys and issues 400 reports annually. NASS conducts the Census of Agriculture every five years, providing the only source of agricultural data for every county in the nation. NASS reports are available at www.nass.usda.gov.

University of Michigan Program in Survey Methodology (602)

The University of Michigan Program in Survey Methodology (MPSM) seeks to train future generations of survey methodologists. The program offers doctorate and Master of Science degrees and a certificate through the University of Michigan. The program's home is the Institute for Social Research, the world's largest academically based social science research institute.

University of Washington, Dept. of Biostatistics (506)

The University of Washington Department of Biostatistics is a premier international center of excellence for the training of leaders in biostatistics, the development and application of quantitative and statistical methods, and the kind of collaborative research that drives innovative solutions in biomedical and public health sciences forward.

U.S. Census Bureau (214)

The U.S. Census Bureau's collections include socioeconomic information—2010 Census and American Community Survey—topics such as population, housing, and income; and business and industry statistics. To identify changes or track trends at the local, state, or national levels or to see what's new, visit our booth. www.census.gov

U.S. Food and Drug Administration/CDER (130)

The Center for Drug Evaluation and Research is America's consumer watchdog for medicine. We are part of one of the nation's oldest consumer protection agencies—the U.S. Food and Drug Administration. Our best-known job is to evaluate new drugs for safety and effectiveness before they can be sold.

Valesta Clinical Research Solutions (413)

Valesta Clinical Research Solutions is an industry leader in placing skilled clinical research professionals at all career levels in project-based, contract-to-hire, and direct-hire opportunities. We have a long track record of making successful job matches in specialized areas, including clinical data, clinical monitoring, medical writing, biometrics, and regulatory affairs.

W.H. Freeman & Company (306, 308)

W.H. Freeman publishes high-quality media and textbooks in introductory statistics, business statistics, and statistics for the life sciences. Stop by to see a live demonstration of our new online homework platform, LaunchPad, which contains a curated collection of videos, simulations, animations, multimedia assignments, and algorithmic homework to complement our ebooks.

WebAssign (419)

WebAssign makes online homework and assessment easy by providing pre-coded questions from more than 600 leading titles from every major academic publisher. More than 8 million students have used WebAssign to submit more than 1 billion answers to assignments, tests, and assessments. Visit our booth to learn more about our statistics offering.

Westat (301)

Westat, an employee-owned corporation, has provided research services to federal and state government agencies and private organizations since 1963. As one of the foremost contract research organizations in the United States, we are recognized for our statistical skills and developing custom research and program evaluation studies across a range of subject areas.

Wiley (500, 502, 504)

Wiley publishes a vast array of leading book, journal, and electronic content in Statistics across a wide range of disciplines. We publish more than 20 journals and collaborate with leading societies. See our latest website for statistics users at www.StatisticsViews.com. Visit www.wiley.com/statistics for book offerings and www.wileyonlinelibrary.com/subject/statistics for journal information.

XLSTAT (617)

XLSTAT is modular statistical software that uses MS Excel as its interface. User-friendly, intuitive, and providing excellent customer service, XLSTAT software makes teachers and students lives easier by providing a solution that does not require learning a new interface. Special offers are available.

2014

Plenary Awards and Sessions

You are invited to attend the

ASA Awards Celebration and Editor Appreciation

Sunday, August 3, 2014, 7:30 p.m. - 8:30 p.m.

Boston Convention & Exhibition Center, Room CC-252B

AND

ASA President's Address and Founders & Fellows Recognition

Tuesday, August 5, 2014, 7:00 p.m. - 8:00 p.m.

Boston Convention & Exhibition Center, Room CC-Ballroom East

for the recognition of the ASA's most distinguished members.

Sponsored by the American Statistical Association, Committee of Presidents of Statistical Societies,
and Institute of Mathematical Statistics

PRESENTED AT THE 174TH ANNUAL MEETING • BOSTON, MASSACHUSETTS

Technical Sessions at a Glance

SUNDAY, AUGUST 3

Key

15

Session Number

CC

Boston Convention
& Exhibition Center

23

(a/b/c/d/e)

Room Number

W

Westin Boston

S

Seaport Hotel

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Technical Sessions at a Glance

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TSHS			213 CC-153B	
WNAR	101 CC-260	141 CC-258C	215 CC-259A	255 CC-Ballroom East

Key

15
Session Number

CC
Boston Convention & Exhibition Center

23
(a/b/c/d/e)
Room Number

W
Westin Boston

S
Seaport Hotel

Technical Sessions at a Glance

TUESDAY, AUGUST 5

Key

15

Session Number

CC

Boston Convention & Exhibition Center

23

(a/b/c/d/e)

Room Number

W

Westin Boston

S

Seaport Hotel

Sponsor	8:30 AM	10:30 AM	2:00 PM	4:00 PM	7:00 PM
ASA	263 CC-258A			420 CC-Ballroom East	421 CC-Ballroom East
B&E	270 CC-204A	324 CC-206B / 337 CC-204A	387 CC-206A / 396 CC-206B		
BIOM	282 CC-156A / 292 CC-157A / 306 CC-157C	323 CC-157B / 326 CC-156B / 333 CC-151B / 334 CC-151A	368 CC-257B / 386 CC-257A / 392 CC-255 / 393 CC-252A		
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CNSL	285 CC-204B	316 CC-204B			
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COMM		312 CC-102B	374 CC-157C		
Computing	284 CC-104C / 299 CC-104A	315 CC-104C	401 CC-101		
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EDUC	286 CC-260 / 300 CC-254B	342 CC-260	373 CC-156C		
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TECH			372 CC-258C		
TSHS		327 CC-254A	418 CC-Exhibit Hall B2		
WVAR	263 CC-258A		375 CC-254B	420 CC-Ballroom East	421 CC-Ballroom East

Technical Sessions at a Glance

WEDNESDAY, AUGUST 6

Sponsor	8:30 AM	10:30 AM	2:00 PM	4:00 PM
ASA	427 CC-258C	471 CC-258A		576 CC-Ballroom East
B&E	442 CC-204B / 460 CC-204A	490 CC-204B / 502 CC-204A	540 CC-207	
BIOM	447 CC-258B / 454 CC-251 / 455 CC-252A / 456 CC-254B / 457 CC-252B	479 CC-254A / 488 CC-257A / 498 CC-213 / 499 CC-252A	545 CC-254A / 561 CC-255 / 562 CC-254B	
BIOP	429 CC-260 / 443 CC-258A / 458 CC-254A / 459 CC-257B	484 CC-252B / 492 CC-254B / 500 CC-258B / 501 CC-251	534 CC-258A / 546 CC-252A / 563 CC-259A / 564 CC-257A	
CAUWOM			532 CC-258B	
CNSL	430 CC-157C		550 CC-213	
COPSS				576 CC-Ballroom East
COMM		483 CC-Exhibit Hall B2		
Computing	464 CC-207 / 444 CC-206B	508 CC-207	542 CC-151B	
DEF	470 CC-209			
EDUC	448 CC-153B	480 CC-152 / 518 CC-Exhibit Hall B2	557 CC-212 / 567 CC-208	
ENAR	427 CC-258C / 440 CC-211	471 CC-258A / 473 CC-259A	537 CC-252B	576 CC-Ballroom East
ENVR	445 CC-104A / 469 CC-102B	477 CC-103	555 CC-156C / 575 CC-157A	
EPI	452 CC-255 / 468 CC-259A	493 CC-255 / 513 CC-211 / 514 CC-209 / 516 CC-Exhibit Hall B2	533 CC-257B / 574 CC-251	
ETHICS	428 CC-104B			
GOVT	462 CC-151A	496 CC-153B / 515 CC-105 / 517 CC-Exhibit Hall B2	541 CC-206A	
GRPH	465 CC-153C	472 CC-258C		
HPSS	436 CC-103	504 CC-101	548 CC-157B	
ICSA	427 CC-258C	471 CC-258A / 489 CC-104C	559 CC-102B	576 CC-Ballroom East
IISA	427 CC-258C	471 CC-258A	538 CC-104B	576 CC-Ballroom East
IMS	427 CC-258C / 434 CC-156B	471 CC-258A / 476 CC-156C / 497 CC-153C	544 CC-103 / 558 CC-101	576 CC-Ballroom East
ISBA		486 CC-260		
JASAAPP			543 CC-260	
JCWM	439 CC-102A			
KISS	435 CC-156C			
MD	450 CC-257A	506 CC-212		
MHR	461 CC-101		554 CC-153B	
MIN		487 CC-104A		
MKTG		494 CC-206A		
NOETHER		481 CC-104B		
NPAR	463 CC-157B	495 CC-157B / 505 CC-157C	535 CC-102A	
Q&P	446 CC-203			
RISK			566 CC-153C	
SBS	432 CC-157A	478 CC-157A / 503 CC-156B	552 CC-104A / 565 CC-104C	
SDM	433 CC-206A / 466 CC-208	509 CC-208 / 510 CC-206B	551 CC-151A / 568 CC-152 / 569 CC-156B	
SIS	438 CC-212	485 CC-102B	573 CC-206B	
SOC	449 CC-153A	475 CC-151B / 519 CC-Exhibit Hall B2	549 CC-203	
SPEs		507 CC-203	539 CC-204A	
SRMS	437 CC-152 / 467 CC-156A	491 CC-156A / 511 CC-151A / 512 CC-153A / 520 CC-Exhibit Hall B2	556 CC-204B / 571 CC-209 / 572 CC-211	
SSC	427 CC-258C / 431 CC-105	471 CC-258A	547 CC-157C	576 CC-Ballroom East
SSPA			553 CC-156A	
StatImage	441 CC-151B			
TSHS	451 CC-104C	482 CC-102A	570 CC-153A	
WNAR	453 CC-213 / 427 CC-258C	471 CC-258A / 474 CC-257B		576 CC-Ballroom East

Key

15
Session Number

CC
Boston Convention & Exhibition Center

23
(a/b/c/d/e)
Room Number

W
Westin Boston

S
Seaport Hotel

Technical Sessions at a Glance

THURSDAY, AUGUST 7

Key

15
Session Number

CC
Boston Convention
& Exhibition Center

23
(a/b/c/d/e)
Room Number

W
Westin Boston

S
Seaport Hotel

Sponsor	8:30 AM	10:30 AM
ASA	577 CC-258C	
B&E	593 CC-153A / 607 CC-156B	626 CC-156B / 647 CC-153A
BIOM	588 CC-257B / 596 CC-252A / 603 CC-255 / 604 CC-257A	628 CC-252A / 644 CC-255 / 645 CC-257A
BIOP	591 CC-258A / 592 CC-254B / 605 CC-254A / 606 CC-252B	625 CC-260 / 631 CC-254A / 632 CC-254B / 646 CC-252B / 657 CC-257B
CAS	599 CC-204B	
CNSL		641 CC-102A
Computing	586 CC-151B / 613 CC-102B	640 CC-151B / 650 CC-151A
EDUC	600 CC-212	651 CC-212
ENAR	577 CC-258C / 587 CC-260	622 CC-251
ENVR	619 CC-157C	623 CC-157C
EPI	580 CC-259A / 618 CC-208	630 CC-208 / 656 CC-259A
GOVT	585 CC-206A	648 CC-204B / 634 CC-206B
HPSS	589 CC-157A / 609 CC-157B	629 CC-157A
ICSA	577 CC-258C	643 CC-102B
IISA	577 CC-258C	
IMS	577 CC-258C / 584 CC-104A / 602 CC-105	635 CC-104A / 642 CC-105
JCGS	579 CC-251	
KISS	595 CC-213	
MD	611 CC-207	637 CC-207
MEM		620 CC-156C
NPAR	582 CC-104B / 610 CC-101	638 CC-101
Q&P	594 CC-153C	
RISK	612 CC-151A	
SAMSI		627 CC-213
SBS	583 CC-104C / 601 CC-102A / 608 CC-103	636 CC-103 / 658 CC-104C
SDM	614 CC-152	639 CC-152 / 652 CC-153C
SIS	617 CC-156C	
SOC	598 CC-203	624 CC-206A
SPAIG		621 CC-157B
SPES	581 CC-156A	649 CC-156A
SRMS	597 CC-204A / 616 CC-211 / 615 CC-209	633 CC-209 / 653 CC-211 / 654 CC-204A
SSC	577 CC-258C	
StatImage	590 CC-206B	655 CC-203

DESCRIPTIONS

Session Tag Descriptions

We expect both theme and applied sessions to draw a diverse audience.

THEME ●

JSM theme sessions are directly relevant to the 2014 JSM theme, "Statistics: Global Impact – Past, Present, and Future." Theme sessions are designed to expand the frontiers of statistical thought, emphasize new directions, and promote interdisciplinary collaboration.

APPLIED ■

JSM applied sessions have applications at the heart of their presentations. Because these sessions are grounded in applications across many areas of science and engineering, they may involve interdisciplinary work and include presentations by nonstatisticians. Applied sessions vary in scope, ranging from presentations on state-of-the-art statistical methodology applied to real-world problems to those that are tutorial in nature.

FRIDAY, AUGUST 1

Committee/Business Meetings & Other Activities

7:00 a.m.–3:00 p.m. W-Douglass
ASA Board Meeting
Chair(s): Nathaniel Schenker, ASA

SATURDAY, AUGUST 2

JSM Hours

7:30 a.m. - 6:00 p.m. CC-Southeast Lobby B2, Level 1
ASA Membership/Help Desk/Press Desk

7:30 a.m. - 6:00 p.m. CC-Southeast Lobby B2, Level 1
JSM Main Registration

7:30 a.m. - 6:00 p.m. CC-Southeast Lobby B2, Level 1
Cyber Center, Sponsored by IBM

8:00 a.m. - 5:00 p.m. CC-Exhibit Hall B2
Exhibitor Move In and Lounge

9:00 a.m. - 5:00 p.m. CC-Exhibit Hall B2
Career Placement Service (Job Posting and Resume Submission Only)

Committee/Business Meetings & Other Activities

7:00 a.m.–3:00 p.m. W-Douglass
ASA Board Meeting
Chair(s): Nathaniel Schenker, ASA

7:00 a.m.–5:00 p.m. W-Frost Boardroom
ASA Board Meeting - Break Out 1

7:00 a.m.–5:00 p.m. W-Executive Board Room
ASA Board Meeting - Break Out 2

8:00 a.m.–5:00 p.m. W-Bulfinch
Teaching the Statistical Investigation Process with Randomization-Based Inference (Closed)
Chair(s): Nathan Tintle, Dordt College

12:00 p.m.–6:00 p.m. W-Harbor Ballroom III
ACTS Annual Meeting
Organizer(s): Matthew S. Mayo, Kansas University Medical Center

3:00 p.m.–6:00 p.m. W-Hale
Statistics in Medicine Editors-in-Chief Meeting
Organizer(s): Kathryn Sharples, Wiley

Professional Development (Fee Events)

CE_01C
Enhancing Big Data Projects Through Statistical Engineering

8:30 a.m.–5:00 p.m. CC-162AB
 ASA
Instructor(s): Roger Hoerl, Union College; Richard D. De Veaux, Williams College; Ronald Snee, Snee Associates

CE_02C
Adaptive Tests of Significance Using R and SAS

8:00 a.m.–12:00 p.m. CC-160C
 ASA
Instructor(s): Tom O’Gorman, Northern Illinois University



SATURDAY, AUGUST 2

CE_03C

Analysis of Clinical Trials: Theory and Applications

8:30 a.m.–5:00 p.m. CC-160B

ASA, Biopharmaceutical Section

Instructor(s): Devan V. Mehrotra, Merck; Alex Dmitrienko, Quintiles; Jeff Maca, Quintiles

CE_04C

Hierarchical Bayesian Modeling and Analysis for Spatial Data

8:30 a.m.–5:00 p.m. CC-161

ASA, Section on Bayesian Statistical Science

Instructor(s): Bradley P. Carlin, University of Minnesota; Sudipto Banerjee, University of Minnesota; Alan Gelfand, Duke University

CE_05C

Quantile Regression

8:30 a.m.–5:00 p.m. CC-160A

ASA, Biometrics Section

Instructor(s): Roger Koenker, University of Illinois at Urbana-Champaign; Huixia Judy Wang, North Carolina State University

CE_06C

Applied Text Mining and Unstructured Data Analysis

8:30 a.m.–5:00 p.m. CC-159

ASA

Instructor(s): James Wisnowski, Adsurgo

CE_41P

Preparing Statisticians for Leadership: How to See the Big Picture and Have More Influence (Part 1)

12:00 p.m.–5:30 p.m. CC-154

ASA

Instructor(s): Gary Sullivan, Eli Lilly and Company; Marilyn Seastrom, NCES/U.S. Department of Education; Bonnie Lafleur, Ventana Medical Systems

CE_07C

Calibration Weighting in Survey Sampling

1:00 p.m.–5:00 p.m. CC-160C

ASA, Survey Research Methods Section

Instructor(s): Phillip Kott, RTI International

SUNDAY, AUGUST 3

JSM Hours

7:30 a.m.–8:30 p.m. CC-Southeast Lobby B2, Level 1

ASA Membership/Help Desk/Press Desk

7:30 a.m.–8:30 p.m. CC-Southeast Lobby B2, Level 1

JSM Main Registration

7:30 a.m.–10:30 p.m. CC-Southeast Lobby B2, Level 1

Cyber Center, Sponsored by IBM

8:00 a.m.–6:00 p.m. CC-Exhibit Hall B2

Exhibitor Lounge

8:00 a.m.–11:00 a.m. CC-Exhibit Hall B2

Exhibitor Move In

9:00 a.m.–7:00 p.m. CC-256

Speaker Management Room

9:00 a.m.–5:00 p.m. CC-North Lobby

Boston Visitor Services Desk

1:00 p.m.–6:00 p.m. CC-Exhibit Hall B2

EXPO 2014

1:00 p.m.–6:00 p.m. CC-Exhibit Hall B2

American Statistical Association Booth #201

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

1:00 p.m.–6:00 p.m. CC-Exhibit Hall B2
ASA Marketplace

1:00 p.m.–6:00 p.m. CC-Exhibit Hall B2
Career Placement Service (Full Placement Service Open)

Committee/Business Meetings & Other Activities

7:30 a.m.–10:00 a.m. W-Faneuil
Joint COP/Editors Meeting
Chair(s): Leonard Stefanski, North Carolina State University

8:00 a.m.–11:00 a.m. W-Executive Board Room
Council of Sections Governing Board Meeting (Closed)
Chair(s): John Czajka, Mathematica Policy Research

8:00 a.m.–4:00 p.m. W-Common Wealth Ballroom B
Train the Trainer: How to Present a Short Course on Effective Presentations (Fee Event)

8:30 a.m.–1:30 p.m. W-Douglass
Eighth Annual Workshop of the Caucus of Academic Representatives
Chair(s): Paul Rathouz, University of Wisconsin

9:00 a.m.–10:30 a.m. W-Bulfinch
Caucus for Women in Statistics Executive Committee Meeting
Organizer(s): Nancy Flournoy, University of Missouri

9:00 a.m.–2:00 p.m. W-Harbor Ballroom III
ACTS Annual Meeting
Organizer(s): Matthew S. Mayo, Kansas University Medical Center

9:00 a.m.–5:00 p.m. W-Alcott
NISS/ASA/IMS Writing Workshop for Junior Researchers (Closed)
Chair(s): Keith Crank, Retired

10:30 a.m.–12:30 p.m. CC-257B
JSM Presentation Skills Workshop (Open to JSM Speakers)
Chair(s): Brian Wiens

11:00 a.m.–12:30 p.m. W-Adams
Accreditation Committee Meeting
Chair(s): Theresa Utlaut, Intel Corporation

11:30 a.m.–1:00 p.m. W-Faneuil
Statistica Sinica Editorial Board Meeting
Organizer(s): Jeng-Min Chiou, Academia Sinica

11:30 a.m.–1:00 p.m. W-Hancock
JSE Editorial Board Meeting
Chair(s): Michelle Everson, University of Minnesota

12:00 p.m.–1:30 p.m. W-Hale
Electronic Journal of Statistics Editorial Meeting
Organizer(s): Elyse Gustafson, Institute of Mathematical Statistics; Elyse Gustafson, Institute of Mathematical Statistics

12:00 p.m.–2:00 p.m. W-Executive Board Room
Leadership Support Council Meeting (Closed)
Organizer(s): David Morganstein, Westat

12:30 p.m.–2:00 p.m. CC-Ballroom East
JSM First-Time Attendee Orientation and Reception

2:00 p.m.–3:30 p.m. W-Bulfinch
Committee on Statistics and Disability
Chair(s): Long H. Ngo, Harvard Medical School

2:00 p.m.–3:30 p.m. W-Adams
Professional Issues and Visibility Council Meeting
Chair(s): Martha Gardner, GE Global Research Center

2:00 p.m.–5:00 p.m. W-Grand Ballroom C
Council of Sections Business Meeting (Closed)
Chair(s): John Czajka, Mathematica Policy Research

4:00 p.m.–5:30 p.m. W-Frost Boardroom
Education Council Meeting
Chair(s): Jeri Metzger Mulrow, NSF

4:00 p.m.–5:30 p.m. W-Hancock
Awards Council Meeting (Closed)
Chair(s): Marie Davidian, North Carolina State University

4:00 p.m.–5:30 p.m. W-Executive Board Room
Membership Council Meeting (Closed)
Chair(s): James Rosenberger, Penn State

4:00 p.m.–5:30 p.m. CC-101
Education Open Meeting to Discuss Draft Curriculum Guidelines: Workgroup on Undergrad Stat Program
Chair(s): Nicholas J. Horton, Amherst College

4:30 p.m.–6:00 p.m. W-Faneuil
Section for Statistical Programmers and Analysts Executive Officers Meeting
Chair(s): Vipin Arora, Eli Lilly and Company

4:30 p.m.–8:00 p.m. W-Bulfinch
ENAR Executive Committee Meeting
Organizer(s): DuBois Bowman, ENAR; Jose Pinheiro, ENAR

Fri-Sun



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

5:00 p.m.–6:30 p.m. W-Webster
Quality and Productivity Executive Committee Meeting
 Chair(s): Diane Michelson, SAS Institute

5:00 p.m.–7:30 p.m. W-Hale
Section on Physical and Engineering Sciences Annual Business Meeting
 Chair(s): Elizabeth Schiferl, Lubrizol Corporation

5:30 p.m.–7:00 p.m. W-Grand Ballroom D
Isolated Statisticians (ISOSTAT) Business Meeting
 Chair(s): K. B. Boomer, Bucknell University

5:30 p.m.–8:30 p.m. W-Harbor Ballroom III
NISS/SAMSI Affiliates Meeting
 Organizer(s): Alan F. Karr, NISS

6:00 p.m.–7:00 p.m. W-Douglass
Meeting of the International Community of Russian-Speaking Statisticians
 Organizer(s): Stanislav Kolenikov, Abt SRBI

6:00 p.m.–7:00 p.m. W-Frost Boardroom
IISA Business Meeting
 Organizer(s): N. Rao Chaganty, Old Dominion University

6:00 p.m.–7:00 p.m. W-Alcott
ASA Caucus of Academic Representatives Business and Executive Committee Meeting
 Chair(s): Kathy B. Ensor, Rice University

6:00 p.m.–7:30 p.m. W-Common Wealth Ballroom B
University of Minnesota Alumni and Friends Reception
 Organizer(s): Sally Olander, University of Minnesota

6:00 p.m.–7:30 p.m. W-Grand Ballroom E
Cancer Center Biostatistics Directors
 Organizer(s): Terry Hyslop, Duke University

6:00 p.m.–8:00 p.m. W-Common Wealth Ballroom C
RTI International Reception
 Organizer(s): Margo Jordan, RTI International

6:00 p.m.–9:00 p.m. W-Grand Ballroom C
ICSA Board Meeting
 Organizer(s): Zhezhen Jin, Columbia University

6:30 p.m.–8:30 p.m. W-Hancock
Purdue Alumni Reception
 Organizer(s): Aaron Kosdrosky, PRF

6:30 p.m.–8:30 p.m. W-Harbor Ballroom II
JMP Reception for Friends and Users
 Organizer(s): Robin Moran, JMP Division, SAS Institute

7:00 p.m.–8:30 p.m. W-Common Wealth Ballroom A
IISA Mixer
 Organizer(s): N. Rao Chaganty, Old Dominion University

7:00 p.m.–8:30 p.m. W-Adams
Royal Statistical Society Reception for Fellows of the RSS
 Organizer(s): Nicola Emmerson, RSS

7:30 p.m.–8:30 p.m. CC-252B
ASA Awards Celebration and Editor Appreciation
 Sponsored by IBM

8:30 p.m.–10:30 p.m. CC-Ballroom East
JSM Opening Mixer
 Sponsored by Westat and Eli Lilly and Company

Professional Development (Fee Events)

CE_41P
Preparing Statisticians for Leadership: How to See the Big Picture and Have More Influence (Part 2)
 8:00 a.m.–12:00 p.m. CC-154
 ASA
 Instructor(s): Gary Sullivan, Eli Lilly and Company; Marilyn Seastrom, NCES/U.S. Department of Education; Bonnie Lafleur, Ventana Medical Systems

CE_42P
Learning and Improving Skills to Become a More Effective Statistical Collaborator (Part 1)
 8:00 a.m.–12:00 p.m. CC-158
 ASA
 Instructor(s): Eric Vance, LISA-Virginia Tech; Heather Smith, Cal Poly, San Luis Obispo; Doug Zahn, Florida State University

CE_01C
Enhancing Big Data Projects Through Statistical Engineering
 8:30 a.m.–5:00 p.m. CC-162AB
 ASA
 Instructor(s): Ronald Snee, Snee Associates; Richard D. De Veaux, Williams College; Roger Hoerl, Union College

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

CE_08C

Adaptive Methods in Modern Clinical Trials

8:30 a.m.–5:00 p.m. CC-160B

ASA, Biometrics Section

Instructor(s): Guosheng Yin, University of Hong Kong; Byron Jones, Novartis; Frank Bretz, Novartis

CE_09C

Bayesian Dynamic Models: Time Series Analysis and Forecasting

8:30 a.m.–5:00 p.m. CC-161

ASA, Section on Bayesian Statistical Science

Instructor(s): Raquel Prado, University of California, Santa Cruz; Mike West, Duke University

CE_10C

Analysis of Genome-Wide Sequencing Association Studies

8:30 a.m.–5:00 p.m. CC-160A

ASA, Biometrics Section

Instructor(s): Xihong Lin, Harvard School of Public Health; Yun Li, University of North Carolina at Chapel Hill; Michael Wu, Fred Hutchinson Cancer Research Center

CE_11C

Applied Longitudinal Analysis

8:30 a.m.–5:00 p.m. CC-159

ASA, Biometrics Section

Instructor(s): Garrett Fitzmaurice, Harvard; Nan Laird, Harvard

CE_43P

Career Development: Opportunities for Statistical Innovation and Impact (FREE event)

2:00 p.m.–4:00 p.m. CC-158

ASA, Committee on Career Development

Instructor(s): Jim Koehler, Google; Kary Myers, Los Alamos National Laboratory; Stephanie DeHart, DuPont; Frank Rockhold, GlaxoSmithKline; Nancy Petersen, VA Medical Center

Invited Sessions 2:00 p.m.–3:50 p.m.

1 **CC-102B**

Statistical Thinking in Sports—Invited

Journal of Quantitative Analysis in Sports, Section on Statistics in Sports

Organizer(s): Jim Albert, Bowling Green State University

Chair(s): Jim Albert, Bowling Green State University

2:05 p.m. **Modeling Skill Importance in Volleyball**—◆ Gilbert W. Fellingham, Brigham Young University

2:30 p.m. **Explaining the Performance Differences of Olympic Male and Female Champions in Running, Jumping, and Swimming**—◆ Ray Stefani, California State University, Long Beach

2:55 p.m. **Advanced Putting Metrics in Golf**—◆ Tim Swartz, Simon Fraser University; Kasra Yousefi, Simon Fraser University

3:20 p.m. **Estimating Player Contribution in Hockey with Regularized Logistic Regression**—◆ Robert B. Gramacy, University of Chicago; Matt Taddy, University of Chicago; Shane Jensen, University of Pennsylvania

3:45 p.m. **Floor Discussion**

2 **CC-157A**

Statistical Computing for Genome-Scale Inference—Invited

Section on Statistical Graphics, Interface Foundation of North America, Section on Statistical Computing

Organizer(s): Vincent J. Carey, Channing Division of Network Medicine

Chair(s): Rafael Irizarry, Dana-Farber Cancer Institute

2:05 p.m. **Harnessing Crowd-Sourcing to Select Genes Based on Effect Size Using Visual Inference Methods**—◆ Dianne Cook, Iowa State University

2:30 p.m. **Designing Software for Statistical Analysis of Huge Collections of Sequencing Data**—◆ Ben Langmead, Johns Hopkins University

2:55 p.m. **Interactive and Exploratory Visualization of Epigenome-Wide Data**—◆ Hector Corrada Bravo, University of Maryland

3:20 p.m. **Disc: Terence P. Speed**, University of California, Berkeley

3:45 p.m. **Floor Discussion**

3 **CC-157C**

Causal Inference When Covariates Are Measured with Error—Invited

Social Statistics Section, Health Policy Statistics Section, Mental Health Statistics Section, Conference on Statistical Practice Steering Committee

Organizer(s): Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health

Chair(s): Frauke Kreuter, University of Maryland

2:05 p.m. **Implications of Measurement Error on Covariate Selection for Causal Inference**—◆ Peter M. Steiner, University of Wisconsin-Madison; Yongnam Kim, University of Wisconsin-Madison

2:25 p.m. **Matching Estimators for Causal Inference with Error-Prone Covariates**—◆ J.R. Lockwood, Educational Testing Service; Daniel McCaffrey, Educational Testing Service

2:45 p.m. **Applying Multiple Imputation Using External Calibration to Propensity Score Estimation**—◆ Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health; Yenny Webb Vargas, Johns Hopkins Bloomberg School of Public Health; David Lenis, Johns Hopkins Bloomberg School of Public Health

Fri-Sun



- 3:05 p.m. **SIMEX for Weighting and Matching Applications with Error-Prone Covariates**—◆ Daniel McCaffrey, Educational Testing Service; J.R. Lockwood, Educational Testing Service
- 3:25 p.m. Disc: Grace Yi, University of Waterloo
- 3:45 p.m. **Floor Discussion**

- Tecnológico Autônomo de México; Donald Richards, Penn State
- 3:20 p.m. **Applications of Distance Correlation in Biomedical Data**—◆ Grace Wahba, University of Wisconsin-Madison
- 3:45 p.m. **Floor Discussion**

4 CC-157B **Advances in Multivariate Analysis and Linear Models: Session in Memory of Prof. Dayanand N. Naik—Invited**

Memorial, Section on Physical and Engineering Sciences, International Indian Statistical Association

Organizer(s): Ravindra Khattree, Oakland University

Chair(s): Ravindra Khattree, Oakland University

- 2:05 p.m. **Optimal Design Through Weighting**—◆ John P. Morgan, Virginia Tech; Jonathan W. Stallings, North Carolina State University
- 2:30 p.m. **In Memoriam: Dr. Dayanand N. Naik**—◆ N. Rao Chaganty, Old Dominion University
- 2:55 p.m. **Classification Trees and Covariates: Applications in Neuroscience**—Josephine Asafu-Adjei, Harvard School of Public Health; ◆ Allan Sampson, University of Pittsburgh
- 3:20 p.m. **Remembering Dyanand Naik: A Multivariate Man**—◆ David Banks, Duke University
- 3:45 p.m. **Floor Discussion**

5 CC-203 **Distance Correlation—Invited**

IMS

Organizer(s): Gabor J. Szekely, NSF

Chair(s): Gabor J. Szekely, NSF

- 2:05 p.m. **The Affinely Invariant Distance Correlation**—◆ Donald Richards, Penn State; Johannes Dueck, Heidelberg University; Dominic Edelmann, Heidelberg University; Tilmann Gneiting, Heidelberg University
- 2:30 p.m. **Robust Feature Screening and Selection for Ultrahigh-Dimensional Heteroscedastic Single-Index Models**—◆ Runze Li, Penn State; Wei Zhong, Xiamen University; Liping Zhu, Shanghai University of Finance and Economics; Hengjian Cui, Capital Normal University
- 2:55 p.m. **Distance Correlation Applied to High-Dimensional Astrophysical Databases**—◆ Mercedes T. Richards, Penn State; Elizabeth Martinez-Gomez, Instituto

6 CC-206A **Tree-Based Methods for Developing Clinically Useful Prognostic Models Using Genomic Markers—Invited**

WNAR, Section on Physical and Engineering Sciences

Organizer(s): Irina Ostrovnaya, Memorial Sloan Kettering Cancer Center

Chair(s): Irina Ostrovnaya, Memorial Sloan Kettering Cancer Center

- 2:05 p.m. **A Smooth Basis for Prognostic Rules**—◆ Michael LeBlanc, Fred Hutchinson Cancer Research Center
- 2:30 p.m. **Reinforcement Learning Trees for Sparse High-Dimensional Prediction**—◆ Ruoqing Zhu, Yale; Donglin Zeng, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill
- 2:55 p.m. **An Adaptive Method for Incorporating New Genomic Markers into an Existing Prognostic Classifier**—◆ Sean Devlin, Memorial Sloan Kettering Cancer Center; Irina Ostrovnaya, Memorial Sloan Kettering Cancer Center; Mithat Gönen, Memorial Sloan Kettering Cancer Center
- 3:20 p.m. **Tree-Derived Survival Risk Groups in Differentiating Care for Glioma Patients**—◆ Annette M. Molinaro, University of California, San Francisco; Robert Strawderman, University of Rochester; Adam Olshen, University of California, San Francisco
- 3:45 p.m. **Floor Discussion**

7 CC-258A **Recent Developments on the Analysis of Semi-Competing Risks Data—Invited**

Biometrics Section

Organizer(s): Sebastien Haneuse, Harvard School of Public Health

Chair(s): Kyu Ha Lee, Harvard School of Public Health

- 2:05 p.m. **On the Analysis of Clustered Semi-Competing Risks Data**—◆ Sebastien Haneuse, Harvard School of Public Health; Kyu Ha Lee, Harvard School of Public Health; Francesca Dominici, HSPH; Deborah Schrag, Dana-Farber Cancer Institute
- 2:30 p.m. **Bayesian Modeling and Inference of Survival Data with Semi-Competing and Competing Risks**—◆ Ming-Hui Chen, University of Connecticut; Mario de Castro, Universidade de São Paulo; Yuanye Zhang, Novartis; Anthony V. D'Amico, Brigham & Women's Hospital

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 2:55 p.m. **Identification of Survival Average Causal Effect—**
◆ Eric Tchetgen, Harvard School of Public Health
- 3:20 p.m. Disc: Jason Fine, University of North Carolina at Chapel Hill
- 3:45 p.m. **Floor Discussion**

8 **CC-259A**
● Analyzing Data That Are Missing Not at Random, with Medical Applications—Invited

ENAR

Organizer(s): Judith J. Lok, Harvard School of Public Health
Chair(s): Constantin T. Yiannoutsos, Indiana University School of Public Health

- 2:05 p.m. **Global Sensitivity Analysis for Repeated Measures Studies with Informative Drop-Out—**Daniel Scharfstein, Johns Hopkins Bloomberg School of Public Health; ◆ Aidan McDermott, Johns Hopkins Bloomberg School of Public Health; William Olson, Janssen; Frank Weigand, Janssen
- 2:30 p.m. **Choosing Profile Double-Sampling Designs for Survival Estimation with Application to PEPFAR Evaluation—**Ming-Wen An, Vassar College; ◆ Constantine E. Frangakis, Johns Hopkins University; Constantin T. Yiannoutsos, Indiana University School of Public Health
- 2:55 p.m. **Inverse Probability of Censoring Weights Under Missing Not at Random with Application to Cd4 Outcomes in HIV-Positive Patients in Kenya—**◆ Judith J. Lok, Harvard School of Public Health; Constantin T. Yiannoutsos, Indiana University School of Public Health; Agnes Kiragga, Makerere University; Ronald J. Bosch, Harvard School of Public Health
- 3:20 p.m. Disc: James Robins, Harvard School of Public Health
- 3:45 p.m. **Floor Discussion**

9 **CC-103**
● Tradeoffs in Big Data Modeling—Invited

Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America, Section on Statistics in Marketing, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines, Conference on Statistical Practice Steering Committee

Organizer(s): Damir Spisic, IBM
Chair(s): Jing Shyr, IBM

- 2:05 p.m. **Scaling up Kernel Methods with Randomization and Distributed Computation—**◆ Vikas Sindhwani, IBM; Haim Avron, IBM Research
- 2:30 p.m. **Divide and Recombine for Large Complex Data: Statistical Theory for Division and Recombination Methods—**◆ William S. Cleveland, Purdue University; Philip Gautier, Purdue University

- 2:55 p.m. **Learning Binary Representations for Fast Similarity Search in Massive Databases—**◆ Sanjiv Kumar, Google

- 3:20 p.m. **Clustering and Feature Selection for Big Data—**◆ Damir Spisic, IBM; Jing Shyr, IBM; Jing Xu, IBM SPSS

- 3:45 p.m. **Floor Discussion**

10 **CC-104B**
■ ● Technology's Impact on Statistics Education: Past, Present, and Future—Invited

Host Chapter-Boston, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines, Section on Statistical Education, Scientific and Public Affairs Advisory Committee, Section on Teaching of Statistics in the Health Sciences, Council of Chapters, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials

Organizer(s): John D. McKenzie Jr., Babson College
Chair(s): Nicholas J. Horton, Amherst College

- 2:05 p.m. **Technology Innovations in Statistics Education—**◆ Roxy Peck, Cal Poly, San Luis Obispo
- 2:30 p.m. **Simulation-Based Methods in Statistics Education, and Google Tools—**◆ Tim Hesterberg, Google
- 2:55 p.m. **Interacting with Students: Yesterday, Today, and Tomorrow—**◆ Paul F. Velleman, Cornell University
- 3:20 p.m. **Health in Numbers: Quantitative Methods in Clinical and Public Health Research—An Early edX Free Online Course—**◆ Marcello Pagano, Harvard School of Public Health
- 3:45 p.m. **Floor Discussion**

Invited Panel 2:00 p.m.–3:50 p.m.

11 **CC-153B**
■ Keys to Starting a Successful Statistical Consulting Practice—Invited

Section on Statistical Consulting, Statistics Without Borders, Conference on Statistical Practice Steering Committee, Accreditation Committee

Organizer(s): Christopher H. Holloman, Ohio State University
Chair(s): Christopher H. Holloman, Ohio State University

- Panelists:**
- ◆ Stephanie Thompson, Datamum
 - ◆ Margaret Nemeth, Statistical Consultants Plus
 - ◆ Jennifer Schumi, Statistics Collaborative
 - ◆ Rene Paulson, Elite Research
- 3:45 p.m. **Floor Discussion**

Fri-Sun



Topic-Contributed Sessions 2:00 p.m.–3:50 p.m.

12 CC-260
New Developments and Applications of Clinical Trials in Treatment Selection—Topic-Contributed

Biometrics Section

Organizer(s): *Yingqi Zhao, University of Wisconsin-Madison*

Chair(s): *Eric B. Laber, North Carolina State University*

- 2:05 p.m. **Identification of Simple Subgroups of Enhanced Treatment Effect from Randomized Clinical Trials Data—◆**Jeremy Taylor, University of Michigan; Wenting Cheng, University of Michigan; Jared Foster, NICHD
- 2:25 p.m. **Active Learning Clinical Trials for Personalized Medicine—◆**Yingqi Zhao, University of Wisconsin-Madison; Stanislav Minsker, Duke University; Guang Cheng, Purdue University
- 2:45 p.m. **Characterizing Expected Benefits of Biomarkers in Treatment Selection—◆**Ying Huang, Fred Hutchinson Cancer Research Center; Eric B. Laber, North Carolina State University; Holly Janes, Fred Hutchinson Cancer Research Center
- 3:05 p.m. **Design of Sequentially Randomized Trials for Testing Adaptive Treatment Strategies—◆**Abdus Wahed, University of Pittsburgh; Semhar Ogbagaber, University of Pittsburgh; Jordan Karp, University of Pittsburgh
- 3:25 p.m. **Generalized Q Learning for Binary Outcomes—◆**Min Qian, Columbia University; Eric B. Laber, North Carolina State University
- 3:45 p.m. **Floor Discussion**

13 CC-257B
Statistical Challenges for Cancer Clinical Trials—Topic-Contributed

Biopharmaceutical Section, Statistics Without Borders, International Indian Statistical Association

Organizer(s): *Sudhakar Rao, Janssen*

Chair(s): *Sudhakar Rao, Janssen*

- 2:05 p.m. **Cure Rate Survival Data: Practical Issues and Recommendations—◆**Steven Sun, Johnson & Johnson; Grace Liu, Janssen; Bruce Xue, Janssen; Sudhakar Rao, Janssen
- 2:25 p.m. **Impact of Scan-Frequency and Over-Enrollment in Cancer Trials: A Statistician's View—◆**Ram Suresh, GlaxoSmithKline
- 2:45 p.m. **The Clinical Meaningfulness of a Treatment's Effect on Disease Progression—◆**Steven Snapinn, Amgen
- 3:05 p.m. **Interim Analysis: Some Statistical and Regulatory Challenges—◆**Pabak Mukhopadhyay, Novartis; Satrajit Roy Choudhury, Novartis

- 3:25 p.m. **Statistical Challenges in Adaptive Population Selection for Cancer Clinical Trials—◆**Mei Chiung Shih, Stanford University School of Medicine

- 3:45 p.m. **Floor Discussion**

14 CC-212
Stochastic Modeling of Meteorological Variables and Weather Generators—Topic-Contributed

Section on Statistics and the Environment

Organizer(s): *Ying Sun, Ohio State University*

Chair(s): *Matthew Heaton, Brigham Young University*

- 2:05 p.m. **Incorporating Geostrophic Wind Information for Improved Space-Time Short-Term Wind Speed Forecasting and Power System Dispatch—◆**Marc G. Genton, King Abdullah University of Science and Technology; Kenneth Bowman, TAMU; Xinxin Zhu, Texas A&M
- 2:25 p.m. **Spatial Modeling of Temperature and Humidity Using Systems of Stochastic Partial Differential Equations—◆**Ingelin Steinsland, NTNU; Xiangping Hu, NTNU; Sara Martino, SINTEF Energy; Daniel Simpson, NTNU; HÅvard Rue, NTNU
- 2:45 p.m. **High-Resolution Nonstationary Weather Simulation—◆**William Kleiber, University of Colorado
- 3:05 p.m. **A Stochastic Space-Time Model for Intermittent Precipitation Occurrences—◆**Ying Sun, Ohio State University; Michael Stein, University of Chicago
- 3:25 p.m. **Spatio-Temporal Modeling of Rain Rates Using Approximate Bayesian Computation—◆**Matthew Pratola, Ohio State University; Ying Sun, Ohio State University
- 3:45 p.m. **Floor Discussion**

15 CC-104C
Advanced Statistical Models for Risk Analysis in Insurance and Financial Markets—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): *Zhengjun Zhang, University of Wisconsin-Madison*

Chair(s): *David Scott Matteson, Cornell University*

- 2:05 p.m. **An Unbiased Measure of Integrated Volatility in the Frequency Domain—◆**Fangfang Wang, University of Illinois at Chicago
- 2:25 p.m. **Nested Asymptotic (In)Dependent Extreme Value Copulas in Max-Stable Processes with Application to High-Frequency Financial Data—◆**Zhengjun Zhang, University of Wisconsin-Madison; Bin Zhu, University of Wisconsin

- 2:45 p.m. **Realized Kernel Estimation of Quadratic Volatility with Irregular Sampling Times**—◆Michael Levine, Purdue University; Jian Zou, Indiana University-Purdue University Indianapolis; Xiaoguang Wang, Purdue University
- 3:05 p.m. **Convolutional Autoregressive Models for Functional Time Series**—◆Rong Chen, Rutgers University; Xialu Liu, Rutgers University
- 3:25 p.m. **Robust Bayesian Portfolio Choice**—◆Airu Cheng, Northern Illinois University; Evan Anderson, Northern Illinois University
- 3:45 p.m. **Floor Discussion**

16 **CC-204B**
■ ● Bayesian Computational Inference for Large-Scale Problems in Genomics and Systems Biology—Topic-Contributed

International Society for Bayesian Analysis (ISBA)

Organizer(s): Mayetri Gupta, University of Glasgow
Chair(s): Riten Mitra, University of Louisville

- 2:05 p.m. **A Latent Variable Model for Integrative Clustering Analysis of Multi-Type Genomic Data**—◆Qianxing Mo, Baylor College of Medicine; Ronglai Shen, Memorial Sloan Kettering Cancer Center; Sijian Wang, University of Wisconsin; Venkatraman Seshan, Memorial Sloan Kettering Cancer Center; Adam Olshen, University of California, San Francisco
- 2:25 p.m. **Bayesian Consensus Clustering**—◆Eric Lock, Duke University
- 2:45 p.m. **Bayesian Inference of Dynamic Gene Regulatory Networks from Factorial Time-Course Experiments**—◆Mayetri Gupta, University of Glasgow; Joseph Wu, Boston University School of Public Health; Louis Gerstenfeld, Boston University School of Medicine
- 3:05 p.m. **Mixture Representations of Non Local Priors for Graphical Model Determination and Estimation**—◆Donatello Telesca, University of California, Los Angeles
- 3:25 p.m. **Bayesian Integrative Tensor Models for Genetic Interaction Networks**—◆Chuanhua Xing, Boston University/AstraZeneca - MedImmune; Tsuyoshi Kuniyama, Duke University; David Dunson, Duke University
- 3:45 p.m. **Floor Discussion**

17 **CC-102A**
■ ● Statistical Innovations in Functional Genomics—Topic-Contributed

International Chinese Statistical Association

Organizer(s): Hua Tang, Stanford University
Chair(s): Hua Tang, Stanford University

- 2:05 p.m. **Environmental, Familial, and Leukocyte-Associated Variance of Methylation Quantitative Trait Loci in the Human Genome**—◆Liming Liang, Harvard School of Public Health
- 2:25 p.m. **Integrating Diverse Genomics Data to Infer Heterogeneity in Cancer**—◆Yuping Zhang; Hongyu Zhao, Yale
- 2:45 p.m. **Estimating the Occurrence Rate of DNA Palindromes**—◆I-Ping Tu, Academia Sinica
- 3:05 p.m. **Bayesian Structured Sparsity to Uncover EQTLs**—◆Barbara Engelhardt, Duke University; Ryan Adams, Harvard
- 3:25 p.m. **Genomic Sequence-Independent Prediction of RNA Editing Sites Using Single RNA-Seq Data**—◆Xinshu Xiao, University of California, Los Angeles; Qing Zhang, University of California, Los Angeles
- 3:45 p.m. **Floor Discussion**

18 **CC-156C**
■ Recent Advances in Spatial Methodology for Federal Surveys—Topic-Contributed

Survey Research Methods Section, Government Statistics Section

Organizer(s): Scott Holan, University of Missouri
Chair(s): Christopher K. Wikle, University of Missouri

- 2:05 p.m. **The Poisson Change of Support Problem with Applications to the American Community Survey**—◆Jonathan R. Bradley, University of Missouri; Christopher K. Wikle, University of Missouri; Scott Holan, University of Missouri
- 2:25 p.m. **A Fully Bayesian Approach for Generating Synthetic Marks and Geographies for Confidential Data**—◆Harrison Quick, University of Missouri; Scott Holan, University of Missouri; Christopher K. Wikle, University of Missouri; Jerome P. Reiter, Duke University
- 2:45 p.m. **Flexible Bayesian Methodology for Multivariate Spatial Small Area Estimation**—◆Aaron T. Porter, University of Missouri; Scott Holan, University of Missouri; Christopher K. Wikle, University of Missouri
- 3:05 p.m. **Spatio-Temporal Modeling of U.S. State-To-State Migration Flows**—◆Trevor Oswald,



3:25 p.m. **Improving the American Community Survey Margins of Error Through Data-Driven Regionalization**—◆ Seth Spielman, University of Colorado; David Folch, University of Colorado

3:45 p.m. **Floor Discussion**

19 CC-255 **Applications of Statistical Techniques to the Analysis of HIV/AIDS Data at the Centers for Disease Control and Prevention—Topic-Contributed**

Section on Statistics in Epidemiology, Statistics Without Borders

Organizer(s): Felicia P. Hardnett, CDC

Chair(s): Jodi Lapidus, Oregon Health & Science University

2:05 p.m. **Measuring the Potential Role of Frailty in Apparent Declining Efficacy of HIV Interventions**—◆ Felicia P. Hardnett, CDC; Charles Rose, CDC

2:25 p.m. **Weighting Data from a Sample Survey of HIV Patients in a Community-Based Service Delivery System: The 2011 Los Angeles Coordinated Needs Assessment-Care (LACHNA-Care) Study**—◆ Christopher H. Johnson, CDC; Rhodri Dierst-Davies, Los Angeles County Department of Public Health; Amy Rock Wohl, Los Angeles County Department of Public Health

2:45 p.m. **HLA-Restricted CTL Responses and Antiretroviral Treatment Work Together Forcing HIV-1 Evolution**—◆ Xinjian Zhang, CDC/OID/NCHHSTP/DHAP/USDMB

3:05 p.m. **Study Conduct and Data Analysis in a Resource-Limited Setting**—◆ Craig B. Borkowf, CDC

3:25 p.m. Disc: Timothy A. Green, CDC

3:45 p.m. **Floor Discussion**

20 CC-206B **Bayesian Multi-Resolution Modeling with Applications in Biosciences—Topic-Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Li Ma, Duke University

Chair(s): Fan Li, Duke University

2:05 p.m. **A Multiscale Analysis of Functional MRI with a Three Components Hemodynamic Response Function**—◆ Marco A.R. Ferreira, University of Missouri; Yuan Chen, University of Missouri; Jeff Johnson, University of Missouri; Jeff Rouder, University of Missouri

2:25 p.m. **A Bayesian Multi-Scale Poisson Model for Detecting Differences Between Multiple Groups in High-Throughput Sequencing Data and Its Application to Small Sample Sizes**—◆ Heejung Shim, University of Chicago; Zhengrong Xing, University of Chicago; Ester Pantaleo, University of Chicago; Matthew Stephens, University of Chicago

2:45 p.m. **Multi-Resolution Two-Sample Comparison Through the Divide-Merge Markov Tree**—◆ Li Ma, Duke University; Jacopo Soriano, Duke University

3:05 p.m. **Bayesian Multiscale Modeling of Closed Curves in Point Clouds**—◆ Debdeep Pati, Florida State University; Kelvin Gu, Stanford University; David Dunson, Duke University

3:25 p.m. **A Bayesian Nonparametric Approach to the Analysis of fMRI Data**—◆ Linlin Zhang, Rice University; Michele Guindani; Francesco Versace, MD Anderson Cancer Center; Marina Vannucci, Rice University

3:45 p.m. **Floor Discussion**

21 CC-254B **Patient Monitoring and Adaptive Intervention in Clinical Quality Improvement—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Alfred H. Balch, University of Utah

Chair(s): Tom Greene, University of Utah

2:05 p.m. **Drug Monitoring in Infectious Disease Therapy: Optimizing the Dose Individually and Dynamically**—◆ Alfred H. Balch, University of Utah

2:25 p.m. **Patient-Centred Monitoring of Vital Signs and Laboratory Parameters to Guide Pharmacotherapy: Insights from Anaesthesia**—◆ Chris Stockmann; Michael G. Spigarelli, University of Utah; Catherine M.T. Sherwin, University of Utah School of Medicine; Alfred H. Balch, University of Utah

2:45 p.m. **Estimating Optimal Dynamic Treatment Regimes with Shared Decision Rules Across Stages**—◆ Bibhas Chakraborty, Duke-NUS Graduate Medical School; Erica Moodie, McGill University; Palash Ghosh, Duke-NUS Graduate Medical School

3:05 p.m. Disc: Michael G. Spigarelli, University of Utah

3:25 p.m. Disc: Catherine M.T. Sherwin, University of Utah School of Medicine

3:45 p.m. **Floor Discussion**

22 CC-152
■ ● The Statistical Classroom: Student Projects Utilizing Student-Generated Data—Topic-Contributed

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences, Statistics Without Borders, Statistics in Business Schools Interest Group, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Amy S. Nowacki, Cleveland Clinic

Chair(s): Amy S. Nowacki, Cleveland Clinic

- 2:05 p.m. **Student Projects in the Age of IRBs**—◆ Samuel Wilcock, Messiah College
- 2:25 p.m. **Ethical Statistics: The Honor Council Project**—◆ Shannon McClintock, Emory University
- 2:45 p.m. **Exit Polls: Every Vote Counts**—◆ Mary Gray, American University; Emmanuel Addo, American University
- 3:05 p.m. **Section on Statistical Education**—◆ Herbert Thijs, I-Biostat
- 3:25 p.m. **Focusing on Reporting Results**—◆ Guy Cohen,
- 3:45 p.m. **Floor Discussion**

23 CC-153A
■ Modeling Driver Behavior Using Advanced Data Collection Method—Topic-Contributed

Government Statistics Section, Transportation Statistics Interest Group

Organizer(s): Feng Guo, Virginia Tech

Chair(s): Feng Guo, Virginia Tech

- 2:05 p.m. **Detecting the Change Points of Driving Risk for Novice Teenage Drivers Using Recurrent Event Models**—◆ Qing Li, Virginia Tech; Feng Guo, Virginia Tech; Simons-Morton Bruce, NICHD
- 2:25 p.m. **Modeling Drivers' Distracted Behavior: A Hidden Markov Model Approach**—Shan Bao, University of Michigan Transportation Research Institute; ◆ Huimin Xiong, University of Michigan Transportation Research Institute; James Sayer, University of Michigan Transportation Research Institute
- 2:45 p.m. **Statistical Approaches to Analyze Self-Reported Susceptibility to Driver Distraction**—◆ Huei-Yen Winnie Chen, University of Toronto; Birsan Donmez, University of Toronto; Young-Don Ko, University of Toronto
- 3:05 p.m. **Predicting Drivers' Pedal Responses Using Multinomial Logit Models with Repeated Measures**—Linda Boyle, University of Washington; ◆ Yuqing Wu, University of Washington; Daniel McGehee, University of Iowa; Kazu Ebu, Collaborative Safety Research Center, TEMA; James Foley, Collaborative Safety Research Center, TEMA
- 3:25 p.m. **Disc:** Jeffrey Dawson, University of Iowa
- 3:45 p.m. **Floor Discussion**

24 CC-151A
■ Applied Problems in Spectral Analysis of Time Series—Topic-Contributed

Section on Physical and Engineering Sciences, Conference on Statistical Practice Steering Committee

Organizer(s): Charlotte Haley, Queen's University

Chair(s): Karim Rahim, Queen's University

- 2:05 p.m. **Forecasting the Likelihood of Solar Flares Using an Inferred Solar Stress Index**—◆ Aaron Springford, Queen's University; David J. Thomson, Queen's University; David Riegert,
- 2:25 p.m. **Sphericity Test for Multitaper Spectral Estimation Parameter Selection**—◆ Joshua Pohlkamp-Hartt, Queen's University
- 2:45 p.m. **Tidal Signals in Lake Michigan Water Level Data**—◆ David Riegert,
- 3:05 p.m. **Some Recent Developments in the Estimation of Autocorrelations**—◆ David J. Thomson, Queen's University
- 3:25 p.m. **Multivariate Time Series Analysis of Forty Years of Multidirectional Muon Observations**—◆ Charlotte Haley, Queen's University; David J. Thomson, Queen's University
- 3:45 p.m. **Floor Discussion**

25 CC-252A
Recent Advances in Neuroimaging Data Analysis—Topic-Contributed

ENAR, Section on Statistics in Imaging, Section on Statistics in Marketing, WNAR, Mental Health Statistics Section

Organizer(s): Timothy Duane Johnson, University of Michigan

Chair(s): Timothy Duane Johnson, University of Michigan

- 2:05 p.m. **Two Sample Inference on Populations of Graphical Models: Applications to Multi-Subject Functional Brain Connectivity**—◆ Genevera Allen, Rice University/Baylor College of Medicine; Manjari I. Narayan, Rice University; Steffie Tomson, University of California, Los Angeles
- 2:25 p.m. **Spatial Bayesian Variable Selection and Grouping in High-Dimensional Covariate Spaces with Application to fMRI**—◆ Tingting Zhang, University of Virginia
- 2:45 p.m. **An Integrative Bayesian Modeling Approach to Imaging Genetics**—◆ Michele Guindani; Francesco Stingo, MD Anderson Cancer Center; Marina Vannucci, Rice University; Vince Calhoun, University of New Mexico
- 3:05 p.m. **Smooth Scalar-on-Image Regression via Spatial Bayesian Variable Selection**—◆ Jeff Goldsmith, Columbia University; Lei Huang, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University



- 3:25 p.m. **Analysis of Big Imaging Data via a Bayesian Thresholding Approach**—◆Jian Kang, Emory University
- 3:45 p.m. **Floor Discussion**

- 2:20 p.m. **Testing Homogeneity for Non-Negative Distributions with a Clump of Zeros**—◆Chunlin Wang, University of Waterloo; Yukun Liu, East China Normal University; Pengfei Li, University of Waterloo; Paul K. Marriott, University of Waterloo

- 2:35 p.m. **Clustering of Longitudinal Data Using Mixture of Extended Linear Mixed-Effect Models**—◆ChangJiang Xu; Antonio Ciampi, McGill University; Celia M.T. Greenwood, Jewish General Hospital/McGill University; Vicky Tagalakakis, Jewish General Hospital/McGill University

Contributed Sessions 2:00 p.m.–3:50 p.m.

26 ● Regression—Contributed

CC-204A

IMS

Chair(s): Mohammed Ageel, Jazan University

- 2:05 p.m. **Shrinkage Estimators for Prediction Out-of-Sample: Selection of Estimators and Predictive Inference**—◆Nina Senitschnig; Hannes Leeb, University of Vienna

- 2:20 p.m. **Efficient Influence Function of the Coefficient Functions in Quantile Regression**—◆Hiroyuki Taniai, Waseda University

- 2:35 p.m. **Classification Accuracy of Logistic Regression Models Under Misspecifications**—◆Yongzhao Shao, New York University-School of Medicine; Enhao Zhang, New York University School of Medicine

- 2:50 p.m. **Linear Regression for Interval-Valued Data: A New and Comprehensive Model**—Yan Sun, Utah State University; ◆Chunyang Li

- 3:05 p.m. **Geometrizing Local Rates of Convergence for Statistical General Linear Inverse Problems**—◆Tengyuan Liang, Wharton School; Tony Cai, University of Pennsylvania; Alexander Rakhlin, Wharton School

- 3:20 p.m. **New Semiparametric Regression Method with Applications to Selection-Bias Sampling and Missing Data Problems**—◆Guoqing Diao, George Mason University; Jing Qin, NIH

- 3:35 p.m. **Generalized Additive Modeling for Conditional Copulas**—◆Valérie Chavez-Demoulin, University of Lausanne

27 ● Regression Analysis and Smoothing Techniques—Contributed

CC-213

SSC, Social Statistics Section

Chair(s): Elif Fidan Acar, University of Manitoba

- 2:05 p.m. **A Smooth and Locally Sparse Estimator for Functional Linear Regression via Functional SCAD Penalty**—◆Zhenhua Lin, University of Toronto; Jiguo Cao, Simon Fraser University; Liangliang Wang, Simon Fraser University; Haonan Wang, Colorado State University

- 2:50 p.m. **Back-Calculation of Infection Times for Infectious Disease via Spatial Individual Level Models**—◆Gyanendra Pokharel, University of Guelph; Rob Deardon, University of Guelph

- 3:05 p.m. **Inference in Cox Proportional Hazards Model with Covariates Missing in Nonmonotone Patterns**—◆Yang Zhao, University of Regina; Wei Tang, University of Regina

- 3:20 p.m. **Testing High-Dimensional Covariance Matrices**—◆Yingli Qin, University of Waterloo; Weiming Li, Beijing University of Posts and Telecommunications

- 3:35 p.m. **Locally Stationary Quantile Regression for Inflation and Interest Rates**—◆Seonjin Kim, Miami University; Zhibiao Zhao, Penn State

28 Analysis of Count Data—Contributed

CC-251

Biometrics Section

Chair(s): Nikon Kaciroti, University of Michigan

- 2:05 p.m. **Effects of Ignoring Truncation in Poisson Count Models**—◆Abdhalim Suaiee, University of Zawia; Trent L. Lalonde, University of Northern Colorado

- 2:20 p.m. **Beyond the Group-Level Analysis: a Flexible Mixed Effect Negative Binomial Regression Model for Detecting Unusual Increases in MRI Lesion Counts in Multiple Sclerosis Patient**—◆Yumi Kondo, University of British Columbia; Yinshan Zhao, University of British Columbia; Albert John Petkau, University of British Columbia

- 2:35 p.m. **Model Comparisons for Correlated Count Responses with Excess Zeros and Time-Dependent Covariates**—◆Trent L. Lalonde, University of Northern Colorado

- 2:50 p.m. **Poisson Modeling for LOD Assessment for BCRABL Testing**—◆Zhonggai Li, Novartis; Brian Mullaney, Novartis

- 3:05 p.m. **Multivariate Count Distributions in Gene Differential Expression Pattern Analysis**—◆Zhaonan Sun, Purdue University; Yu Zhu, Purdue University; Zhaohui Qin, Emory University

- 3:20 p.m. **Confidence Intervals for the Odds Ratio Estimated from Count Models**—◆Christopher Sroka, Battelle; Haikady Nagaraja, Ohio State University



3:35 p.m. **Modeling Distal Scalar Response with Zero-Inflated Count Longitudinal Covariates**—◆ Hanyu Yang, Penn State; Runze Li, Penn State; Anne Buu, University of Michigan; Robert A. Zucker, University of Michigan

29 Confidence Interval and Band Estimation—Contributed

CC-252B

Biometrics Section

Chair(s): Anamaria Kazanis, University of Michigan

2:05 p.m. **A Lower Confidence Limit for the Benchmark Dose Using Higher-Order Inference**—◆ Gaurav Sharma, The EMMES Corporation

2:20 p.m. **On Confidence Intervals for a Single Proportion for Clustered Binary Response Data from the Screening Mammogram Study**—◆ Krishna Saha, Central Connecticut State University; Daniel Miller, Central Connecticut State University

2:35 p.m. **Empirical Likelihood Confidence Bands of the Survival and Hazard Ratios with Covariate Adjustment**—◆ Shihong Zhu, University of Kentucky; Yifan Yang; Mai Zhou, University of Kentucky

2:50 p.m. **Model-Assisted Cox Regression, Part II: Simultaneous Confidence Bands**—◆ Shoubhik Mondal, New Jersey Institute of Technology; Sundarraman Subramanian, New Jersey Institute of Technology

3:05 p.m. **Statistical Inference for Treatment Effects in High-Dimensional AFT Model**—◆ Hao Chai, University of Iowa; Jian Huang, University of Iowa

3:20 p.m. **The Direct Integral Method for Confidence Intervals for the Ratio of Two Location Parameters**—◆ Yanqing Wang, Texas A&M; Suojin Wang, Texas A&M; Raymond J. Carroll, Texas A&M

3:35 p.m. **Joint Confidence Intervals for the Selected Population Means**—◆ Claudio Fuentes,

30 Adaptive Designs for Early Phase Studies—Contributed

CC-254A

Biopharmaceutical Section

Chair(s): Elena G. Randou (Rantou), FDA

2:05 p.m. **Continual Reassessment Method for a First-In-Human Trial: From Design to Trial Implementation**—◆ Inna Perevozskaya, Pfizer; Lixin Han, Infinity Pharmaceuticals; Kristen Pierce, Pfizer

2:20 p.m. **Transitioning from 3+3 to N-CRM at GlaxoSmithKline**—◆ Sharon Murray, GlaxoSmithKline; Allison M. Florance, GlaxoSmithKline

2:35 p.m. **Simulation Study on Two-Stage Group Sequential Design for Bioequivalence Study with Crossover Design When Little Information on Variance Is Available**—◆ Jialin Xu, Merck

2:50 p.m. **Cost-Effectiveness Comparison of Adaptive vs. Equal Randomization for a 'Pick the Winner' Clinical Trial Design**—◆ Lingyun Ji, University of Southern California; Richard Sposto, University of Southern California; Susan Groshen, University of Southern California

3:05 p.m. **Adaptive Dose Finding Under Model Uncertainty Using MCP-Mod**—◆ Tobias Mielke, Aptiv Solutions

3:20 p.m. **Adaptive Designs for Multi-Cohort Early Phase Oncology Trials**—◆ Christine Gause; Keaven Anderson, Merck

3:35 p.m. **An Adaptive Cohort Up-and-Down Design to Identify Doses with a Low Event Rate When the Study Duration Is Fixed**—◆ David Li, Pfizer

31 Power and Sample Size—Contributed

CC-258C

Biopharmaceutical Section

Chair(s): Stephen Lane, GlaxoSmithKline

2:05 p.m. **Simulations on Sample Sizes and Power Calculations for a Registry Vaccine Study**—◆ John Liang, Pfizer; Scott Patterson, Pfizer

2:20 p.m. **Experimental Design and Sample Size for Long-Term Carcinogenicity Studies: Statistical Considerations**—◆ Lei Shu, AbbVie; Lanju Zhang, AbbVie; Sherry Morgan, AbbVie

2:35 p.m. **Random-Effects Linear Modeling and Sample Size Computations for Two Special Crossover Designs of Average Bioequivalence Studies**—◆ Francisco J. Diaz, University of Kansas Medical Center; Michel Berg, University of Rochester Medical Center; Ron Krebill, University of Kansas Medical Center; Timothy Welty, Drake University; Barry E. Gidal, University of Wisconsin; Rita Alloway, University of Cincinnati; Michael Privitera, University of Cincinnati Neuroscience Institute

2:50 p.m. **Power Analyses Based on Negative Binomial Models for Two Period Cross-Over Trials Involving Overdispersed Count Data**—◆ Mallik Rettiganti, University of Arkansas for Medical Sciences; Haikady Nagaraja, Ohio State University

3:05 p.m. **Use of a Posterior Beta Distribution with Recurrent Event Data**—◆ Jerry Weaver, Novartis

3:20 p.m. **Exploration of Sample Size Application for iPhone**—◆ Nivedita Bhatt, PPD; Andrew Hartley, PPD; Michael Wisniewski, PPD

3:35 p.m. **Statistical Endpoint Selection for Recurrent Events in Clinical Trials**—◆ Xiaohai Wan; Qianying Liu, University of Chicago; Nathalie Ezzet, Novartis; Paul Gallo, Novartis



32 **■ Modeling Single and Multiple Time Series—Contributed** **CC-105**

Business and Economic Statistics Section

Chair(s): *Bei Chen, IBM Research*

- 2:05 p.m. **Sieve Bootstrap-Based Prediction Intervals for Autoregressive Processes with GARCH Innovations**—◆Malaka Thilakaratne, Missouri University of Science & Technology; Maduka Rupasinghe, Ashland University ; V. A. Samaranayake, Missouri University of Science & Technology
- 2:20 p.m. **Temporal Aggregation Effects on a Structural Mean-Change of Time Series**—◆Bu Hyoung Lee, Temple University; William W.S. Wei, Temple University
- 2:35 p.m. **Empirical Likelihood Confidence Intervals for Nonlinear Nonstationary Model**—◆Ryota Yabe, Hitotsubashi University
- 2:50 p.m. **Cross-Correlation Matrices for Tests of Independence and Causality Between Two Multivariate Time Series**—◆Michael Robbins,
- 3:05 p.m. **Rank-Based Estimation of Non-Causal Autoregressive Processes with Infinite Variance**—◆Jiening Chen; Beth Andrews, Northwestern University
- 3:20 p.m. **More Powerful Threshold Cointegration Tests**—◆Dong-Yop Oh, University of Texas Pan American; Hyejin Lee, University of Alabama; Junsoo Lee, University of Alabama
- 3:35 p.m. **Time Series Models for High-Frequency Integer-Valued Data**—◆Spencer Hays, Virginia Commonwealth University

33 **■ Bayesian Modeling in the Social Sciences—Contributed** **CC-208**

Section on Bayesian Statistical Science, Section on Statistics in Marketing, International Society for Bayesian Analysis (ISBA)

Chair(s): *Garritt Page, Pontificia Universidad Católica de Chile*

- 2:05 p.m. **Predicting Civil Unrest: Venturing Through Latin America**—◆Andrew Hoegh, Virginia Tech; Scotland Leman, Virginia Tech
- 2:20 p.m. **Uncovering the Location of Twitter Users**—◆Renato Assuncao, UFMG
- 2:35 p.m. **Bayesian Methods for Affiliation Network Analysis**—◆Yanan Jia; Kate Calder, Ohio State University
- 2:50 p.m. **Formation and Coevolution in Unsolicited Network Data**—◆Tyler H. McCormick, University of Washington; Richard Li, University of Washington; Joshua Blumenstock, University of Washington

- 3:05 p.m. **Dynamic Grooming Networks in Baboon Troops**—◆Bailey Fosdick, SAMSI; Yingbo Li, Clemson University; David Banks, Duke University; Susan Alberts, Duke University
- 3:20 p.m. **Predicting Future Lifespan: The Lindy Effect, Gott's Predictions and Caves' Corrections, and Confidence Intervals**—◆Colman Humphrey, Wharton School
- 3:35 p.m. **Floor Discussion**

34 **■ Longitudinal Data and Latent Variable Methods—Contributed** **CC-211**

Health Policy Statistics Section

Chair(s): *Lihui Zhao, Northwestern University*

- 2:05 p.m. **Longitudinal Analyses of the Association of Nurse Staffing and Patient Outcomes for U.S. Acute Care Hospitals**—◆Jianghua He, Kansas University Medical Center; Vincent Staggs, University of Kansas Medical Center; Sandra Bergquist-Beringer, University of Kansas Medical Center; Nancy Dunton, University of Kansas Medical Center
- 2:20 p.m. **Investigating Differential Changes Using Mixture Latent Change Score (MLCS) Models**—◆Emil Coman, Ethel Donaghue TRIPP Center; Judith Fifield, Ethel Donaghue TRIPP Center ; John J. McArdle, University of Southern California; Monique Davis-Smith, Mercer University School of Medicine
- 2:35 p.m. **A Joint Model of Persistent Human Papillomavirus Infection and Cervical Cancer Risk: Implications for Cervical Cancer Screening**—◆Li Cheung, George Washington University; Hormuzd Katki, National Cancer Institute; Barbara Fetterman, Kaiser Permanente; Philip Castle, Albert Einstein College of Medicine; Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 2:50 p.m. **Semi-Markov Processes for Estimating Pathways in the Diagnostic Evaluation of Suspected Breast Cancer**—Rebecca Hubbard, Group Health Research Institute; Jane Lange, University of Washington; Lurdes Inoue, University of Washington; ◆Yue Zhang, University of Utah
- 3:05 p.m. **Evaluating School-Based Interventions Using Quantile Regression Models of Longitudinal Growth Trajectories: An Application Among NYC Public School Elementary- and Middle-School Students**—◆Kevin Konty; Stuart Sweeney, University of California; Sophia Day, NYC DOHMH
- 3:20 p.m. **Clustering Incomplete Data Using Normal Mixture Models**—◆Chantal Larose, University of Connecticut; Dipak Dey, University of Connecticut; Ofer Harel, University of Connecticut



3:35 p.m. **Longitudinal Analysis of the Effects of Patient-Centered Medical Home (PCMH) Implementation on ACS IP and ED Visits**—◆ Hsiu-Ching Chang, BCBSM; Lee Green, University of Alberta; Hsiu-Ching Chang, BCBSM; Amanda Markovitz, BCBSM; Michael Paustian, BCBSM; Darline El Reda, BCBSM; Jeffrey Alexander, University of Michigan

3:05 p.m. **Dealing with Label-Switching Problem in Bayesian Nonparametric Models with Dirichlet Process Mixture**—◆ Yan He,

3:20 p.m. **Nonparametric Mixed-Effects Density Regression for Repeated Measures Data**—◆ Chi-yang Chiu; Yuedong Wang, University of California, Santa Barbara

3:35 p.m. **On Simulation and Asymptotic Properties of the Beta-Dirichlet Process**—◆ Avik Halder, Queen's University; Glen Takahara, Queen's University

35 CC-207 Methods Using Permutation and Ranking—Contributed

Section on Nonparametric Statistics

Chair(s): *Mary Meyer, Colorado State University*

2:05 p.m. **The 100-Year-Old Rank Sum Test, Recent Extensions, and a New Semiparametric Test**—◆ Markus Neuhaeuser, RheinAhrCampus

2:20 p.m. **Permutation Tests for Variance Components for Multivariate Multilevel Models**—◆ Denis Larocque, HEC Montreal; Jaakko Nevalainen, University of Turku; Hannu Oja, University of Turku

2:35 p.m. **How to Estimate Dependence in Moderate Dimensions Using Ranks and Sub-Sampling**—◆ Jerome Collet, EDF R&D and MODAL'X, Paris X

2:50 p.m. **A Nonparametric Multivariate Two-Sample Test Using Spanning Subgraphs**—◆ David Ruth, U.S. Naval Academy

3:05 p.m. **Signed Rank with Responses Missing at Random**—◆ Huybrechts Bindele,

3:20 p.m. **Nonparametric Permutation Testing for Equivalence and Noninferiority**—◆ Luigi Salmaso, University of Padova; Fortunato Pesarin, University of Padova; Eleonora Carrozzo, University of Padova

3:35 p.m. Floor Discussion

36 CC-209 Methods in Nonparametric Statistics—Contributed

Section on Nonparametric Statistics

Chair(s): *Mohammed Chowdhury, George Washington University*

2:05 p.m. **Efficient Computation of Smoothing Splines via Adaptive Basis Sampling**—◆ Nan Zhang, Texas A&M; Ping Ma, University of Georgia; Jianhua Z. Huang, Texas A&M

2:20 p.m. **On Fast Affine Equivariant Robust Scatter Estimation**—◆ Yunfei Wang, University of Texas at Dallas; Robert Serfling, University of Texas at Dallas

2:35 p.m. **Bayesian Trend Filtering**—◆ Edward Roualdes, University of Kentucky

2:50 p.m. **Hierarchical Analysis of Time-Course Flow Cytometry Data with Dirichlet Process Mixture Modeling Applied to HIV Vaccine Trial Data**—◆ Boris Hejblum, INSERM/INRIA; François Caron, University of Oxford; Rodolphe Thiébaud, INSERM/INRIA

37 CC-151B Statistical Process Control and Quality Assurance—Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Chair(s): *William Q. Meeker, Iowa State University*

2:05 p.m. **Data Set Quality Assessment for Business Analytics Use**—◆ James Wendelberger, Urban Science Applications

2:20 p.m. **Reduction of Sampling Inspection Using Variables Data in the Presence of Batch-To-Batch Variability**—◆ David Trindade, Bloom Energy

2:35 p.m. **A Robust Alternative to the Bivariate Hotelling's T² Control Chart**—◆ Florence George, Florida International University; Golam Kibria, Florida International University; Moustafa Abu-Shaweish, Hashemite University

2:50 p.m. **Do Preliminary Tests Invalidate Main Tests?**—◆ Xuwen Zhu; Subhabrata Chakraborti, University of Alabama; Yinaze Dovoedo, University of North Alabama

3:05 p.m. **Using Sequential Sampling in a GLR Control Chart to Improve Detection of Changes in the Process Mean and Variance**—◆ Yiming Peng, Virginia Tech; Marion R. Reynolds, Virginia Tech

3:20 p.m. **Statistical Properties of Large Sample Tests for Dose Content Uniformity**—◆ Meiyu Shen, FDA; Yi Tsong, FDA; Xiaoyu Dong, FDA

3:35 p.m. **A Study of Control Charts for Quantile Functions**—◆ Rong Zheng, University of Alabama; Subhabrata Chakraborti, University of Alabama



38 **Research Findings on Student Learning—Contributed** CC-153C

Section on Statistical Education, Statistics in Business Schools Interest Group

Chair(s): Margareth Lafontant, Developmental Systems

- 2:05 p.m. **The Role of Motivation, Self-Regulation, and Social Engagement in Gender Differences in College English and Mathematics: a Mediation or Moderation Multilevel Mixed Effect Model—**◆Edwin Ndum, ACT
- 2:20 p.m. **Statistical and Mathematical Self-Efficacy of Incoming Students at a Large Public University—**◆Ulrike Genschel, Iowa State University; Andrea Kaplan, Iowa State University; Alicia Carriquiry, Iowa State University; Elgin Johnston, Iowa State University; Wolfgang Kliemann, Iowa State University of Science and Technology; Kenneth Koehler, Iowa State University of Science and Technology; Ian Mouzon, Iowa State University of Science and Technology; Xuan Hien Nguyen, Iowa State University of Science and Technology
- 2:35 p.m. **Student Performance and Success Factors in Learning Business Statistics Using a Web-Based Assessment Platform—**◆Mary Shotwell, Middle Tennessee State University; Charles Apigian, Middle Tennessee State University
- 2:50 p.m. **Hypothesis Testing: Consistency and Confusion—Factors Related to Grade Performance—**◆John Barroso, University of Pittsburgh
- 3:05 p.m. **Transforming Teaching Based on Student Survey Results—**◆Chand K. Chauhan, Indiana University-Purdue University Fort Wayne; Yvonne Zubovic, Indiana University-Purdue University Fort Wayne
- 3:20 p.m. **Get Real! Is it Real-Ly Effective?—**◆Amy Phelps, Duquesne University
- 3:35 p.m. **Effectiveness of Membership in a Learning Community—**◆Dai-trang Le, University of California, Los Angeles; Patricia Leigh, Iowa State University

39 **Dimension Reduction—Contributed** CC-104A

Section on Statistical Learning and Data Mining, Section on Statistics in Marketing

Chair(s): Mohammad Quasem, Howard University

- 2:05 p.m. **Sufficient Dimension Reduction via Distance Covariance—**◆Wenhui Sheng, University of Georgia; Xiangrong Yin, University of Georgia
- 2:20 p.m. **Sequential Partial Inverse Regression—**◆Haileab Hilafu, University of Georgia; Xiangrong Yin, University of Georgia

- 2:35 p.m. **Bayesian Estimation of Sufficient Dimension Reduction Space—**◆Moumita Karmakar, University of Maryland Baltimore County; Kofi Adragani,
- 2:50 p.m. **Dimension Reduction Using Inverse Spline Regression—**◆Paul Smith, University of Maryland; Kijoeng Nam, University of Maryland
- 3:05 p.m. **Sparse Canonical Correlation Analysis with General Covariance Structure via Convex Optimization—**◆Irina Gaynanova, Cornell University; James Booth, Cornell University; Martin Wells, Cornell University
- 3:20 p.m. **Hard Thresholded Regression via Linear Programming—**◆Qiang Sun, University of North Carolina at Chapel Hill
- 3:35 p.m. **Adaptive Monotone Shrinkage for Regression—**◆Zhuang Ma, Wharton School; Dean Foster, University of Pennsylvania; Robert Stine, University of Pennsylvania

40 **Innovations at U.S. Census Bureau—Contributed** CC-156A

Survey Research Methods Section, Social Statistics Section, Government Statistics Section

Chair(s): Frank Potter, Mathematica Policy Research

- 2:05 p.m. **Joe Steinberg and the Census Class of 1940—**◆Gary Shapiro, Statistics Without Borders; Fritz Scheuren, NORC at the University of Chicago
- 2:20 p.m. **A Comparison of Methodologies for Classification of Administrative Records Quality for Census Enumeration—**◆Darcy Steeg Morris, U.S. Census Bureau
- 2:35 p.m. **Issues Concerning Imputation of Hispanic Origin Due to Potential Administrative Record Enumeration for the 2020 Census—**◆Richard Griffin, U.S. Census Bureau
- 2:50 p.m. **Using Data from the American Community Survey to Better Understand Coverage Measurement Results in the 2010 Census—**◆Andrew Keller, U.S. Census Bureau
- 3:05 p.m. **Using Administrative Records to Reduce Census Nonresponse Followup Operations—**◆Vincent Mule, U.S. Census Bureau; Andrew Keller, U.S. Census Bureau
- 3:20 p.m. **Single-Stage Generalized Raking Application in the American Housing Survey—**◆Brian Shaffer, U.S. Census Bureau; Yang Cheng, U.S. Census Bureau; Eric Slud, U.S. Census Bureau
- 3:35 p.m. **Estimating the Cost of the 2020 Census Nonresponse Followup with Administrative Records—**◆Tamara Adams, U.S. Census Bureau; Edward Kobilarcik, U.S. Census Bureau; Mary Bucci, U.S. Census Bureau



41 Nonresponse Adjustment - 1— Contributed

Survey Research Methods Section

Chair(s): Trent D. Buskirk, Marketing Systems Group

- 2:05 p.m. **A Weight-Trimming Approach to Achieve a Comparable Increase to Bias Across Countries in the Programme for the International Assessment of Adult Competencies**—◆Wendy Van de Kerckhove, Westat; Leyla Mohadjer, Westat; Thomas Krenzke, Westat
- 2:20 p.m. **Estimation of Dynamic Models with Nonignorable and Nonmonotone Drop-Out**—◆Jongho Im, Iowa State University; Jae-Kwang Kim, Iowa State University
- 2:35 p.m. **Noncoverage Adjustments in a Single-Frame Cell Phone Survey: Weighting Approach to Adjust for Phoneless and Landline-Only Households**—◆Nadarajasundaram Ganesh, NORC at the University of Chicago; Meena Khare, NCHS/CDC/DHHS; Elizabeth Ormson, NORC at the University of Chicago; Wei Zeng, NORC at the University of Chicago; Jenny Jeyarajah, CDC; David Yankey, CDC; Zhen Zhao, CDC; Kirk Wolter, NORC at the University of Chicago
- 2:50 p.m. **Nonparametric Multiple Imputation**—◆Darryl Creel, RTI International
- 3:05 p.m. **Adjustments for Survey Imputed Data Sets to Achieve First- and Second-Order Properties**—◆Damiao Da Silva, Universidade Federal do Rio Grande do Norte; Lichun Zhang, University of Southampton
- 3:20 p.m. **Floor Discussion**

42 New Modeling Approaches for Survival and Clustered Outcomes—Contributed

Section on Statistics in Epidemiology

Chair(s): Rebecca Coley, University of Washington

- 2:05 p.m. **Regression for Skewed Biomarker Outcomes Subject to Pooling**—◆Emily Mitchell, NICHD; Robert Lyles, Emory University; Amita K. Manatunga, Emory University; Michelle Danaher, University of Maryland Baltimore County; Neil Perkins, NICHD; Enriquet Schisterman, NICHD
- 2:20 p.m. **Are Robust Poisson Models Less Affected by Model Misspecification Compared to the Log-Binomial Models When Estimating Relative Risks for Common Binary Outcomes?**—◆Wansu Chen, Kaiser Permanente; Lei Qian, Kaiser Permanente; Ji Xiaosh, Kaiser Permanente; Stanley Azen, University of Southern California

CC-156B

- 2:35 p.m. **Application of Observed and Simulated Data on Log-Binomial and Similar Models**—◆Shailendra Banerjee, CDC
- 2:50 p.m. **A Class of Semiparametric Mixture Cure Survival Models with Prevalent Survival Data**—◆Yu-Jen Cheng, National Tsing Hua University
- 3:05 p.m. **A Simulation-Based Assessment of Mixed-Effects Cox Model Misspecification**—◆Adel Elghafghuf, University of Prince Edward Island; Henrik Stryhn, University of Prince Edward Island
- 3:20 p.m. **Estimating the Relationship Between a Transient Effect and the Onset of an Acute Event: A Comparison of a Case-Crossover Design and a Retrospective Cohort Design**—◆Carlin Brickner, Visiting Nurse Service of New York; Dirk Moore, Rutgers School of Public Health; Shou-En Lu, Rutgers School of Public Health; Kitaw Demissie, Rutgers School of Public Health; Robert J. Rosati, CenterLight Healthcare
- 3:35 p.m. **Floor Discussion**

43

Progress in Analysis of Survey Data—Contributed

Section on Statistics in Epidemiology, Government Statistics Section, Section on Medical Devices and Diagnostics

Chair(s): Wendy Shih, University of California, Los Angeles

- 2:05 p.m. **Postmarketing Pharmacoepidemiologic Safety Studies Using Electronic Health Care Databases: Matching Control Subjects to Resemble Treated Subjects**—◆Violeta Hennessey, Amgen; Fei Xue, Amgen; Haijun Ma, Amgen; Trevor McMullan, Amgen; Paul Petrarro, Amgen
- 2:20 p.m. **Optimal Rate for Partial Chart Review**—◆Lei Qian, Kaiser Permanente; Jeffrey Slezak, Kaiser Permanente; Steven Jacobse, Kaiser Permanente
- 2:35 p.m. **Detecting Cancer Incidence in the Annual Surveillance Data Submission**—◆Li Zhu, NIH; Linda Pickle, StatNet Consulting; Jim Pearson, StatNet Consulting
- 2:50 p.m. **Extension of the Peters-Belson Method for Estimating Health Disparities to Logistic Regression with Multiple Groups and Outcomes from Survey Data**—◆Barry Graubard, National Cancer Institute; Yan Li, University of Maryland; Pengyu Huang, University of Maryland; Joseph Gastwirth, George Washington University
- 3:05 p.m. **Convergent Validity of the Estimated Prevalence of Stimulant Medication Treatment Among Children with ADHD Using National Surveys and Prescription Drug Dispensary Data**—◆Melissa Danielson, CDC; Susanna Visser, CDC; Rebecca Bitsko, CDC; Joseph Holbrook, CDC
- 3:20 p.m. **Floor Discussion**

CC-257A

CC-258B



Special Presentation 4:00 p.m.–5:50 p.m.

44 CC-258C

Introductory Overview Lecture: The Industrial Internet and Cyber-Physical Systems, an Opportunity for Statisticians in the Era of Big Data and Data Science—Invited

ASA, ENAR, WNAR, IMS, SSC, International Indian Statistical Association, International Chinese Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, Section on Physical and Engineering Sciences, Quality and Productivity Section, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines, Conference on Statistical Practice Steering Committee

Organizer(s): *Ming Li, REANCON.COM*

Chair(s): *Martha Gardner, GE Global Research Center*

- 4:05 p.m. **Industrial Internet, an Opportunity for Statisticians to Become Data Scientists—◆**Bill Ruh, GE Software Center
- 4:35 p.m. **Cyber-Physical Systems and Smartamerica Challenge—◆**Sokwoo Rhee, NIST
- 5:05 p.m. **Data Scientists: How Do We Prepare for the Future?—◆**Michael Rappa, North Carolina State University
- 5:35 p.m. **Floor Discussion**

Invited Sessions 4:00 p.m.–5:50 p.m.

45 CC-206A

● Blackwell Lecture—Invited

IMS, International Indian Statistical Association, Statistics Without Borders

Organizer(s): *Nancy Reid, University of Toronto*

Chair(s): *Patrick Wolfe, University College London*

- 4:05 p.m. **Rao-Blackwellization for Improved Monte Carlo for Stochastic Processes—◆**Gareth Roberts, University of Warwick
- 4:45 p.m. **Floor Discussion**

46 CC-258A

■ ● Data-Monitoring Committees: Do They Have Role in Post-Marketing Approval Commitments?—Invited

Biopharmaceutical Section, Section on Medical Devices and Diagnostics, Scientific and Public Affairs Advisory Committee

Organizer(s): *Vipin Arora, Eli Lilly and Company*

Chair(s): *Stephen E. Wilson, FDA/CDER*

- 4:05 p.m. **Post Marketing Commitments: Study Designs and Their Implications for DMCs—◆**Susan S. Ellenberg, University of Pennsylvania
- 4:30 p.m. **DMS's Role When Post-Marketing Commitment Study Is Unlikely to Be Completed—◆**Janet Wittes, Statistics Collaborative
- 4:55 p.m. **Data Monitoring Committee Oversight of Open Label Studies—◆**Marian Fisher, University of Wisconsin-Madison; Kevin Buhr, University of Wisconsin-Madison
- 5:20 p.m. **Disc:** Gary Koch, University of North Carolina at Chapel Hill
- 5:45 p.m. **Floor Discussion**

47 CC-204B

■ ● Bayesian Astrostatistics—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): *Jessi Cisewski, Carnegie Mellon*

Chair(s): *Xiao-Li Meng, Harvard*

- 4:05 p.m. **Challenges in Astrostatistics: A High-Energy Astrophysics Perspective—◆**Aneta Siemiginowska, Harvard-Smithsonian Center for Astrophysics; Vinay Kashyap, Harvard-Smithsonian Center for Astrophysics; David Van Dyk, Imperial College London ; Xiao-Li Meng, Harvard
- 4:40 p.m. **Embedding the Big Bang Cosmological Model into a Bayesian Hierarchical Model for Super Nova Light Curve Data—◆**David van Dyk, Imperial College London; Xiyun Jiao, Imperial College London; Roberto Trotta, Imperial College London
- 5:15 p.m. **Resolving GRB Light Curves—◆**Robert L. Wolpert, Duke University; Mary Elizabeth L. Broadbent, Duke University; Thomas J. Loredo, Cornell University
- 5:45 p.m. **Floor Discussion**

48 **CC-156C**
■ ● Development of Statistics Educational Programs in the South—Invited

Section on Statistical Education, International Indian Statistical Association, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines, Committee on ASA Archives and Historical Materials

Organizer(s): Elizabeth H. Slate, Florida State University

Chair(s): Kathy B. Ensor, Rice University

- 4:05 p.m. **Development of Statistics Educational Programs in the South**—◆Michael Kutner, Emory University
- 4:30 p.m. **University Distance Education: Strategies That Work**—◆Don Edwards, University of South Carolina
- 4:55 p.m. **The Statistical Research Triangle and Professional Education**—◆Sastry Pantula, Oregon State University
- 5:20 p.m. **Evolution of Teaching Techniques for Undergraduate Statistics**—◆Jane L. Harvill, Baylor University
- 5:45 p.m. **Floor Discussion**

49 **CC-258B**
■ Statistical Methods in Kidney Disease—Invited

ENAR

Organizer(s): Yun Li, University of Michigan

Chair(s): Kevin He, University of Michigan

- 4:05 p.m. **Structural Nested Models for the Effects of a Treatment on Mixed Failure-Time and Repeated Measures Outcomes**—◆Marshall Joffe, University of Pennsylvania
- 4:30 p.m. **Statistical Validation of Surrogate Endpoints in Chronic Kidney Disease**—◆Tom Greene, University of Utah
- 4:55 p.m. **Statistical Analysis of Highly Granular Longitudinal Data on Hemodialysis Patients**—◆Maurice A. Brookhart, University of North Carolina at Chapel Hill
- 5:20 p.m. **Regularized Longitudinal Regression to Detect Biomarkers for Nephrotic Syndromes**—◆Peter Song, University of Michigan
- 5:45 p.m. **Floor Discussion**

50 **CC-152**
■ ● Statistics Applied to the Water Environment—Invited

The International Environmetrics Society, Section on Physical and Engineering Sciences, Statistics Without Borders

Organizer(s): Marian Scott, University of Glasgow

Chair(s): Peter Craigmile, Ohio State University/University of Glasgow

- 4:05 p.m. **Multivariate Spatial Modeling of Conditional Dependence to Study Arsenic Contamination in Drinking Water**—◆Montserrat Fuentes, North Carolina State University; Joe Guinness, North Carolina State University
- 4:30 p.m. **Water Quality on Time Scales from Hours to Decades: Fractal Spectra, Non-Self-Averaging, and Challenges for Trend Detection**—◆James Kirchner, ETH Zurich
- 4:55 p.m. **Coherency-Based Clustering of Global Sea Surface Temperature Time Series for the Detection of Large-Scale Teleconnections**—Francesco Finazzi, University of Bergamo; ◆Marian Scott, University of Glasgow
- 5:20 p.m. **A Global Statistical View of Lake Water Quality: The GloboLakes Project**—◆Claire Miller, University of Glasgow; Marian Scott, University of Glasgow; Ruth Haggarty, University of Glasgow; Francesco Finazzi, University of Bergamo
- 5:45 p.m. **Floor Discussion**

51 **CC-157A**
■ Using Paradata Throughout the Survey Life Cycle for Public Sector Surveys—Invited

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders, Scientific and Public Affairs Advisory Committee

Organizer(s): Carma R. Hogue, U.S. Census Bureau

Chair(s): Lisa M. Blumerman, U.S. Census Bureau

- 4:05 p.m. **Using Population Data to Improve Public Sector Frame Coverage**—◆Carma R. Hogue, U.S. Census Bureau; Tameka Sammy, U.S. Census Bureau; Rachele Reeder, U.S. Census Bureau; Elizabeth Accetta, U.S. Census Bureau
- 4:20 p.m. **Using Paradata to Design the Quarterly Tax Sample**—◆Brian Dumbacher, U.S. Census Bureau; Carma R. Hogue, U.S. Census Bureau
- 4:35 p.m. **Using Paradata to Inform Collection Instruments**—◆Aneesah Williams, U.S. Census Bureau; Chrishelle Lawrence, U.S. Census Bureau; Andre Williams, U.S. Census Bureau
- 4:50 p.m. **Using Paradata and the Nonresponse Follow-Up Dashboard Score Function to Prioritize Workload**—◆Terri L. Craig, U.S. Census Bureau; Robyn T. Harris, U.S. Census Bureau



- 5:05 p.m. **Using Paradata to Calibrate the Quarterly Summary of State and Local Government Tax Revenue—**
◆ Courtney Marie Hill, U.S. Census Bureau; Justin Nguyen, U.S. Census Bureau
- 5:20 p.m. Disc: Frauke Kreuter, University of Maryland
- 5:40 p.m. **Floor Discussion**

52 CC-151B ■ ● **Business Analytics: Statistics and Big Data—Invited**

Business and Economic Statistics Section, Section on Statistics in Marketing, Statistics in Business Schools Interest Group, Conference on Statistical Practice Steering Committee

Organizer(s): *Sinjini Mitra, California State University, Fullerton*
Chair(s): *Ataman Ozyildirim, The Conference Board*

- 4:05 p.m. **The Business Analytics (BA) Revolution—**◆ Randy Bartlett, Blue Sigma Analytics
- 4:30 p.m. **Big Data: Challenges and Opportunities—**◆ Nicole Lazar, University of Georgia
- 4:55 p.m. **Big Data Analytics in ATM Security—**◆ Arif Ansari, University of Southern California
- 5:20 p.m. **Application of Analytics in Today's 'Data-Driven' World—**◆ Sinjini Mitra, California State University, Fullerton
- 5:45 p.m. **Floor Discussion**

53 CC-254A ■ ● **New Developments on Meta-Analysis with Applications to Medical Research—Invited**

Section on Statistics in Epidemiology, Statistics Without Borders

Organizer(s): *Sandra M. Hurtado Rúa, Weill Medical College of Cornell University*

Chair(s): *Jaya Satagopan, Memorial Sloan Kettering Cancer Center*

- 4:05 p.m. **Random-Effects Meta-Analysis for a Systematic Review of Phase I Clinical Trials—**Mi-Ok Kim, Cincinnati Children's Hospital Medical Center; ◆ Xia Wang, University of Cincinnati; Chunyan Liu, Cincinnati Children's Hospital Medical Center; Seongho Song, University of Cincinnati
- 4:30 p.m. **The Choice of Prior Distribution for a Covariance Matrix in Multivariate Meta-Analysis: A Simulation Study—**Madhu M. Mazumdar, Mount Sinai School of Medicine; ◆ Sandra M. Hurtado Rúa, Weill Medical College of Cornell University; Robert Strawderman, University of Rochester
- 4:55 p.m. **Meta-Analysis of Proportions of Rare Events: A Comparison of Exact Likelihood Methods with Robust Variance Estimation—**◆ Yan Ma, Weill Medical College of Cornell University; Haitao Chu, University of Minnesota; Madhu M. Mazumdar, Mount Sinai School of Medicine

- 5:20 p.m. **A Semiparametric Approach for Meta-Analysis of Survival Curves from Orthopedic Registries—**
◆ Samprit Banerjee, Weill Medical College of Cornell University
- 5:45 p.m. **Floor Discussion**

54 CC-104B ■ ● **After the 2013 Boston Marathon: Predicting Performances in Marathon Races and Other Athletic Events—Invited**

Section on Statistics in Sports

Organizer(s): *Richard L. Smith, SAMSI*

Chair(s): *Dorit Hammerling, SAMSI*

- 4:05 p.m. **Completing the Results of the 2013 Boston Marathon—**◆ Francesca Dominici, HSPH; Dorit Hammerling, SAMSI; Matthew Cefalu, Harvard School of Public Health; Jessi Cisewski, Carnegie Mellon; Giovanni Parmigiani, Dana-Farber Cancer Institute; Charles Paulson, Puffinware; Richard L. Smith, SAMSI
- 4:35 p.m. **The Variation of Marathon Performances with Age: A Longitudinal Study—**◆ Richard L. Smith, SAMSI
- 5:05 p.m. **Comparing and Forecasting Performances in Different Events of Athletics Using a Probabilistic Model—**◆ Brian Godsey, RedOwl Analytics
- 5:35 p.m. **Floor Discussion**

Invited Panel 4:00 p.m.–5:50 p.m.

55 CC-102A ■ ● **Statistics in the Practice of Forensic Science—Invited**

Committee on Law and Justice Statistics, Section on Physical and Engineering Sciences, Ad Hoc Advisory Committee on Forensic Science, Conference on Statistical Practice Steering Committee

Organizer(s): *Steve Pierson, ASA*

Chair(s): *Constantine Gatsonis, Brown University*

- Panelists:** ◆ Frederick Bieber, Harvard Medical School
◆ Robin Cotton, Boston University
◆ Carl Ladd, Connecticut Forensic Laboratory
◆ Maria A. Roberts, FBI Laboratory
◆ Hal S. Stern, University of California, Irvine
- 5:45 p.m. **Floor Discussion**

**Topic-Contributed Sessions 4:00 p.m.–5:50 p.m.**56 CC-102B**■ Statistical Analysis of Compositional Data—Topic-Contributed**

Section on Statistical Learning and Data Mining, Section on Statistical Computing

*Organizer(s): Eric C. Grunsky, Geological Survey of Canada**Chair(s): John H. Schuenemeyer, Southwest Statistical Consulting*4:05 p.m. **The Problem of Missing Values and Rounded Zeros in Compositional Data**—◆ Matthias Templ, Vienna University of Technology; Karel Hron, Palacky University Olomouc; Peter Filzmoser, Vienna University of Technology4:25 p.m. **Compositional Data: An Overview**—◆ John Bacon-Shone, University of Hong Kong; Eric C. Grunsky, Geological Survey of Canada4:45 p.m. **Spatial Analysis of Compositional Data**—◆ Vera Pawlowsky-Glahn, Universitat de Girona; Raimon Tolosana-Delgado, Helmholtz Institute Freiberg for Resource Technology; Gerald van den Boogaart, Helmholtz Institute Freiberg for Resource Technology5:05 p.m. **Applications in Compositional Data Analysis**—◆ Raimon Tolosana-Delgado, Helmholtz Institute Freiberg for Resource Technology; K. Gerald van den Boogaart, Helmholtz Institute Freiberg for Resource Technology

5:25 p.m. Disc: Juan Jose Egozcue, Universitat Politècnica de Catalunya

5:45 p.m. Floor Discussion

57 CC-206B**Recent Development in Sufficient Dimension Reduction—Topic-Contributed**

Section on Nonparametric Statistics

*Organizer(s): Qin Wang, Virginia Commonwealth University**Chair(s): Qin Wang, Virginia Commonwealth University*4:05 p.m. **Sufficient Dimension Reduction via Principal Lq Support Vector Machine**—◆ Yuexiao Dong, Temple University; Andreas Artemiou, Cardiff University4:25 p.m. **Envelopes and Partial Least Squares Regression**—◆ Zhihua Su; Dennis Cook, University of Minnesota; Inge Helland, University of Oslo4:45 p.m. **Sufficient Dimension Reduction in the Presence of Categorical Predictors**—◆ Kofi Adragani; Elias Al-Najjar, University of Maryland Baltimore County5:05 p.m. **Partially Linear Structure Identification in Generalized Additive Models with NP-Dimensionality**—◆ Pang Du, Virginia Tech; Heng Lian, Nanyang Technological University; Hua Liang, George Washington University5:25 p.m. **Semiparametric Mixtures of Linear Regressions**—◆ Shaoli Wang, Shanghai University of Finance and Economics; Yi Zhang, Shanghai University of Finance and Economics; Xueqin Wang, Sun Yat-Sen University

5:45 p.m. Floor Discussion

58 CC-259A**■ ● Innovative and Significant Statistical Questions in Genetics and Genomics—Topic-Contributed**

Biometrics Section

*Organizer(s): Wei Sun, University of North Carolina at Chapel Hill**Chair(s): Wei Sun, University of North Carolina at Chapel Hill*4:05 p.m. **Bayesian Approaches for Regulatory Networks in Cancer**—◆ Francesco Stingo, MD Anderson Cancer Center4:25 p.m. **Statistical Strategies for Identification of the RNA-Protein Binding Site in CLIP-Seq**—◆ Jonghyun Yun, University of Texas Southwestern Medical Center; Xinlei Wang, Southern Methodist University; Tao Wang, University of Texas Southwestern Medical Center; Guanghua Xiao, University of Texas Southwestern Medical Center4:45 p.m. **Integration of Omics Data to Study Complex Phenotypes**—◆ Katerina Kechris, Colorado School of Public Health; Daniel Dvorkin, Altitude Research Center5:05 p.m. **Exploring Heterogeneity in High-Throughput Biological Data for Application in Translation Medicine: Between Cell Lines and Patients**—◆ Ker-Chau Li, Academia Sinica

5:25 p.m. Disc: Ronglai Shen, Memorial Sloan Kettering Cancer Center

5:45 p.m. Floor Discussion

59 CC-156A**■ ● The Current State of Bayesian Image Analysis—Topic-Contributed**

Section on Statistics in Imaging, International Society for Bayesian Analysis (ISBA)

*Organizer(s): Ying Lu, Palo Alto VA CSPCC/Stanford University**Chair(s): Ying Lu, Palo Alto VA CSPCC/Stanford University*4:05 p.m. **Spatiotemporal Bayesian Variable Selection for fMRI Data**—◆ Donald Musgrove, University of Minnesota; John Hughes, University of Minnesota; Lynn Eberly, University of Minnesota4:25 p.m. **Bayesian Image Analysis in Fourier Space**—◆ John Kornak, University of California, San Francisco4:45 p.m. **Logarithm of Odds for Medical Images Analysis**—◆ Kilian Pohl, SRI International/Stanford University



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

5:05 p.m. **Statistical Image Analysis in Cone-Beam Computed Tomography**—◆ Susan Doshi, Cardiff University; Chris Jennison, University of Bath

5:25 p.m. **A Bayesian Approach to Detecting Changes in the Visual System**—◆ Raymond Hoffmann, Medical College of Wisconsin

5:45 p.m. **Floor Discussion**

60 CC-103 **● Computational Issues with Big Data: Applications and Methodologies—Topic-Contributed**

Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America, Section on Statistics in Marketing, International Indian Statistical Association, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Wendy Martinez, Bureau of Labor Statistics

Chair(s): Wendy Martinez, Bureau of Labor Statistics

4:05 p.m. **Bayesian Nonparametric Analysis of Multi-Rater Ordinal Data, with Application to Prioritizing Research Goals for Suicide Prevention**—◆ Terrance Savitsky, Bureau of Labor Statistics

4:25 p.m. **Solving Crimes Using MCMC to Analyze Previously Unusable DNA Evidence**—◆ Mark Perlin, Cybergenetics

4:45 p.m. **Tackling Big Data with MATLAB**—◆ Ameya Deoras, MathWorks

5:05 p.m. **Listening to the World's Oceans: Searching for Marine Mammals by Detecting and Classifying Terabytes of Bioacoustic Data in Clouds of Noise**—◆ Christopher W. Clark, Cornell University; Peter J. Dugan, Cornell University

5:25 p.m. Disc: Paul Pilotte, MathWorks

5:45 p.m. **Floor Discussion**

61 CC-203 **■ ● Applications of Stochastic Blockmodels to Network Analysis—Topic-Contributed**

IMS

Organizer(s): Luis Carvalho, Boston University

Chair(s): Eric Kolaczyk, Boston University

4:05 p.m. **A Bayesian Degree-Corrected Stochastic Block Model for Community Detection in Large Networks**—◆ Luis Carvalho, Boston University

4:25 p.m. **Regularized Spectral Clustering Under the Degree-Corrected Stochastic Blockmodel**—◆ Tai Qin, University of Wisconsin-Madison

4:45 p.m. **Bayesian Ridge-Regularized Covariance Selection with Community Behavior in Latent Gaussian Graphical Models**—◆ Lijun Peng, Boston University; Luis Carvalho, Boston University

5:05 p.m. **Sparsity Misspecification and Robust Covariate Effect Estimation for Sparse Social Networks**—◆ Alexander D'Amour, Harvard; Edoardo M. Airolidi, Harvard

5:25 p.m. Disc: Weston Viles, Mount Holyoke College

5:45 p.m. **Floor Discussion**

62 CC-213 **■ Statistical Approaches to Integrate Biomarker Data into Predictive Models of Mental Health and Physical Disease Processes—Topic-Contributed**

Mental Health Statistics Section

Organizer(s): W. Scott Comulada, University of California, Los Angeles

Chair(s): Juned Siddique, Northwestern University

4:05 p.m. **Support Vector Hazard Regression for Predicting Event Times Subject to Censoring**—◆ Yuanjia Wang, Columbia University; Donglin Zeng, University of North Carolina at Chapel Hill; Xiaoxi Liu, University of North Carolina at Chapel Hill

4:25 p.m. **Multi-Layered Data Classification for Biomarker Discovery**—◆ Samuel Mueller, University of Sydney; Ellis Patrick, University of Sydney; Jean Yee Hwa Yang, University of Sydney

4:45 p.m. **Improved Understanding of Huntington's Disease Onset Through a Genetic Mixture Model with Genetic Biomarkers and Distribution-Free Random Effects**—◆ Tanya Garcia, Texas A&M; Yuanjia Wang, Columbia University; Yanyuan Ma, Texas A&M; Karen Marder, Columbia University

5:05 p.m. **Using Drug Screens to Inform Missing Data Mechanisms in Daily Drug Use and Mood Reports**—◆ Warren Comulada, University of California, Los Angeles Center for Community Health; Dallas Swendeman, University of California, Los Angeles; Robert E. Weiss, University of California, Los Angeles

5:25 p.m. **Prediction Model for Multimodal Brain Imaging**—◆ Seonjoo Lee, Columbia University

5:45 p.m. **Floor Discussion**

63 CC-260 **■ ● Missing Data in Safety Evaluation and Observational Studies—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Freda Cooner, FDA/CDER

Chair(s): Freda Cooner, FDA/CDER

4:05 p.m. **Missing Data Issues in Observational Post-Market Drug Safety Studies: Doomed by Design?**—◆ LaRee Tracy, FDA

4:25 p.m. **Missing Data in Safety Evaluation: Experiences and Case Examples**—◆ Aloka Chakravarty, FDA



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 4:45 p.m. **Minimizing Missing Data in the Design of Observational Clinical Studies**—◆Lilly Yue, FDA/CDRH
- 5:05 p.m. Disc: Peter Mesenbrink, Novartis
- 5:25 p.m. Disc: Chenguang Wang, Johns Hopkins Bloomberg School of Medicine
- 5:45 p.m. **Floor Discussion**

64 CC-257B **■ Innovations in Stochastic Models and Inference for Molecular Evolution—Topic-Contributed**

Biometrics Section

Organizer(s): Forrest W. Crawford, Yale School of Public Health

Chair(s): Forrest W. Crawford, Yale School of Public Health

- 4:05 p.m. **A Probabilistic Framework for Simultaneous Analysis of Genomic Data Within and Between Populations**—◆Asger Hobolth, Aarhus University
- 4:25 p.m. **Balancing Statistical and Computational Trade-Offs When Extracting Selection Signal from a Large Number of DNA Sequences**—◆Vladimir Minin, University of Washington; Erick Matsen, Fred Hutchinson Cancer Research Center; Connor McCoy, Fred Hutchinson Cancer Research Center; Trevor Bedford, Fred Hutchinson Cancer Research Center
- 4:45 p.m. **Phylogenetic Testing for Deviations from the Mutation-Selection Balance**—◆Nicolas Rodrigue, University of Calgary
- 5:05 p.m. **A Spectral Approach to Phylogenetic Reconstruction**—◆Eric Stone, North Carolina State University
- 5:25 p.m. **Progress on a New Approach to Sampling from the Posterior Distribution of Phylogenies**—◆Bret Larget, University of Wisconsin-Madison
- 5:45 p.m. **Floor Discussion**

65 CC-254B **■ ● Health Policy Decisionmaking Using Evidence Synthesis—Topic-Contributed**

Health Policy Statistics Section, Statistics Without Borders

Organizer(s): Christopher Schmid, Brown University

Chair(s): Christopher Schmid, Brown University

- 4:05 p.m. **Implications of Different Evidence-Summaries for Contextualizing and Interpreting Findings of Meta-Analysis of Diagnostic Tests**—◆Anja Zgodic, Brown University; Thomas Trikalinos, Brown University; Ingram Olkin, Stanford University; Christopher Schmid, Brown University; Joseph Lau, Brown University; Issa Dahabreh, Brown University

- 4:25 p.m. **From Meta-Analysis to Decisionmaking: The Case of Incomplete Polytomous Outcome Data**—◆Thomas Trikalinos, Brown University; Christopher Schmid, Brown University; Ingram Olkin, Stanford University
- 4:45 p.m. **Multivariate Network Meta-Analysis of Progression-Free Survival and Overall Survival**—◆Jeroen Jansen, Redwood Outcomes; Thomas Trikalinos, Brown University
- 5:05 p.m. **N-of-1 Trial as a Clinical Decision Tool: An mHealth Application**—◆Naihua Duan, Columbia University; Christopher Schmid, Brown University
- 5:25 p.m. Disc: John Wong, Tufts Medical Center
- 5:45 p.m. **Floor Discussion**

66 CC-157B **■ ● Enrollment and Event Projection in Clinical Trials—Topic-Contributed**

Social Statistics Section, Biopharmaceutical Section

Organizer(s): Fanni Natanegara, Eli Lilly and Company

Chair(s): JonDavid Sparks, Eli Lilly and Company

- 4:05 p.m. **Modeling Enrollment with Random Staggered Site Start up Times**—◆Bradley Ferguson, North Carolina State University; Vladimir Anisimov, Quintiles; Valerii Fedorov, Quintiles
- 4:25 p.m. **Prediction of Time for Enrollment Termination for Event-Driven Cardiovascular Clinical Trials by Bayesian Simulation**—◆Ming-Dauh Wang, Eli Lilly and Company
- 4:45 p.m. **Bayesian Modeling and Prediction of Patient Accrual Using Gaussian Processes**—◆Qing He, Emory University; Chandra Thames, Eisai; Jeen Liu, Eisai; Qi Long, Emory University
- 5:05 p.m. **Bayesian Enrollment and Event Predictions in Clinical Trials Leveraging Literature Data**—◆Aijun Gao, InVentiv Health Clinical; Fanni Natanegara, Eli Lilly and Company; Govinda Weerakkody, Eli Lilly and Company
- 5:25 p.m. Disc: Mani Lakshminarayanan, Pfizer
- 5:45 p.m. **Floor Discussion**

Fri-Sun



Topic-Contributed Panel 4:00 p.m.–5:50 p.m.

67 CC-153B

Recent Statistical Advances in the DoD Acquisition and Test and Evaluation Communities—Topic-Contributed

Section on Statistics in Defense and National Security

Organizer(s): *Laura Freeman, IDA*

Chair(s): *Laura Freeman, IDA*

- Panelists:** ◆ G. Geoffrey Vining, Virginia Tech
 ◆ V. Bram Lillard, IDA
 ◆ Peter Parker, NASA
 ◆ Michael Cohen, National Academy of Sciences

5:45 p.m. Floor Discussion

5:35 p.m. **Causal Inference with Truncation by Death in Observational Study**—◆ Linbo Wang, University of Washington; Xiao-Hua Andrew Zhou, University of Washington

69 CC-251

Causal Inference and Dynamic Treatment Regimens—Contributed

Biometrics Section

Chair(s): *Kerrie Nelson, Boston University*

4:05 p.m. **Adjustment for Mismeasured Exposure Using Validation Data and Propensity Scores**—◆ Danielle Braun, Harvard; Malka Gorfine, Technion - Israel Institute of Technology; Corwin Zigler, Harvard School of Public Health; Francesca Dominici, HSPH; Giovanni Parmigiani, Dana-Farber Cancer Institute

4:20 p.m. **A Doubly Robust and Powerful Adaptation of the Mann-Whitney Test with Application to Randomized Experiments**—◆ Karel Vermeulen, Ghent University; Stijn Vansteelandt, Ghent University

4:35 p.m. **The Impact of (Ignoring) Interactions in Evaluating Clinical Center Performance**—◆ Machteld Varewyck, Ghent University; Els Goetghebeur, Ghent University; Marie Eriksson, UmeÅ University; Stijn Vansteelandt, Ghent University

4:50 p.m. **Decision List for Optimal Treatment Regime**—◆ Yichi Zhang, North Carolina State University; Eric B. Laber, North Carolina State University; Anastasios Tsiatis, North Carolina State University; Marie Davidian, North Carolina State University

5:05 p.m. **Variable Selection with the Kernel Machine Cox Proportional Hazards Model for Optimal Treatment Strategy**—◆ Zifang Guo, Merck; Wenbin Lu, North Carolina State University; Lexin Li, North Carolina State University

5:20 p.m. **Experimental Designs for Surrogate Evaluation**—◆ Erin Gabriel, NIAID; Dean Follmann, NIAID

5:35 p.m. **Interactive Q-Learning for Probabilities and Quantiles**—◆ Kristin Linn, North Carolina State University; Eric B. Laber, North Carolina State University; Leonard Stefanski, North Carolina State University

70 CC-252A

Generalized Linear and Nonlinear Mixed Models—Contributed

Biometrics Section

Chair(s): *Pamela Shaw, University of Pennsylvania*

4:05 p.m. **Sample Size Determination for the Analysis of Three-Level Hierarchical Designs Using Generalized Linear Mixed Models**—◆ Anup Amatya,

Contributed Sessions 4:00 p.m.–5:50 p.m.

68 CC-257A

New Methods for Regression, Association, and Causation—Contributed

ENAR, WNAR

Chair(s): *Phil Boonstra, University of Michigan*

4:05 p.m. **A Method to Identify Regional Particulate Matter Sources and Their Health Effects**—◆ Jenna R. Krall, Johns Hopkins Bloomberg School of Public Health; Amber Hackstadt, Johns Hopkins Bloomberg School of Public Health; Roger D. Peng, Johns Hopkins Bloomberg School of Public Health

4:20 p.m. **Dimensionality Assessment for Polytomous Item Instrument**—◆ Tan Li, Florida International University

4:35 p.m. **Which Statistical Model Is the Better Probability Predictor?**—◆ Shulamith Gross, Baruch College

4:50 p.m. **Joint Estimation of Gaussian Graphical Models in Spatial and Temporal Data**—◆ Zhixiang Lin,

5:05 p.m. **Confounder Selection via Penalized Credible Regions**—◆ Ander Wilson, North Carolina State University; Brian Reich, North Carolina State University

5:20 p.m. **Comparison of Statistical Methods in Assessing Predictive Models**—◆ Hui Zhou, Kaiser Permanente; Jeffrey Slezak, Kaiser Permanente; Stephen F. Derose, Kaiser Permanente; Anny H. Xiang, Kaiser Permanente

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

4:20 p.m. **Approximate Testing in Two-Stage Nonlinear Mixed Models**—◆ Jeff Burton, Pennington Biomedical Research Center; Robbie Beyl, Pennington Biomedical Research Center; William Johnson, Pennington Biomedical Research Center

4:35 p.m. **Degradation Data Analysis Using Nonlinear Mixed-Effects Models and Shape-Restricted Splines**—◆ Zhibing Xu, Virginia Tech

4:50 p.m. **Bivariate Interaction Models in the Context of Generalized Linear Mixed Models**—◆ Karen Nielsen, University of Michigan; Richard Gonzalez, University of Michigan

5:05 p.m. **Transform-Both-Sides Nonlinear Mixed Effects Models for Multiple Flow Exhaled Nitric Oxide Data**—◆ Sandrah P. Eckel, University of Southern California; Noa Molshatzki, University of Southern California

5:20 p.m. **Spatial Clustering Methods to Search for Hot Spots**—◆ Fei He,

5:35 p.m. **Semiparametric Random Effects Selection in Generalized Linear Mixed Models**—◆ Yong Shan, University of South Carolina; Xiaoyan Lin, University of South Carolina; Bo Cai, University of South Carolina

71 Phylogenetics and Genetics—Contributed

CC-255

Biometrics Section

Chair(s): Lingling An, University of Arizona

4:05 p.m. **An Integrated Method for Associating Microbiome Composition with Longitudinal Trait**—◆ Yilong Zhang; Laura Cox, NYU Lagone Medical Center; Martin Blaser, NYU Lagone Medical Center; Huilin Li, New York University

4:20 p.m. **Learning Directed Graphical Structures with Genetical Genomics Data**—◆ Bin Gao, Michigan State University; Yuehua Cui, Michigan State University

4:35 p.m. **Tree-Based Quantitative Trait Mapping in the Presence of External Covariates**—◆ Katherine Thompson, University of Kentucky; Laura Kubatko, Ohio State University

4:50 p.m. **Analysis of Gene Regulatory Network Based on Functional Clustering of Gene Expression Dynamics**—◆ Yaqun Wang, Penn State; Ningtao Wang, Penn State; Han Hao, Penn State; Rongling Wu, Penn State

5:05 p.m. **Systematic Approach for Detecting Copy Number Variation**—◆ Ching-Wei Chang, FDA/National Center for Toxicological Research

5:20 p.m. **Robustness to Divergence Time Estimation When Inferring Species Trees from Estimated Gene Trees**—◆ James Degnan, University of New Mexico; Michael DeGiorgio, Penn State

5:35 p.m. **Simultaneous Inference of Substitution Rates Across Sites in DNA Sequences**—◆ Tingting Zhao, University of British Columbia; Alexandre Bouchard-CÛtÉ, UBC

72 Biomarkers and Endpoint Validation 1—Contributed

CC-208

Biopharmaceutical Section

Chair(s): Rajesh Nair,

4:05 p.m. **Filtering, Bias, and Biomarker Identification**—◆ Gregory Hather, Takeda; Ray Liu, Takeda

4:20 p.m. **A Nonparametric Visualization Method to Measuring the Potential of Biomarkers for Guiding Treatment Decisions**—◆ Hui Yang, Amgen; Rui (Sammi) Tang, Amgen; Michael Hale, Amgen; Jing Huang, Amgen

4:35 p.m. **Biomarker Signatures for Patient Subgroup Selection in Clinical Drug Development**—◆ Xin Huang, AbbVie; Paul Trow, AbbVie; Yan Sun, AbbVie; Viswanath Devanarayan, AbbVie

4:50 p.m. **Big Data for Medical Research: A Unified Approach for Individualized Treatment Recommendation and Subgroup Identification Based on Electronic Medical Record Data**—◆ Haoda Fu, Eli Lilly and Company; Jin Zhou, University of Arizona

5:05 p.m. **Development of Genetic Biomarkers in Drug Discovery and Early Drug Development Experiments**—◆ Nolen Joy Perualila, Hasselt University; Ziv Shkedy, Hasselt University; Adetayo Kasim, Durham University

5:20 p.m. **Biomarker-Based Dose-Finding Designs for Single- or Multiple-Agent Phase I Trials**—◆ Yuan Xue, University of Virginia; Mark Conaway, University of Virginia; Feifang Hu, George Washington University

5:35 p.m. **Center-Within-Trial Versus Trial-Level Evaluation of Surrogate Endpoints**—◆ Lindsay Renfro, Mayo Clinic; Yuan Xue, University of Virginia; Daniel Sargent, Mayo Clinic; Qian Shi, Mayo Clinic



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■ Randomization and Covariate Adjustment—Contributed

Biopharmaceutical Section

Chair(s): *Wei Zhang, FDA*

- 4:05 p.m. **Imbalance in Stratified Blocked Randomization—**
 ◆ Bingzhi Zhang, Sanofi; Hui Quan, Sanofi; Lin Wang, Sanofi; Lynn Wei, Sanofi
- 4:20 p.m. **Regression Analysis of Sequentially Randomized Trials Through Artificial Randomization—**◆ Semhar Ogbagaber, University of Pittsburgh; Abdus Wahed, University of Pittsburgh
- 4:35 p.m. **Permutation Test Associated with Dynamic Randomization Methods—**◆ Chunrong Cheng, FDA
- 4:50 p.m. **A Comparison of Model-Based F-Test and Permutation Test Under Simple Versus Constrained Randomization for the Analysis of Simulated Data in the Context of Group-Randomized Trials—**◆ Fan Li, Duke University; Yuliya Lokhnygina, Duke University; David Murray, NIH; Patrick Heagerty, University of Washington; William Vollmer, Kaiser Permanente; Ken Kleinman, Harvard Medical School; Elizabeth DeLong, Duke University
- 5:05 p.m. **Estimation of Covariate-Adaptive Randomized Clinical Trials with Survival Outcomes—**◆ Lu Wang; Hongjian Zhu, University of Texas School of Public Health
- 5:20 p.m. **A Generalized Blinding Index for Randomized, Controlled Trials—**◆ Forrest Williamson, Baylor University; Jane L. Harvill, Baylor University; James Stamey, Baylor University
- 5:35 p.m. **Latin Hypercube Design-Based Block Bootstrap for Computer Experiment Modeling—**◆ Yufan Liu, Rutgers University; Ying Hung, Rutgers University

CC-209 4:50 p.m.

Random Partition Distribution Indexed by Pairwise Information—◆ David Dahl, Brigham Young University; Ryan Day, Lawrence Livermore National Laboratory; Jerry W. Tsai, University of the Pacific

5:05 p.m.

Bayesian Semiparametric Methods to Test Shapes of Regression Functions—◆ Yifang Li, North Carolina State University; Sujit Ghosh, North Carolina State University/NSF

5:20 p.m.

Bayesian Nonparametric Modeling of Collections of Networks—◆ Joshua Vogelstein, Duke University; Daniele Durante, Duke University; David Dunson, Duke University

5:35 p.m.

Tensor Factorization Transformation Priors for Density Regression—◆ Jared Murray,

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■ Bayesian Nonparametric Methods and Some Applications—Contributed

Section on Bayesian Statistical Science, Section on Physical and Engineering Sciences, International Society for Bayesian Analysis (ISBA)

Chair(s): *Hongmei Zhang, University of Memphis*

- 4:05 p.m. **Nonparametric Bayesian Particle Learning with Applications to Income Volatility—**◆ Julie Novak, Wharton School; Tung Phan, Wharton School; Shane Jensen, University of Pennsylvania
- 4:20 p.m. **Semiparametric Bayesian Method on Spherical Data—**◆ Thomas Jiang, National Chengchi University
- 4:35 p.m. **Bayesian Nonparametric Youden Index Modeling—**
 ◆ Miguel de Carvalho, Pontificia Universidad Católica de Chile; Vanda Inacio, Pontificia Universidad Católica de Chile; Adam Branscum, Oregon State University

CC-207

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Specialized Survey Populations—Contributed

Government Statistics Section

Chair(s): *Gwyn Ferguson, BLS*

- 4:05 p.m. **Estimating the Supply of Medicaid-Enrolled PCPs Who Will See New Medicaid Patients—**◆ Cynthia Cors,
- 4:20 p.m. **Variances of Imputation Variances as Determiner of Sufficient Number of Imputations Using National Ambulatory Medical Care Survey as Model—**
 ◆ Qiyaun Pan, CDC/NCHS; Rong Wei, NCHS/CDC; Iris M. Shimizu, CDC/NCHS; Eric Jamoom, CDC/NCHS
- 4:35 p.m. **Cluster Analysis for Clostridium Difficile Colitis National Burden Estimates—**◆ Yi Mu, CDC
- 4:50 p.m. **Examining the Role Gender Plays in the Public School Principalship—**◆ Rebecca Goldring, Westat; Minsun Riddles, Westat
- 5:05 p.m. **Modified Statistical Process Control Techniques as an Edit Method for the Common Core of Data—**
 ◆ Elizabeth Goldberg, U.S. Census Bureau
- 5:20 p.m. **Lost but Not Forgotten: An In-Depth Analysis of Attrition in the 1999–2011 Individual Income Tax Return Panel—**◆ Victoria Bryant, Internal Revenue Service; Jessica Holland, Internal Revenue Service
- 5:35 p.m. **Assessing the Compliance Costs of IRS Post-Filing Processes—**◆ Ronald Hodge, Internal Revenue Service Office of Research; Naomi Dyer Yount, Westat; Jennifer O'Brien, Westat

CC-156B



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76 CC-204A Density Estimation—Contributed

Section on Nonparametric Statistics

Chair(s): Rajarshi Dey,

- 4:05 p.m. **An Improved Bagging Cross-Validation Method with Second-Order Extrapolation in Bandwidth Selection**—◆ Qing Wang, Williams College; Bruce G. Lindsay, Penn State
- 4:20 p.m. **Hermite Expansion and Estimation of Monotonic Transformations of Gaussian Data**—◆ Ryan Janicki, U.S. Census Bureau; Tucker Sprague McElroy, U.S. Census Bureau
- 4:35 p.m. **Bernstein Polynomial Model for Multivariate Density**—◆ Zhong Guan, Indiana University, South Bend
- 4:50 p.m. **Kernel-Based Generalized Likelihood Ratio Tests on Nonparametric Density Alternatives**—◆ Han Yu,
- 5:05 p.m. **On Variable Bandwidth Kernel Estimation**—◆ Janet Nakarmi; Hailin Sang, University of Mississippi
- 5:20 p.m. **Density Estimation with Barycentric Rational Interpolants**—◆ Michael Minnotte,
- 5:35 p.m. **Semiparametric Density Deconvolution in the Class of Generalized Skew-Symmetric Distributions**—◆ Cornelis Potgieter,

77 CC-105 ■ ● Engineering Computer Experiments in Industry, Government, and University—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): James Gattiker, Los Alamos National Laboratory

- 4:05 p.m. **A Unified Framework for Uncertainty and Sensitivity Analysis of Computational Models with Many Input Parameters**—◆ Li Gu, Georgia Institute of Technology; C. F. Jeff Wu, Georgia Institute of Technology
- 4:20 p.m. **Calibration and Uncertainty Quantification for Carbon Capture Systems**—◆ K. Bhat, Los Alamos National Laboratory; Curtis Storlie, Los Alamos National Laboratory; David Mebane, West Virginia University
- 4:35 p.m. **A General Covariance Structure of Gaussian Processes Model with Quantitative and Qualitative Inputs**—◆ Yulei Zhang; William I. Notz, Ohio State University
- 4:50 p.m. **Screening in Computer Experiments Using Bayesian Composite Process Models**—◆ Casey Davis, Ohio State University; Christopher Hans, Ohio State University; Thomas J. Santner, Ohio State University
- 5:05 p.m. **Optimal Sliced Latin Hypercube Designs for Computer Experiments with Continuous and Categorical Factors**—◆ Shan Ba, Procter & Gamble; William Brennehan, Procter & Gamble; William Myers, Procter & Gamble

- 5:20 p.m. **Novel Switch Detection Algorithm in Logic-Based Guidance**—◆ Vladimir Turetsky, Ort Braude College; Josef Shinar, Technion - Israel Institute of Technology; Alexander Goldenshluger, Haifa University

- 5:35 p.m. **Statistical Error-Based Controller Design of Hybrid Systems with Mixed Time Delays**—◆ Morris Morgan, Hampton University; Carolyn Bradshaw Morgan, Hampton University

78 CC-104A ● Inference—Contributed

Section on Statistical Computing

Chair(s): Barbara J. Robles, Federal Reserve System

- 4:05 p.m. **Simple Closed-Form Confidence Intervals for Some Functions of Binomial Proportions with Comparisons**—◆ Meesook Lee, South Louisiana Community College
- 4:20 p.m. **A New Modified Trimmed Mean for Estimating Confidence Interval of Mean for Skewed Populations**—◆ Tanweer Shapla, Eastern Michigan University; Khairul Islam, Eastern Michigan University
- 4:35 p.m. **Implementing Multiple Testing Procedures for Simulation-Based Tests with Bounded Risk**—◆ Georg Hahn, Imperial College London; Axel Gandy, Imperial College London
- 4:50 p.m. **Small Sample Equivalence Tests for Exponentiality**—◆ Renren Zhao; Robert Paige, Missouri University of Science & Technology
- 5:05 p.m. **Sequential Testing Procedures for Single-Step Methods**—◆ Yimin Zhang, Oklahoma State University; Melinda McCann, Oklahoma State University
- 5:20 p.m. **A Robust Class of Multiple Testing Procedures Under Dependence**—◆ Nasrine Bendjilali, Rowan University; Boualem Bendjilali, RVCC; Wei-Min Huang, Lehigh University
- 5:35 p.m. **Comparing Two Quantiles: The Burr Type X and Weibull Cases**—◆ Mohammed Shayib, Prairie View A&M University

79 CC-153C New Approaches to Data Exploration and Discovery—Contributed

Section on Statistical Graphics, Statistical Learning and Data Mining Section, Interface Foundation of North America

Chair(s): Antony Unwin, Augsburg University

- 4:05 p.m. **Exploring Huge Collections of Scatterplots**—◆ Leland Wilkinson, Skytree; Tuan Dang, University of Illinois at Chicago
- 4:20 p.m. **Glassbox: An R Package for Visualizing Algorithmic Models**—◆ Max Ghenis, Google; Ben Ogorek, Google; Estevan Flores, Google



- 4:35 p.m. **A Web Application for Efficient Analysis of Peptide Libraries**—◆Eric Hare, Iowa State University; Timo Sieber, University Medical Center Hamburg-Eppendorf; Heike Hofmann, Iowa State University
- 4:50 p.m. **To Merge or Not to Merge: An Interactive Visualization Tool for Local Merges of Mixture Model Components**—◆Elizabeth Lorenzi, Carnegie Mellon; Rebecca Nugent, Carnegie Mellon; Nema Dean, University of Glasgow
- 5:05 p.m. **An Interactive Visualization Platform for Interpreting Topic Models**—◆Carson Sievert, Iowa State University; Kenny Shirley, AT&T Labs
- 5:20 p.m. **Gravicom: A Web-Based Tool for Community Detection in Networks**—◆Andrea Kaplan, Iowa State University; Heike Hofmann, Iowa State University; Daniel Nordman, Iowa State University
- 5:35 p.m. **Human Factors Influencing Visual Statistical Inference**—◆Mahbubul Majumder, University of Nebraska at Omaha; Heike Hofmann, Iowa State University; Dianne Cook, Iowa State University

80 CC-104C Regression in Data Mining—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Cuixian Chen, University of North Carolina at Wilmington

- 4:05 p.m. **Robust and Sparse Bridge Regression**—◆Bin Li, Louisiana State University; Qingzhao Yu,
- 4:20 p.m. **Exact Inference for Linear and Logistic Regression After Model Selection**—◆Jason Lee, Stanford University; Jonathan Taylor, Stanford University; Yuekai Sun, Stanford University; Dennis Sun, Stanford University
- 4:35 p.m. **Lasso with Long Memory Regression Errors**—◆Abhishek Kaul, Michigan State University
- 4:50 p.m. **Penalized Regression and Penalty Parameter Selection on High-Dimensional Data**—◆Peng Yang, North Carolina State University; Soumendra Lahiri, North Carolina State University; Shuva Gupta, North Carolina State University
- 5:05 p.m. **Model-Free Sure Screening via Maximum Correlation**—◆Qiming Huang; Yu Zhu, Purdue University
- 5:20 p.m. **Variable Screening Under Dependence**—◆Teng Zhang, North Carolina State University; Jessie Jeng, North Carolina State University
- 5:35 p.m. **Principle Components Adjusted Variable Screening Method for Ultrahigh Dimensional Feature Space**—◆Zhongkai Liu, North Carolina State University; Rui Song, North Carolina State University; Donglin Zeng, University of North Carolina at Chapel Hill

81 CC-151A Goals, Surprise, and Returns—Contributed

Section on Statistics in Marketing

Chair(s): James Wendelberger, Urban Science Applications

- 4:05 p.m. **Adoption of Quick Response (QR) in Print Media: The Role of Competition**—◆Fusun Gonul, SRU
- 4:20 p.m. **Personalization of Product Novelty Assessment via Bayesian Surprise**—◆Nan Shao, IBM Research; Kush R. Varshney, IBM; Lav R. Varshney, University of Illinois at Urbana-Champaign; Florian Pinel, IBM Research; Anshul Sheopuri, IBM; Pavankumar Murali, IBM Research
- 4:35 p.m. **Predicting Advertisers' Marketing Goals Using a Bayesian Approach**—◆Yiping Dou, Google
- 4:50 p.m. **Optimal Internet Media Selection Using General Loss Functions**—◆Courtney Paulson, University of Southern California; Gareth James, University of Southern California; Lan Luo, University of Southern California
- 5:05 p.m. **Predictive Modeling for Mobile Offer Targeting Campaigns**—◆Alex Zolot, Medio; Neal Oman, Medio; Xing Fu, Medio
- 5:20 p.m. **Time-Dependent Cox Model for Revenue Attribution**—◆Fan Yang,
- 5:35 p.m. **Latest Developments in Telmar's CenTab Database for Marketing Purposes**—◆Igor Mandel, Telmar

82 CC-153A Measurements of Social Well-Being—Contributed

Social Statistics Section, Statistics Without Borders

Chair(s): Donsig Jang, Mathematica Policy Research

- 4:05 p.m. **Measures of Income Inequality Based on Probability Weighted Moments**—◆Tamer Abouelmagd, Oklahoma State University; Elsayed Ahi Habib Elamir, Benha University; Ibrahim Ahmad, Oklahoma State University
- 4:20 p.m. **Investigating Wave 1 Effects on Poverty Calculations in the 2008 SIPP Panel**—◆Ashley Edwards, U.S. Census Bureau
- 4:35 p.m. **(In)Equality and (In)Justice**—◆Guillermina Jasso, New York University
- 4:50 p.m. **Remittance Is the Source of Productivity Improvement**—◆Mohammad Quasem, Howard University
- 5:05 p.m. **Analysis of Small Ensembles of Social Experiments**—◆David Judkins, Abt Associates
- 5:20 p.m. **Exploring the Predictors of the International Digital Divide**—◆Dominique Haughton, Bentley University/U. Paris I; Maria Skaletsky, Bentley University; Mayo Soremekun, D50-Media

5:35 p.m. **Employing Data Mining to Develop a Prediction Model for the Statistical Characteristics of Test Questions**—◆Peter J. Pashley, Law School Admission Council; Nicole E. Pashley, Queen's University

83 **Estimation, Benchmarking, and Record Linkage—Contributed** **CC-157C**

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders

Chair(s): Kimberly Ault, RTI International

4:05 p.m. **Comparison of Methods Utilizing Immunization Information Systems (IIS) Data for Sample Frame Construction in the National Immunization Survey (NIS)**—◆Reiping Huang, NORC at the University of Chicago; Vicki Pineau, NORC at the University of Chicago; Nadarajasundaram Ganesh, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Margrethe Montgomery, NORC at the University of Chicago; James Singleton, CDC; Laura Pabst, CDC; LaTrece Harris, CDC; Stacie Greby, CDC

4:20 p.m. **Interpolating and Standardizing Time Series Data Covering Various Fiscal Intervals Using Splines**—◆Jack Lothian, Statistics New Zealand

4:35 p.m. **Quality and Analysis of Sets of National Files**—◆William Winkler, U.S. Census Bureau

4:50 p.m. **Statistical Matching Using Fractional Imputation**—◆Jae-Kwang Kim, Iowa State University; Emily Berg, Iowa State University

5:05 p.m. **Model-Assisted Domain Estimation When Combining Survey Data with Administrative Records**—◆Dan Liao, RTI International; Phillip Kott, RTI International

5:20 p.m. **Increases in Estimate Accuracy in a Two-Phase Sample Using a Version of Poststratification: An Example from the National Survey on Drug Use and Health**—◆Phillip Kott, RTI International; Art Hughes, SAMHSA; Jonaki Bose, SAMHSA; Sarra Hedden, SAMHSA

5:35 p.m. **A Hierarchical Bayesian Method for Combining Surveys**—◆Yang Cheng, U.S. Census Bureau; Adrijo Chakraborty, University of Georgia; Gauri Datta, University of Georgia

84 **Advances in Gene-Environment Interaction and Multi-Marker Association Detection—Contributed** **CC-252B**

Advances in Gene-Environment Interaction and Multi-Marker Association Detection—Contributed

Section on Statistics in Epidemiology

Chair(s): Samantha R. Seals, University of Mississippi Medical Center

4:04 p.m. **An Adaptive Weighted Sum Test for Family-Based Multi-Marker Association Studies**—◆Renfang Jiang, Michigan Technological University; Jianping Dong, Michigan Technological University; Yilin Dai, Michigan Technological University

4:20 p.m. **Correction for Sampling Structure Using Generalized Linear Mixed Models for Discrete and Continuous Phenotypes in Genome-Wide Association Studies**—◆Han Chen, Harvard School of Public Health; Chaolong Wang, Harvard School of Public Health; Xihong Lin, Harvard School of Public Health

4:35 p.m. **General Framework for Rare Variant Analysis: Gene-Environment Interaction and Multiple Trait Analysis in Family Samples**—◆Wei Gao; George T. O'Connor, Boston University School of Medicine; JosÈe Dupuis, Boston University School of Public Health

4:50 p.m. **Identifying Heterogenous Transgenerational DNA Methylation Sites via Clustering in Beta Regression**—◆Shengtong Han; Hongmei Zhang, University of Memphis; Gabrielle A. Lockett, University of Southampton; Nandini Mukherjee, University of Memphis; John W. Holloway, University of Southampton; Wilfried Karmaus, University of Memphis

5:05 p.m. **A General Meta-Analysis Approach for Haplotype Association Results in Family and Unrelated Samples**—◆Shuai Wang, Boston University; JosÈe Dupuis, Boston University School of Public Health

5:20 p.m. **Controlling Type I Error in Genome-Wide Investigations of Gene-Environment Interaction with Infrequent Environmental Exposures**—◆Colleen Sitlani, University of Washington; JosÈe Dupuis, Boston University School of Public Health; L. Adrienne Cupples, Boston University; Kenneth Rice, University of Washington

5:35 p.m. **Bayesian Topic Models for Soft Clustering of Metagenomic Count Data**—◆Daniel Conn, University of California, Los Angeles



85 **Dimension Reduction and Clustering in Environmental Statistics—Contributed**

CC-212

Section on Statistics and the Environment

Chair(s): Candace Berrett, Brigham Young University

- 4:05 p.m. **Geostatistical Modeling via Karhunen-Loeve Expansion**—◆Tingjin Chu, Renmin University of China
- 4:20 p.m. **Bayesian Analysis of Spatially Dependent Functional Responses with Spatially Dependent Multi-Dimensional Functional Predictors**—◆Wen-Hsi Yang, CSIRO Computational Informatics; Christopher K. Wikle, University of Missouri; Scott Holan, University of Missouri; Brenton Myers, University of Missouri; Kenneth A. Sudduth, USDA/ARS
- 4:35 p.m. **Efficient Data-Driven Knot Selection for Reduced Rank Spatial Models**—◆Casey M. Jelsema, National Institute of Environmental Health Sciences; Shyamal Peddada, NIH/NIEHS

- 4:50 p.m. **Model-Based Clustering via Multinomial Logistic Cluster Probabilities for Gaussian Data**—◆Lulu Wang, Colorado State University; Jennifer A. Hoeting, Colorado State University
- 5:05 p.m. **Trivial Effect of Multiple Testing on a Popular Test for Overall Disease Clustering**—◆Matthew Loop, University of Alabama at Birmingham; Leslie McClure, University of Alabama at Birmingham
- 5:20 p.m. **Modified Low Rank Model**—◆Juan Hu, DePaul University
- 5:35 p.m. **Floor Discussion**

86 **Modeling Pollution Data—Contributed**

CC-211

Section on Statistics and the Environment

Chair(s): John Tipton, Colorado State University

- 4:05 p.m. **Ambient Fine Particulate Matter and Deaths from Heart Diseases in the Contiguous U.S.**—◆Yongping Hao, CDC; Lina Balluz, CDC; Heather Strosnider, CDC; Xiao Jun Wen, CDC; Chaoyang Li, CDC; Judith R. Qualters, CDC

OPENING MIXER

Sunday, August 3
8:30 p.m. – 10:30 p.m.

Boston Convention & Exhibition Center
Room CC-Ballroom East



Special thanks to Eli Lilly & Co. and Westat for their support of this event



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 4:20 p.m. **A Bayesian Framework for Estimating Disease Risk Due to Exposure to Uranium Mine and Mill Waste on the Navajo Nation**—◆ Lauren Hund, University of New Mexico; Edward Bedrick, University of Colorado; Curtis Miller, University of New Mexico; Gabriel Huerta, University of New Mexico; Johnnye Lewis, University of New Mexico
- 4:35 p.m. **A Nonlinear Latent Variable Model for Repeated Follow-Up Data on Methylmercury Neurotoxicity**—◆ Esben Budtz-Jørgensen, University of Copenhagen
- 4:50 p.m. **Reduced-Rank Spatio-Temporal Modeling of Air Pollution Concentrations in the Multi-Ethnic Study of Atherosclerosis and Air Pollution**—◆ Casey Olives; Lianne Sheppard, University of Washington; Johan Lindstrom, Lund University; Paul D. Sampson, University of Washington; Joel D. Kaufman, University of Washington; Adam Szpiro, University of Washington
- 5:05 p.m. **A Data Fusion Approach for Space-Time Analysis of Speciated PM**—◆ Colin Rundel, Duke University; Alan Gelfand, Duke University; David M. Holland, U.S. Environmental Protection Agency
- 5:20 p.m. **Land-Use Effects on Adverse Birth Outcomes**—◆ Keita Ebisu, Yale; Theodore Holford, Yale; Michelle L. Bell, Yale
- 5:35 p.m. **Floor Discussion**

- 5 **Visualizing Spatial Analysis of Tropical Cyclones and Seasonal Cyclone Forecast**—◆ Marcela Alfaro-Córdoba, North Carolina State University; Joe Guinness, North Carolina State University; Montserrat Fuentes, North Carolina State University
- 6 **Nonstationary Spatial Modeling via Covariance Regression**—◆ Mark Risser, Ohio State University; Kate Calder, Ohio State University
- 7 **Exploring the Magnetosphere: Methods for Calibration and Validation LFM-MIX**—◆ Stephan R. Sain, NCAR
- 8 **Data Mining for Extreme Behavior with Application to Ground Level Ozone**—◆ Brook T. Russell, Colorado State University; Daniel S. Cooley, Colorado State University; William C. Porter, Massachusetts Institute of Technology; Colette L. Heald, Massachusetts Institute of Technology; Brian Reich, North Carolina State University
- 9 **Spatial Dependence Modeling of Precipitation Extremes Using a Conditional Approach**—◆ Lina Lin, University of Washington; Peter Guttorp, University of Washington
- 10 **Visualization of Data Assimilation Methods**—◆ Barbara A. Bailey, San Diego State University; Colette Smirniotis, San Diego State University
- 11 **Spatial Hierarchical Clustering Using Directional Derivatives**—Candace Berrett, Brigham Young University; Maria A. Terres, Duke University; ◆ Matthew Heaton, Brigham Young University; William Christensen, Brigham Young University
- 12 **Equivalent Kriging**—◆ William Kleiber, University of Colorado; Douglas Nychka, NCAR
- 13 **Boulder September 2013: 1 in 1000 Year Precipitation?**—◆ Mari Jones, NCAR; Daniel S. Cooley, Colorado State University
- 14 **Modeling of Sparse and Spatially Correlated Functional Data**—◆ Surajit Ray, University of Glasgow; Chong Liu, State Street Global Advisors; Giles Hooker, Cornell University
- 15 **Reconstructing Carbon Dioxide for the Last 2000 Years: A Hierarchical Success Story**—◆ Douglas Nychka, NCAR
- 16 **Climate Change, Air Quality, and Health: Bayesian Hierarchical Models for Predicting the Change in Mortality Associated with Future Ozone Exposures**—◆ Stacey Alexeeff, NCAR; Douglas Nychka, NCAR; Gabi Pfister, NCAR
- 17 **Supercomputing for Multi-Resolution Gaussian Process Modeling**—◆ Dorit Hammerling, NCAR; Nathan Lenssen, NCAR; Douglas Nychka, NCAR; Stephan R. Sain, NCAR
- 18 **Globalakes: Functional Clustering and Global Scale Coherence of Lake Water Quality**—◆ Ruth Haggarty, University of Glasgow; Claire Miller, University of Glasgow; Marian Scott, University of Glasgow; Francesco Finazzi, University of Bergamo

Invited Poster Presentations

8:30 p.m.–10:30 p.m.

87 **STATMOS/NCAR Statistics in the Atmospheric Sciences—Invited**

CC-Ballroom East

Section on Statistics and the Environment

Chair(s): Daniel S. Cooley, Colorado State University

- 1 **A Multivariate Framework for Hurricane Forecast Assessment**—◆ Zachary Weller; Jennifer A. Hoeting, Colorado State University
- 2 **Using Covariates to Model Dependence in Non-Stationary, High-Frequency Meteorological Processes**—◆ Andrew Poppick, University of Chicago; Michael Stein, University of Chicago
- 3 **Surface Boxplots**—◆ Ying Sun, Ohio State University; Marc G. Genton, King Abdullah University of Science and Technology; Christopher Johnson, Scientific Computing and Imaging Institute; Kristin Potter, University of Oregon; Georgiy Stenchikov, King Abdullah University of Science and Technology
- 4 **Nonparametric Determination of Seasons**—◆ Aaron Zimmerman, University of Washington; Peter Guttorp, University of Washington

**88** **CC-Ballroom Foyer****Analysis of Behavioral Clinical Data on Tobacco and Other Substance Abuse—Invited**

Health Policy Statistics Section

Chair(s): E. Paul Wileyto, University of Pennsylvania

Health Policy Statistics Section

- 19** **Modeling Self-Reported Number of Cigarettes per Day from a Survey of American Indians**—◆Hung-Wen Yeh, University of Kansas Medical Center; Byron Gajewski, University of Kansas Medical Center; Won S. Choi, University of Kansas Medical Center; Niaman Nazir, University of Kansas Medical Center; Christine M. Daley, University of Kansas Medical Center
- 20** **Perception of Time Since Smoking Cessation: Time in Memory Can Elapse Faster**—◆Julia Soulakova, University of Nebraska-Lincoln; Brianna Bright, University of Nebraska-Lincoln; Lisa Crockett, University of Nebraska-Lincoln
- 21** **Assessing the Fit of Parametric Cure Models**—◆E. Paul Wileyto, University of Pennsylvania; Yimei Li, Children's Hospital of Philadelphia; Jinbo Chen, University of Pennsylvania Perelman School of Medicine; Daniel F. Heitjan, University of Pennsylvania



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Fri-Sun



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MONDAY, AUGUST 4

JSM Hours

7:00 a.m.–6:00 p.m. CC-256
Speaker Management Room

7:30 a.m.–6:00 p.m. CC-Southeast Lobby B2, Level 1
ASA Membership/Help Desk/Press Desk

7:30 a.m.–6:00 p.m. CC-Southeast Lobby B2, Level 1
JSM Main Registration

7:30 a.m.–10:00 p.m. CC-Southeast Lobby B2, Level 1
Cyber Center, Sponsored by IBM

8:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
Career Placement Service

8:00 a.m.–6:00 p.m. CC-Exhibit Hall B2
Exhibitor Lounge

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
American Statistical Association Booth #201

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
EXPO 2014

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
ASA Marketplace

9:00 a.m.–6:00 p.m. CC-North Lobby
Boston Visitor Services Desk

Committee/Business Meetings & Other Activities

6:45 a.m.–8:30 a.m. CC-259B
ASA's 175th Anniversary Roundtable: Past Presidents and Executive Directors Reminisce (Closed)
Chair(s): Jim Cochran, University of Alabama

7:00 a.m.–8:30 a.m. W-Hancock
TSHS Section Executive Committee Meeting
Chair(s): Constantine Daskalakis, Thomas Jefferson University

7:00 a.m.–8:30 a.m. W-Bulfinch
ASA-SIAM Book Series Editorial Board Meeting
Chair(s): Lisa LaVange, FDA

7:00 a.m.–8:30 a.m. W-Executive Board Room

Technometrics Management Committee
Chair(s): David Steinberg, Tel Aviv University

7:00 a.m.–8:30 a.m. S-Flagship A
Section on Statistical Graphics Committee Meeting
Chair(s): Hadley Wickham, RStudio

7:00 a.m.–8:30 a.m. W-Frost Boardroom
Council of Chapters International Science and Engineering Fair Meeting Breakfast
Chair(s): Theresa Utlaut, Intel Corporation; Theresa Utlaut, Intel Corporation

7:00 a.m.–8:30 a.m. S-Seaport Ballroom A
SPAIG Committee Business Meeting
Chair(s): Barry Nussbaum, U.S. Environmental Protection Agency

7:00 a.m.–8:30 a.m. S-Liberty A
Committee on International Relations in Statistics Meeting
Chair(s): Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven

7:00 a.m.–8:30 a.m. W-Douglass
HPSS Executive Committee Meeting (Closed)
Chair(s): Marc N. Elliott, RAND Corporation

7:00 a.m.–9:00 a.m. S-Liberty B
Statistics Surveys Editorial Meeting
Organizer(s): Elyse Gustafson, Institute of Mathematical Statistics

7:30 a.m.–9:00 a.m. W-Webster
Carnegie Mellon Alumni and Faculty Breakfast
Organizer(s): Margaret Smykla, Carnegie Mellon

7:30 a.m.–9:00 a.m. W-Alcott
Committee on Privacy and Confidentiality Business Meeting
Chair(s): Julia Lane, American Institutes for Research

7:30 a.m.–9:00 a.m. S-Seaport Ballroom B
Social Statistics Executive Committee Meeting (Closed)
Chair(s): Robert Santos, Urban Institute

7:30 a.m.–11:00 a.m. S-Flagship B
Statistics in Biopharmaceutical Research Editorial Board Meeting
Chair(s): Jose C. Pinheiro, Janssen



7:30 a.m.–12:00 p.m. S-Seaport Ballroom C
Biopharmaceutical Section Executive Committee Meeting

Chair(s): *Maria Matilde Sanchez-Kam, Arena Pharmaceuticals*

8:00 a.m.–9:00 a.m. W-Common Wealth Ballroom B
Astrostatistics Interest Group

Chair(s): *Jessi Cisewski, Carnegie Mellon; Thomas Lee, University of California, Davis; David van Dyk, Imperial College London*

8:00 a.m.–9:30 a.m. S-Constitution
Communications in Statistics Editorial Board Meeting

Organizer(s): *Narayanaswamy Balakrishnan, McMaster University*

8:30 a.m.–10:30 a.m. W-Adams
Advisory Committee on Continuing Education Business Meeting

Chair(s): *John Gabrosek, Grand Valley State University*

8:30 a.m.–10:30 a.m. W-Common Wealth Ballroom A
Diversity Mentoring Program (Closed)

Chair(s): *Sydeaka Watson, University of Chicago*

10:00 a.m.–10:30 a.m. CC-Northeast Lobby B1, Northeast Lobby Level 2, and Northwest Lobby Level 2

Coffee Break

Sponsored by Sanofi

10:00 a.m.–11:00 a.m. W-Douglass
Transportation Statistics Interest Group Business Meeting

Chair(s): *Li Leung, USDOT/RITA/BTS*

10:30 a.m.–12:00 p.m. W-Frost Boardroom
Council of Chapters Governing Board Executive Meeting

Chair(s): *John Stevens, Utah State University*

10:30 a.m.–12:00 p.m. W-Alcott
Council of Chapters Governing Board Chapter Status Committee Meeting

Chair(s): *Mary Kwasny, Northwestern University*

11:30 a.m.–1:30 p.m. W-Bulfinch
Developing Training in Statistical Leadership Workgroup

Chair(s): *Janet Buckingham, Southwest Research Institute*

12:00 p.m.–2:00 p.m. W-Faneuil
ASA-Significance Media Luncheon

12:00 p.m.–2:00 p.m. S-Plaza Ballroom B
Annals of Applied Statistics Editorial Meeting

Organizer(s): *Elyse Gustafson, Institute of Mathematical Statistics*

12:00 p.m.–5:00 p.m. W-Alcott
Council of Chapters Governing Board Meeting

Chair(s): *John Stevens, Utah State University*

12:30 p.m.–2:00 p.m. S-Flagship A
Section on Statistical Computing Executive Committee Meeting

Chair(s): *Michael Minnotte*

12:30 p.m.–2:00 p.m. S-Seaport Ballroom A
Statistics in Medicine Editorial Board Meeting Luncheon

Organizer(s): *Ralph D'Agostino Sr., Boston University; LeiLanie D'Agostino,*

12:30 p.m.–2:00 p.m. S-Liberty B
Committee on Funded Research Business Meeting

Chair(s): *Stephan R. Sain, NCAR*

12:30 p.m.–2:00 p.m. W-Common Wealth Ballroom A
2015 JSM Program Committee Meeting

Chair(s): *Annie Qu, University of Illinois at Urbana-Champaign*

12:30 p.m.–2:00 p.m. W-Executive Board Room
Committee on Women in Statistics Business Meeting

Chair(s): *Dalene Stangl, Duke University*

12:30 p.m.–2:00 p.m. S-Liberty A
Section on Medical Devices and Diagnostics Officers Meeting

Chair(s): *Richard Kotz, FDA/CDRH*

12:30 p.m.–2:00 p.m. W-Webster
JBES Associate Editor Luncheon (Closed)

Chair(s): *Jamie Hutchens, JBES*

12:30 p.m.–2:30 p.m. W-Hale
JCGS Editors Lunch

Chair(s): *Thomas Lee, University of California, Davis*

2:00 p.m.–3:00 p.m. CC-Hall B2
Popcorn Break
Sponsored by XLSTAT

3:00 p.m.–4:30 p.m. W-Adams
STATCOM Annual Meeting

Organizer(s): *Andrew Hoegh, Virginia Tech*

4:00 p.m.–7:00 p.m. W-Common Wealth Ballroom A
CAUSE Business Meeting and MOSAIC Reception

Organizer(s): *Dennis Pearl, Ohio State University*

4:30 p.m.–6:00 p.m. W-Frost Boardroom
Section on Statistics and the Environment Business

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Meeting

Chair(s): Alix I. Gitelman, Oregon State University

5:00 p.m.–6:00 p.m. CC-157A
Teaching Analytics to MBA Students: Textbooks and Software

Organizer(s): Daniel Fylstra, Frontline Systems

5:00 p.m.–6:00 p.m. W-Executive Board Room
Journal of Quality Technology Editorial Review Board Meeting

Organizer(s): Bradley Jones, SAS Institute

5:00 p.m.–7:00 p.m. W-Grand Ballroom A
NISS/SAMSI Reception

Organizer(s): Alan F. Karr, NISS

5:00 p.m.–7:00 p.m. CC-259B
UCLA Department of Statistics Meeting

Organizer(s): Frederic Schoenberg, University of California, Los Angeles

5:00 p.m.–7:00 p.m. W-Grand Ballroom D
University of Washington Department of Biostatistics Alumni Reception

Organizer(s): MÚnica Feli' -MÚjer, University of Washington

5:00 p.m.–8:00 p.m. W-Grand Ballroom B

Department of Statistics, Aggie Reunion

Organizer(s): Simon Sheather, Texas A&M

5:00 p.m.–8:00 p.m. CC-157C
Section on Statistics in Epidemiology Business Meeting

Chair(s): John Neuhaus, University of California, San Francisco

5:00 p.m.–8:00 p.m. W-CityBar
HPSS Mixer

Chair(s): Marc N. Elliott, RAND Corporation

5:30 p.m.–7:00 p.m. S-Plaza Ballroom A
Social Statistics Business Committee Meeting

Chair(s): Robert Santos, Urban Institute

5:30 p.m.–7:00 p.m. S-Lighthouse II
Biometrics Section Mixer and Business Meeting

Chair(s): Michael Daniels, University of Texas at Austin

5:30 p.m.–7:00 p.m. S-Constitution
Alumni and Friend Reception UNC Chapel Hill Depts. of Biostatistics and Statistics and Operations Research

Organizer(s): Michael Kosorok

5:30 p.m.–7:00 p.m. W-Hancock

Monday



your data analysis solution

A special thanks to XLSTAT for its support of this event

STUDENT MIXER

Monday, August 4
6:00 p.m.

Seaport Boston Hotel
Lighthouse I



TSHS Section Business Meeting and Mixer

Chair(s): Constantine Daskalakis, Thomas Jefferson University

5:30 p.m.–7:00 p.m. CC-157B

Section on Medical Devices and Diagnostics Section Meeting

Chair(s): Richard Kotz, FDA/CDRH

5:30 p.m.–7:30 p.m. S-Flagship B

Colorado State Alumni and Friends Reception

Organizer(s): Jean Opsomer, Colorado State University

5:30 p.m.–7:30 p.m. W-Grand Ballroom C

Statistical Society of Canada Reception

Organizer(s): Albert John Petkau, University of British Columbia

5:30 p.m.–7:30 p.m. W-Harbor Ballroom III

Q&P/SPES Mixer

Chair(s): Diane Michelson, SAS Institute

5:30 p.m.–7:30 p.m. S-Flagship A

Cytel Celebration

Organizer(s): Cyrus Mehta, Cytel

6:00 p.m.–7:00 p.m. W-Webster

ASA President's Invited Speaker Reception (By Invitation Only)

6:00 p.m.–7:30 p.m. W-Bulfinch

ASA/AMATYC Joint Committee Meeting

Chair(s): Mary Moynihan, Cape Cod Community College

6:00 p.m.–7:30 p.m. W-Alcott

Business and Economic Statistics Section Executive Committee Meeting (Closed)

Chair(s): Carol Corrado, The Conference Board

6:00 p.m.–7:30 p.m. W-Adams

Christian Statisticians Informal Discussion Group

Organizer(s): Jason Wilson, Biola University

6:00 p.m.–7:30 p.m. W-Grand Ballroom E

University of Michigan JSM Joint Alumni Reception

6:00 p.m.–7:30 p.m. S-Seaport Ballroom A

Section on Statistics and the Environment Mixer

Chair(s): Alix I. Gitelman, Oregon State University

6:00 p.m.–7:30 p.m. S-Seaport Ballroom C

Section on Risk Analysis and Section on Defense and National Security Joint Business Meeting

Chair(s): Edsel A. Pena, University of South Carolina

6:00 p.m.–7:30 p.m. CC-156B

Korean International Statistical Society Annual Meeting

Organizer(s): Dongseok Choi, Oregon Health & Science University

6:00 p.m.–8:00 p.m. W-Harbor Ballroom II

Sections on Statistical Computing and Graphics Business Meeting

Chair(s): Michael Minnotte,

6:00 p.m.–8:00 p.m. W-Douglass

Annals of Statistics Editorial Meeting

Organizer(s): Elyse Gustafson, Institute of Mathematical Statistics

6:00 p.m.–8:00 p.m. S-Lighthouse I

JSM Student Mixer

Sponsored by XLSTAT

6:30 p.m.–7:30 p.m. S-Plaza Ballroom C

ASA Longtime Member Reception (By Invitation Only)

Sponsored by Westat and RTI International

6:30 p.m.–9:00 p.m. Offsite

Harvard Statistics Alumni and Friends Reunion

Organizer(s): Mark Glickman, Boston University

7:00 p.m.–8:30 p.m. S-Liberty B

Survey Research Methods Section Executive Committee Meeting

Chair(s): Phillip Kott, RTI International

8:30 p.m.–10:30 p.m. S-Seaport Ballroom B

Peking University Alumni Reception

Professional Development (Fee Events)

CE_12C

A Statistician's Guide to Analyzing Unstructured Textual Data

8:00 a.m.–12:00 p.m. CC-160A

ASA

Instructor(s): Goutam Chakarborty, Oklahoma State University

CE_44P

Strategic Career Management

8:00 a.m.–12:00 p.m. CC-158

ASA

Instructor(s): Janet Bickel, Leadership and Career Development Coach and Consultant

CE_13C

Take Your R Skills to the Next Level

8:30 a.m.–5:00 p.m. CC-160C

ASA, Section for Statistical Programmers and Analysts

Instructor(s): Isabella R. Ghement, Ghement Statistical Consulting

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Company

CE_14C

Design and Analysis of Noninferiority Trials

8:30 a.m.–5:00 p.m. CC-162AB

ASA, Biopharmaceutical Section

Instructor(s): Brian Wiens, Alcon

CE_15C

Nonparametric Bayesian Data Analysis

8:30 a.m.–5:00 p.m. CC-160B

ASA, Section on Bayesian Statistical Science

Instructor(s): Peter Mueller, University of Texas at Austin; Fernando Quintana, Pontificia Universidad Católica de Chile

CE_16C

Missing Data Methods for Regression Modeling

8:30 a.m.–5:00 p.m. CC-161

ASA, Biometrics Section

Instructor(s): Joseph Ibrahim, University of North Carolina

CE_17C

The Design and Analysis of Experiments That Use Computer Simulators

8:30 a.m.–5:00 p.m. CC-159

ASA, Section on Physical and Engineering Sciences

Instructor(s): Thomas J. Santner, Ohio State University; Brian J. Williams, Los Alamos National Laboratory

CE_18C

Meta-Analysis: Combining the Results of Multiple Studies

1:00 p.m.–5:00 p.m. CC-160A

ASA, Health Policy Statistics Section

Instructor(s): Christopher Schmid, Brown University; Ingram Olkin, Stanford University

CE_45P

Effective Presentations for Statisticians

1:00 p.m.–5:00 p.m. CC-158

ASA

Instructor(s): Jennifer van Mullekom, DuPont; Bob Starbuck, Wyeth (retired)

Roundtables with Coffee 7:00 a.m.–8:15 a.m.

**89 CC-Ballroom West
Mental Health Statistics Section A.M.
Roundtable Discussion (Fee Event)**

Mental Health Statistics Section

Organizer(s): Nicholas J. Horton, Amherst College

MLo1 Implications of a Clinical Observership of Patients for a Methodologist: a

Transdisciplinary Approach—◆ Douglas Gunzler, Case Western Reserve University

**90 CC-Ballroom West
Quality and Productivity Section A.M.
Roundtable Discussion (Fee Event)**

Quality and Productivity Section

Organizer(s): Alix Robertson, Sandia National Laboratories

MLo2 The Use of Bayesian Methods in Reliability Data Analyzes and Modeling—◆ William Q. Meeker, Iowa State University

**91 CC-Ballroom West
Section on Physical and Engineering
Sciences A.M. Roundtable Discussion
(Fee Event)**

Section on Physical and Engineering Sciences

MLo3 What's It Like to Be a Statistician in the Physical and Engineering Sciences?—◆ Tena Katsaounis, Ohio State University

**92 CC-Ballroom West
Section on Statistical Education A.M.
Roundtable Discussion (Fee Event)**

Section on Statistical Education

Organizer(s): Erin Blankenship, University of Nebraska-Lincoln

MLo4 Qualified Adjuncts Who Can Teach Statistics: Where Are They Hiding?—◆ Dexter Whittinghill, Rowan University

MLo5 Capstone Experiences: How Should They Fit into Our Curriculum?—◆ Christopher J. Malone, Winona State University

MLo6 Teaching Introductory Statistics from a Bayesian Perspective—◆ Jim Albert, Bowling Green State University

**93 CC-Ballroom West
Section on Statistics and the
Environment A.M. Roundtable
Discussion (Fee Event)**

Section on Statistics and the Environment

Organizer(s): Edward L. Boone, Virginia Commonwealth University

Monday



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● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

ML07 **Pushing the Limits of Spatial Extreme Value Analysis**—◆ Brian Reich, North Carolina State University

94 **Section on Statistics in Epidemiology A.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Section on Statistics in Epidemiology

Organizer(s): *Haitao Chu, University of Minnesota*

ML08 **Measurement Error and Misclassifications: New Opportunities for Research and Applications**—◆ Donna Spiegelman, Harvard School of Public Health

95 **Section on Teaching of Statistics in the Health Sciences A.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Section on Teaching of Statistics in the Health Sciences

Organizer(s): *Jeff Szychowski, University of Alabama*

ML09 **Teaching Statistics to Medical Researchers Using an Online Program: Experience from the Harvard Catalyst Certificate in Applied Biostatistics**—◆ Brian Healy, Massachusetts General Hospital

96 **Social Statistics Section A.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Social Statistics Section

Organizer(s): *Barbara Downs, U.S. Census Bureau*

ML10 **Constructing New Racial/Ethnic and State-Level Indices of Child Well-Being**—◆ Mark Mather, Population Reference Bureau

Invited Sessions 8:30 a.m.–10:20 a.m.

97 **Building Precursors to Big Data:** **CC-206A**

Teaching Undergraduate Data Science Early and Often—Invited

Section on Statistical Education, Section on Physical and Engineering Sciences, Section on Teaching of Statistics in the Health Sciences, Statistics in Business Schools Interest Group, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): *Nicholas J. Horton, Amherst College*

Chair(s): *Brianna Heggeseth, Williams College*

- 8:35 a.m. **Preparing Students for Big Data Using R and Rstudio**—◆ Randall Pruim, Calvin College
- 8:55 a.m. **Thinking with Data in the Second Course**—◆ Nicholas J. Horton, Amherst College; Ben S. Baumer, Smith College; Hadley Wickham, RStudio
- 9:15 a.m. **Getting Started with Data Science**—◆ Daniel Theodore Kaplan, Macalester College
- 9:35 a.m. **Moving Toward Big Data Using Long-Term Projects, Capstones, and Culminating Experiences**—◆ Julie Marie Legler, St. Olaf College; Paul Roback, St. Olaf College
- 9:55 a.m. Disc: *Deborah Nolan, University of California, Berkeley*
- 10:15 a.m. **Floor Discussion**

98 **Recent Advances for the Analysis of Imperfectly Observed Data—Invited** **CC-157C**

IMS

Organizer(s): *Aurore Delaigle, University of Melbourne*

Chair(s): *Michael G. Schimek, Medical University of Graz*

- 8:35 a.m. **Functional and Structural Methods with Mixed Measurement Error and Misclassification in Covariates**—◆ Grace Yi, University of Waterloo; Yanyuan Ma, Texas A&M; Donna Spiegelman, Harvard School of Public Health; Raymond J. Carroll, Texas A&M
- 9:00 a.m. **Methodology for Deconvolution When the Error Distribution Is Unknown**—◆ Peter Hall, University of Melbourne; Aurore Delaigle, University of Melbourne
- 9:25 a.m. **Solution of Linear Inverse Problems Using Flexible Dictionaries**—◆ Marianna Pensky, University of Central Florida
- 9:50 a.m. **New Developments of Nonparametric Methods for Group Testing Data**—◆ Aurore Delaigle, University of Melbourne; Peter Hall, University of Melbourne
- 10:15 a.m. **Floor Discussion**

Monday



99 CC-153C **Approaches to Solving Challenges in Industrial Applications—Invited**

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Sanjib Basu, Northern Illinois University

Chair(s): Sanjib Basu, Northern Illinois University

- 8:35 a.m. **Statistical Challenges in Physical and Computational Experiments**—◆ Joanne R. Wendelberger, Los Alamos National Laboratory
- 9:00 a.m. **Statistical Solutions in Physical and Computational Experiments**—◆ Leslie M. Moore, Los Alamos National Laboratory
- 9:25 a.m. **Assessing Reliability of DoD Systems: Bayesian Assimilation Models and Methodologies in Reliability Growth Applications**—◆ Ananda Sen, University of Michigan
- 9:50 a.m. **Assessing Reliability of DoD Systems: Challenges to Applying Traditional Methods**—◆ Arthur Fries, Institute for Defense Analyses
- 10:15 a.m. **Floor Discussion**

100 CC-153B **Large-Scale Computational and Methodological Challenges with ‘Big Data’ in Environmental and Spatial Statistics—Invited**

International Indian Statistical Association, Section on Statistical Computing, Statistics Without Borders

Organizer(s): Bhramar Mukherjee, University of Michigan

Chair(s): Brent Coull, Harvard School of Public Health

- 8:35 a.m. **Spatial Statistics for Satellite Remote Sensing Data**—◆ Noel Cressie, NIASRA/University of Wollongong
- 8:55 a.m. **Computationally Efficient Analysis of Health Data Constructed via Data Linkage**—◆ Louise Ryan, University of Technology
- 9:15 a.m. **Dimension Reduction for Spatially Misaligned Multivariate Air Pollution Data**—◆ Adam Szpiro, University of Washington; Roman Jandarov, University of Washington; Joshua Keller, University of Washington

- 9:35 a.m. **Hierarchical Nearest-Neighbor Gaussian Process Models for Large Geostatistical Data**—◆ Sudipto Banerjee, University of Minnesota; Abhirup Datta, University of Minnesota; Andrew Oliver Finley, Michigan State University; Alan Gelfand, Duke University
- 9:55 a.m. **Disc: Montserrat Fuentes**, North Carolina State University
- 10:15 a.m. **Floor Discussion**

101 CC-260 **Statistical Problems in Cancer Genomics—Invited**

WNAR, Section on Physical and Engineering Sciences

Organizer(s): Elizabeth Purdom, University of California, Berkeley

Chair(s): Elizabeth Purdom, University of California, Berkeley

- 8:35 a.m. **Inference of Human Tumor Growth Dynamics Through Integrative Genomics and Spatial Mathematical Modeling**—◆ Christina Curtis, University of Southern California Keck School of Medicine
- 9:00 a.m. **Mikado: Greatly Improved Parent-Specific Copy Number Inference in Tumors**—◆ Henrik Bengtsson, University of California, San Francisco; Pierre Neuvial, French National Center for Scientific Research/University of Evry
- 9:25 a.m. **MuSE: Somatic Evolution Estimation for Mutation Calling in Sequencing Data of Matched Tumor-Normal Samples**—Yu Fan, MD Anderson Cancer Center; Liu Xi, Baylor College of Medicine; David Wheeler, Baylor College of Medicine; ◆Wenyi Wang, MD Anderson Cancer Center
- 9:50 a.m. **Universal Blocks of Aberrant Methylation in Cancer Blocks**—◆ Rafael Irizarry, Dana-Farber Cancer Institute
- 10:15 a.m. **Floor Discussion**

102 CC-156C **Graphical Models and Their Applications in Health Studies—Invited**

General Methodology, Mental Health Statistics Section, Statistics Without Borders, Conference on Statistical Practice Steering Committee

Organizer(s): Yihong Zhao, New York University

Chair(s): Yihong Zhao, New York University

- 8:35 a.m. **Hierarchical Bayesian Graphical Models in Genomics**—◆ Riten Mitra, University of Louisville; Yuan Ji, NorthShore University HealthSystem; Peter Mueller, University of Texas at Austin
- 9:00 a.m. **Poisson Graphical Models**—◆ Pradeep Ravikumar, University of Texas at Austin; Eunho Yang,

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

University of Texas at Austin; Genevera Allen, Rice University/Baylor College of Medicine; Zhandong Liu, Baylor College of Medicine

9:25 a.m. **Power to Detect Intervention Effects on Ensembles of Social Networks**—◆Tracy Sweet, University of Maryland; Brian Junker, Carnegie Mellon

9:50 a.m. Disc: W. Scott Comulada, University of California, Los Angeles

10:15 a.m. **Floor Discussion**

103 CC-151B **● Evolving Perspectives on Causal Mediation Analysis—Invited**

Mental Health Statistics Section, Health Policy Statistics Section

Organizer(s): Booil Jo, Stanford University

Chair(s): Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health

8:35 a.m. **A Unification of Mediation and Interaction: A Four-Way Decomposition**—◆Tyler VanderWeele, Harvard

8:55 a.m. **Identification and Estimation of Causal Mediation Effects with Treatment Noncompliance**—◆Tepei Yamamoto, MIT

9:15 a.m. **Joint Use of Mediation and Principal Stratification Approaches**—◆Booil Jo, Stanford University; Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health

9:35 a.m. Disc: Kosuke Imai, Princeton University

9:55 a.m. Disc: Fabrizia Mealli, University of Florence

10:15 a.m. **Floor Discussion**

104 CC-157B **Functional Data Analysis: Beyond the Standard Paradigm—Invited**

Korean International Statistical Society

Organizer(s): Cheolwoo Park, University of Georgia

Chair(s): Yehua Li, Iowa State University

8:35 a.m. **Treatment Effect Modifiers Based on Functional Data**—◆R. Todd Ogden, Columbia University; Adam Ciarleglio, New York University School of Medicine; Eva Petkova, New York University School of Medicine; Thaddeus Tarpey, Wright State University

9:00 a.m. **Functional Data Analysis for Three-Dimensional Curves**—◆Juhyun Park, Lancaster University

9:25 a.m. **Nonparametric Covariance Estimation with Shrinkage Toward Stationary Models**—◆Yoonkyung Lee, Ohio State University; Tayler Blake, Ohio State University

9:50 a.m. Disc: Sebastian A. Kurttek, Ohio State University

10:10 a.m. **Floor Discussion**

105 CC-213 **● Social Media Analysis—Invited**

Social Statistics Section, Government Statistics Section, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Daniel Kasprzyk, NORC at the University of Chicago

Chair(s): Daniel Kasprzyk, NORC at the University of Chicago

8:35 a.m. **Reducing Selection Bias in Social Media Data for Estimating County Health Statistics**—◆Aron Culotta, Illinois Institute of Technology

9:00 a.m. **Using Social Media Data to Predict Survey Responses: A Comparison to Multiple Imputation**—◆Ashley Richards, RTI International; Joe Murphy, RTI International; Darryl Creel, RTI International; Justin Landwehr, RTI International

9:25 a.m. **Comparing Public Opinion Polling with Social Media Listening for Purposes of Communications Research**—◆Jennifer Hunter Childs, U.S. Census Bureau; Monica Wroblewski, U.S. Census Bureau

9:50 a.m. **Competitor or Compliment: Social Media Analysis and Social Science Research**—◆Martin Barron, NORC at the University of Chicago

10:15 a.m. **Floor Discussion**

106 CC-151A **● Genomic Privacy: Risk and Protection Methods—Invited**

Committee on Privacy and Confidentiality, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Aleksandra Slavkovic, Penn State

Chair(s): Avi Goldfarb, University of Toronto

8:35 a.m. **Concentrated Differential Privacy**—Cynthia Dwork, Microsoft; ◆Guy Rothblum, Microsoft

8:55 a.m. **Anonymization of Phenotypic Data to Support Genotype Association Studies**—◆Bradley Malin, Vanderbilt University

9:15 a.m. **Scalable Privacy-Preserving Data Sharing Methodology for Genome-Wide Association**

Monday



Studies—◆ Fei Yu, Carnegie Mellon; Stephen Fienberg, Carnegie Mellon; Aleksandra Slavkovic, Penn State; Caroline Uhler, Institute of Science and Technology

- 9:35 a.m. **On Sharing Quantitative Trait GWAS Results in an Era of Multiple-Omics Data and the Limits of Genomic Privacy**—◆ Hae Kyung Im, University of Chicago; Eric R. Gamazon, University of Chicago; Dan Nicolae, University of Chicago; Nancy J. Cox, University of Chicago
- 9:55 a.m. Disc: Julia Lane, American Institutes for Research
- 10:05 a.m. Disc: Aleksandra Slavkovic, Penn State
- 10:15 a.m. **Floor Discussion**

107 CC-258A **Statistical Methods for Modern Complex-Structured Imaging Data—Invited**

Biometrics Section, Section on Statistics in Imaging, International Indian Statistical Association

Organizer(s): Veera Baladandayuthapani, MD Anderson Cancer Center
Chair(s): Veera Baladandayuthapani, MD Anderson Cancer Center

- 8:35 a.m. **Statistical Methods for the Study of Human Functional Brain Connectivity**—◆ Brian Scott Caffo, Johns Hopkins University
- 9:00 a.m. **Additive and Interaction Models for Nonparametric Regression of Biomedical Imaging Data, with Application to Ophthalmological Multi-Level Data on the Sphere**—◆ Jeffrey S. Morris, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 9:25 a.m. **Analysis of Multiple Sclerosis Lesions via a Bivariate Spatial GLM with Spatially Varying Coefficients**—◆ Timothy Duane Johnson, University of Michigan
- 9:50 a.m. **SGPP: Spatial Gaussian Predictive Process Models for Neuroimaging Data**—◆ Hongtu Zhu, University of North Carolina at Chapel Hill; Jung Won Hyun, St. Jude Children's Research Hospital; Yimei Li, St. Jude Children's Research Hospital
- 10:15 a.m. **Floor Discussion**

108 CC-104B **New Advances in Sensitivity Test Procedures and Their Impact on DoD System Characterization—Invited**

Section on Statistics in Defense and National Security, Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Douglas Ray, Picatinny Arsenal
Chair(s): Alyson Wilson, NCSU

- 8:35 a.m. **Three-Phase Optimal Design of Sensitivity Experiments (3pod): Review and Its Performance Comparisons**—◆ C. F. Jeff Wu, Georgia Institute of Technology
- 8:55 a.m. **New Advances in Sensitivity Test Procedures in DoD Test Protocols**—◆ Laura Freeman, IDA; Thomas Johnson, IDA
- 9:15 a.m. **Sensitivity Test Procedures and Their Impact on DoD System Characterization**—◆ Douglas Ray, Picatinny Arsenal; Paul Roediger, UTRS; Barry Neyer, Excelitas Technologies
- 9:35 a.m. **The Sign of the Logistic Regression Coefficient**—◆ Paul Roediger, UTRS; Art Owen, Stanford University
- 9:55 a.m. **Comparison of Test Designs via Simulation**—◆ Barry Neyer, Excelitas Technologies
- 10:15 a.m. **Floor Discussion**

Invited Panel 8:30 a.m.–10:20 a.m.

109 CC-204B **Do You See What I See? Formal Usability Testing and Statistical Graphics—Invited**

Section on Statistical Graphics

Organizer(s): Marie C. Vendettuoli, USDA/APHIS/CVB
Chair(s): Lendie Follett, Iowa State University

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Panelists: ◆ Marie C. Vendettuoli, USDA/APHIS/CVB
 ◆ Matthew Williams, USDA/NASS
 ◆ Susan Ruth VanderPlas, Iowa State University

10:15 a.m. **Floor Discussion**

Chair(s): Natalie Hall, Eli Lilly and Company

8:35 a.m. **Does R Provide What Customer Need?**—◆ Vipin Arora, Eli Lilly and Company

8:55 a.m. **Doing Reproducible Research Unconsciously: Higher Standard, but Less Work**—◆ Yihui Xie, Rstudio

9:15 a.m. **Statistical Strategies to Improve the Reliability of Observational Studies**—Jyoti Rayamajhi, Eli Lilly and Company; ◆ S. Stanley Young, NISS

9:35 a.m. **The Reproducibility Initiative: A Potential Solution to the Irreproducibility Problem**—◆ Elizabeth Iorns, Science Exchange

9:55 a.m. **Floor Discussion**

Topic-Contributed Sessions 8:30 a.m.–10:20 a.m.

110 CC-259A ● **Causal Inference in Novel High-Dimensional Settings—Topic-Contributed**

ENAR, WNAR

Organizer(s): Edward Kennedy,

Chair(s): Edward Kennedy,

8:35 a.m. **A Comparison of Confounding Adjustment Methods for Assessment of Asthma Controller Medication Effectiveness**—◆ Lingling Li, Harvard Pilgrim Health Care Institute; William Vollmer, Kaiser Permanente; Melissa G. Butler, Kaiser Permanente; Pingsheng Wu, Vanderbilt University School of Medicine; Elyse O. Kharbanda, HealthPartners Institute for Education and Research; Ann Chen Wu, Harvard Pilgrim Health Care Institute

8:55 a.m. **High-Dimensional Confounder Reduction for the Estimation of a Causal Quantity**—◆ Mireille Schnitzer,

9:15 a.m. **Causal Inference with Social Network Data: Inflated Effective Sample Sizes, Deflated Standard Errors, and Other Perils**—◆ Elizabeth Ogburn, Johns Hopkins University

9:35 a.m. **Nested Markov Models for Structure Learning in the Presence of Confounding**—◆ Thomas Richardson, University of Washington; James Robins, Harvard School of Public Health; Ilya Shpitser, University of Southampton; Robin J. Evans, University of Oxford

9:55 a.m. **Floor Discussion**

112 CC-102B ■ ● **Risk Management in Financial Markets—Topic-Contributed**

Section on Risk Analysis

Organizer(s): Ta-Hsin Li, IBM Research

Chair(s): Ta-Hsin Li, IBM Research

8:35 a.m. **Statistical Methods for Large Portfolio Risk Management**—◆ Jian Zou, Indiana University-Purdue University Indianapolis

8:55 a.m. **Working Capital Management, the Credit Crisis, and Hedging Strategies: Canadian Evidence**—◆ Robert Kieschnick, University of Texas at Dallas; Wendy Rotenberg, University of Toronto

9:15 a.m. **Fractional Levy Model with Time-Varying Volatility in High-Frequency Trading Market**—◆ Young Shin Aaron Kim, Stony Brook University; James Glimm, Stony Brook University; Svetlozar T. Rachev, Stony Brook University

9:35 a.m. **Statistical Analysis of Proportional Data with Many Zeros in Financial Applications**—◆ Kaisheng Song, University of North Texas

9:55 a.m. **Bayesian Smoothing and Risk Analysis of Multivariate Models**—◆ Dongchu Sun, University of Missouri-Columbia; Shawn Ni, University of Missouri; Paul L. Speckman, University of Missouri

111 CC-104C ■ ● **Hot Topics in Reproducibility and Replication: Impact on Statisticians and Statistical Programmers—Topic-Contributed**

Section for Statistical Programmers and Analysts

Organizer(s): Hsiu-Yung Cindy Lee, Eli Lilly and Company

Monday



10:15 a.m. Floor Discussion

John Joseph Peterson, GlaxoSmithKline; Paul McAllister, GlaxoSmithKline

9:55 a.m. Disc: Stan Altan, Janssen

10:15 a.m. Floor Discussion

113 **CC-257B**
Go/No-Go: The Practice for Developing Best-in-Class Product from Statistical Perspective—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Xuan Liu, AbbVie

Chair(s): Jun Zhao, AbbVie

8:35 a.m. **Futility Boundary Design Based on Probability of Success Under New Drug Development Paradigm—**◆Yijie Zhou, AbbVie; Ruji Yao, Merck; Bo Yang, AbbVie; Ram Suresh, GlaxoSmithKline

8:55 a.m. **Evaluation of Program Success for Programs with Multiple Trials in Binary Outcomes—**◆Meihua Wang, Merck; Frank Liu, Merck; Jerald Schindler, Merck

9:15 a.m. **Selection of Development Pathways with Established or Exploratory Biomarkers—**◆Ming-Xiu Hu, Takeda; Yi Liu, Takeda; Feng Gao, Takeda

9:35 a.m. **Go/No Go Criteria Based on a Joint Evaluation of Efficacy and Safety Using a Clinical Utility Index—**◆Theresa Ashton, GlaxoSmithKline; Ohad Amit, GlaxoSmithKline; Kert Viele, Berry Consultants

9:55 a.m. Disc: Bo Yang, AbbVie

10:15 a.m. Floor Discussion

114 **CC-257A**
Statistical Issues in Process Validation of Pharmaceutical Products—Topic-Contributed

Biopharmaceutical Section, Section on Physical and Engineering Sciences

Organizer(s): Katherine E.D. Giacoletti, McNeil Consumer Healthcare/Johnson & Johnson

Chair(s): Katherine E.D. Giacoletti, McNeil Consumer Healthcare/Johnson & Johnson

8:35 a.m. **Challenges in Inferring Statistical Results from Scale-Down to Manufacturing Scale—**◆Daniel Coleman, Genentech

8:55 a.m. **Developing Process Performance Qualification (PPQ) Acceptance Criteria for a Large Molecule Product with Limited Data—**◆Brenda Ramirez, Amgen

9:15 a.m. **Using the ‘Science of Quality’ to Develop a Process Validation Lifecycle Plan for Pharmaceutical Products—**◆Helen Strickland, GlaxoSmithKline

9:35 a.m. **Determining the Number of Process Performance Qualification Batches—**◆Richard Lewis, GlaxoSmithKline; Bill Henry, GlaxoSmithKline;

115 **CC-254B**
Advances in Mediation Analysis—Topic-Contributed

Section on Statistics in Epidemiology, Health Policy Statistics Section

Organizer(s): Dylan Small, University of Pennsylvania

Chair(s): Dylan Small, University of Pennsylvania

8:35 a.m. **Bayesian Inference for Causal Mechanisms with Application to a Randomized Study for Postoperative Pain Control—**◆Alessandra Mattei, University of Florence; Michela Baccini, University of Florence; Fabrizia Mealli, University of Florence

8:55 a.m. **A Bayesian Approach to the Causal Effect of Multiple Mediators with Sensitivity Analysis—**◆Chanmin Kim, University of Texas at Austin; Michael Daniels, University of Texas at Austin; Joseph Hogan, Brown University

9:15 a.m. **Instrumental Variable Approach for Mediation Analysis on Count and Zero-Inflated Count Data—**◆Zijian Guo, Wharton School; Jing Cheng, University of California, San Francisco; Dylan Small, University of Pennsylvania; Stuart Gansky, University of California, San Francisco

9:35 a.m. **Mediation Analysis of Randomized Experiments—**◆Stijn Vansteelandt, Ghent University; Sjouke Vandenberghe, Ghent University

9:55 a.m. **Advances in Mediation Analysis—**Eric Tchetgen, Harvard School of Public Health; Tyler VanderWeele, Harvard; ◆Caleb Miles, Harvard

10:15 a.m. Floor Discussion

116 **CC-203**
Hierarchical Bayesian Models to Support Next-Generation Climate Data Products—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Andrew Oliver Finley, Michigan State University

Chair(s): Soutir Bandyopadhyay, Lehigh University

8:35 a.m. **A Hierarchical Bayesian Model for Regression-Based Climate-Change Detection and Attribution—**◆Matthias Katzfuss, Texas A&M; Dorit Hammerling, NCAR; Richard L. Smith, University of North Carolina

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 8:55 a.m. **Observation-Based Blended Projections from Ensembles of Regional Climate Models**—◆ Bruno Sanso, University of California, Santa Cruz
- 9:15 a.m. **To Grid or Not to Grid: Modeling Aggregation Biases in Climate Data Products**—◆ Luke Bornn, Harvard
- 9:35 a.m. **What Would a Statistician Do with 10 Seconds on a Super Computer?**—◆ Douglas Nychka, NCAR
- 9:55 a.m. **Modeling Spatio-Temporal Dynamics of the High Plains Aquifer Using a Dimension-Reducing Nearest-Neighbor Gaussian Process**—◆ Andrew Oliver Finley, Michigan State University; Sudipto Banerjee, University of Minnesota; Abhirup Datta, University of Minnesota
- 10:15 a.m. **Floor Discussion**

Chair(s): Promod Chandhok, DOT/RITA/BTS

- 8:35 a.m. **NHTSA's Data Modernization Project**—◆ Chou-Lin Chen, NHTSA/DOT; Fan Zhang, NHTSA/DOT
- 8:55 a.m. **Composite Measure of Size Evaluation and Primary Sampling Unit Formation for NHTSA's New National Automotive Sampling System**—◆ William Cecere, Westat; Rui Jiao, Westat; Martha Rozsi, Westat; Jacqueline Severynse, Westat; Sharon Lohr, Westat; James Green, Westat
- 9:15 a.m. **Estimating Population and Design Parameters for Nhtsa's New National Automotive Sampling System (Nass)**—◆ Rui Jiao, Westat; Yumiko Sugawara, Westat; Martha Rozsi, Westat; Sharon Lohr, Westat; James Green, Westat; William Cecere, Westat
- 9:35 a.m. **Creating a Flexible and Scalable Psu Sample for Nhtsa's New National Automotive Sampling System**—◆ Martha Rozsi, Westat; William Cecere, Westat; Sharon Lohr, Westat; James Green, Westat
- 9:55 a.m. **Multivariate Sample Design Optimization for NHTSA's New National Automotive Sampling System**—◆ Yumiko Sugawara, Westat; Barnali Das, Westat; Rui Jiao, Westat; James Green, Westat
- 10:15 a.m. **Floor Discussion**

117 CC-252A **Emerging Methods for Metagenomic Data—Topic-Contributed**

Biometrics Section

Organizer(s): Alexander V. Alekseyenko, Center for Health Informatics and Bioinformatics

Chair(s): Alexander V. Alekseyenko, Center for Health Informatics and Bioinformatics

- 8:35 a.m. **Waste Not, Want Not: Improved Normalization and Inference of Microbiome Data**—◆ Paul McMurdie, Stanford University
- 8:55 a.m. **Leveraging the Discrete and Continuous Structure of Phylogenetic Trees for the Analysis of Metagenomic Data**—◆ Frederick Matsen, Fred Hutchinson Cancer Research Center; Steven N. Evans, University of California, Berkeley; Brian Claywell, Fred Hutchinson Cancer Research Center
- 9:15 a.m. **Phylogeny-Constrained Sparse Models for the Analysis of Microbiome Data**—◆ Jun Chen,
- 9:35 a.m. **Regularized Estimation of Microbial Ecological Networks**—◆ Zachary Kurtz; Richard A. Bonneau, New York University; Christian L. Mueller, New York University; Emily Miraldi, New York University; Martin Blaser, NYU Lagone Medical Center; Eric J. Alm, MIT
- 9:55 a.m. **A Bayesian Approach Inferring Ecostates from Metagenomic Amplicon Data**—◆ John O'Brien, Bowdoin College
- 10:15 a.m. **Floor Discussion**

119 CC-209 **Measuring Consumer Payment Behavior Through Surveys and Diaries—Topic-Contributed**

Survey Research Methods Section, Section on Statistics in Marketing

Organizer(s): Kevin Foster, Federal Reserve Bank of Boston

Chair(s): Kevin Foster, Federal Reserve Bank of Boston

- 8:35 a.m. **Bayesian Item Response Analysis of Method-Of-Payment Habits in Banking Surveys**—◆ Kyle Vincent; Saman Muthukumarana, University of Manitoba; Jenna Tichon, University of Manitoba
- 8:55 a.m. **Retail Payment Innovations and Cash Usage: Accounting for Attrition Using Refreshment Samples**—◆ Heng Chen; Marie-Helene Felt, Bank of Canada; Kim Huynh, Bank of Canada
- 9:15 a.m. **Identifying Business and Consumer Payment Patterns from Bank Account Data: Estimating Partially Observed Distributions from Survey Data**—◆ Xuemei Liu, Federal Reserve Board; Geoffrey R. Gerdes, Federal Reserve Board
- 9:35 a.m. **Cash Sources and Sinks in Mexico**—◆ Benjamin Mazzotta, Tufts University
- 9:55 a.m. **Sample Selection Bias in Consumer Payment Surveys**—◆ Marcin Hitzenko,
- 10:15 a.m. **Floor Discussion**

118 CC-211 **Issues, Challenges, and Solutions in Modernizing NHTSA's NASS—Topic-Contributed**

Survey Research Methods Section, Government Statistics Section

Organizer(s): Promod Chandhok, DOT/RITA/BTS

Monday



<p>120 ■ Using Linked Survey and Administrative Data to Assess Measurement Error in Household Surveys—Topic-Contributed Business and Economic Statistics Section, Statistics Without Borders <i>Organizer(s): Bruce Meyer, University of Chicago</i> <i>Chair(s): Lars Vilhuber, Cornell University</i></p>	<p>CC-156B</p>	<p>8:55 a.m. Christopher Bollinger, University of Kentucky; Charles Hokayem, U.S. Census Bureau ; James Ziliak, University of Kentucky</p> <p>9:15 a.m. Misreporting in the SIPP About Participation in SSA Programs—◆Graton Gathright, U.S. Census Bureau</p> <p>9:35 a.m. Program Misreporting and Its Effects on Measures of Poverty and the Distribution of Income—◆Nikolas Mittag, CERGE-EI/Charles University; Bruce Meyer, University of Chicago</p> <p>9:55 a.m. Disc: David S. Johnson, U.S. Census Bureau</p> <p>10:15 a.m. Disc: Bruce Meyer, University of Chicago</p> <p>Floor Discussion</p>
<p>8:35 a.m. Trouble in the Tails? Earnings Nonresponse and Response Bias Across the Distribution Using Matched Household and Administrative Data—◆Barry Hirsch, Georgia State University;</p>		

JSM 2014 Speed Sessions

Be sure to catch a JSM speed session! Each speed session will consist of oral presentations of approximately five minutes each and floor discussion time, followed by a poster session later on the same day. All poster presentations will include use of the new electronic poster boards.

Speed Sessions

Topics in Epidemiology and Imaging

Part 1, Oral Presentations – Monday, August 4, 8:30 a.m. – 10:20 a.m., Room CC-255

Part 2, Poster Presentations – Monday, August 4, 10:30 a.m. – 11:15 a.m., Room CC-Hall B2

Topics in Biopharmaceutical Research and Statistical Programming and Analysis

Part 1, Oral Presentations – Monday, August 4, 10:30 a.m. – 12:20 p.m., Room CC-255

Part 2, Poster Presentations – Monday, August 4, 2:00 p.m. – 2:45 p.m., Room CC-Hall B2

Topics in Survey Research Methods and Applications

Part 1, Oral Presentations – Monday, August 4, 2:00 p.m. – 3:50 p.m., Room CC-255

Part 2, Poster Presentations – Tuesday, August 5, 10:30 a.m. – 11:15 a.m., Room CC-Hall B2

Topics in Epidemiology and Survey Research Methods

Part 1, Oral Presentations – Tuesday, August 5, 8:30 a.m. – 10:20 a.m., Room CC-255

Part 2, Poster Presentations – Tuesday, August 5, 11:35 a.m. – 12:20 p.m., Room CC-Hall B2

Topics in Nonparametric and Biopharmaceutical Statistics

Part 1, Oral Presentations – Tuesday, August 5, 10:30 a.m. – 12:20 p.m., Room CC-255

Part 2, Poster Presentations – Tuesday, August 5, 2:00 p.m. – 2:45 p.m., Room CC-Hall B2

Statistics in Epidemiology

Part 1, Oral Presentations – Wednesday, August 6, 8:30 a.m. – 10:20 a.m., Room CC-255

Part 2, Poster Presentations – Wednesday, August 6, 10:30 a.m. – 11:15 a.m., Room CC-Hall B2

Topic-Contributed Panels 8:30 a.m.–10:20 a.m.

121 CC-212

■ Valuing Life: Issues in Traffic Fatalities—Topic-Contributed

Government Statistics Section, Transportation Statistics Interest Group

Organizer(s): Li Leung, USDOT/RITA/BTS

Chair(s): David Banks, Duke University

Panelists: ◆ Linda Boyle, University of Washington

◆ Larry Blincoe, U.S. Department of Transportation

◆ Rolf Schmitt, USDOT/RITA/BTS

10:15 a.m. Floor Discussion

122 CC-102A

■ ● Statistical Analysis Applied to Next-Generation TV Audiences—Topic-Contributed

Section on Statistics in Marketing

Organizer(s): Mario A. Morales, Simulmedia

Chair(s): Alison Lowery, Simulmedia

Panelists: ◆ Josh Weinstein,

◆ Brendan Kitts, PrecisionDemand

◆ Yuliya Torosjan, Simulmedia

◆ Pete Doe, Nielsen

10:15 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.–10:20 a.m.

123 CC-255

Speed Session #1: Topics in Epidemiology and Imaging, Part 1—Contributed

Section on Statistics in Epidemiology, Section on Statistics in Imaging

Chair(s): Trevor R. Shaddox, University of California, Los Angeles

8:35 a.m. **A Framework for Classifying Relationships Using Dense SNP Data and Putative Pedigree Information—**◆ Zhen Zeng, University of Pittsburgh; Eleanor Feingold, University of Pittsburgh

8:40 a.m. **Job Stress and Job Satisfaction Among Medical Health Care Professionals—**◆ Abdul Salam, KAIMRC; Munir Abu-Helalah, KAIMRC; Khalid

Niaz, NGHA; Abu Elgasim Awad Mohamed Mansour, KAIMRC; Ali Ahmed Qarni, KAIMRC

8:45 a.m. **Cancer-Specific Penetrance Distribution Estimation for Families with Li-Fraumeni Syndrome—**◆ Seung Jun Shin, MD Anderson Cancer Center; Gang Peng, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center; Wenyi Wang, MD Anderson Cancer Center

8:50 a.m. **Eigenanalysis on SNP Data with an Interpretation of Identity by Descent—**◆ Xiuwen Zheng, University of Washington; Bruce Spencer Weir, University of Washington

8:55 a.m. **A Joint Test for Detecting Mean and Variance Heterogeneity Adjusting for Family Relatedness—**◆ Ying Cao, University of Texas Health Science Center at Houston; Taylor Maxwell, University of Texas Health Science Center at Houston; Peng Wei, University of Texas School of Public Health

9:00 a.m. **Effects of Quiescence and Senescence on Hematopoietic Stem Cell Population Dynamics and Extinction—**◆ Mary Sehl; Hua Zhou, North Carolina State University; Han Su Myat, University of California, Los Angeles; Trevor R. Shaddox, University of California, Los Angeles; Sanggu Kim, University of California, Los Angeles; Irvin S.Y. Chen, University of California, Los Angeles; Janet S.Y. Sinsheimer, University of California, Los Angeles; Kenneth L. Lange, University of California, Los Angeles

9:05 a.m. **Comparison of Variable Selection Methods for High-Dimensional Data in Applications to Genetic Association Studies with Gene-Environment Interactions—**◆ Jaejoon Song, MD Anderson Cancer Center; Michael Swartz, University of Texas Health Science Center at Houston

9:10 a.m. **Gene Expression-Based Predictive Models for Cancer Drug Sensitivity—**◆ Umut Ozbek, Icahn School of Medicine at Mount Sinai; Jaya Satagopan, Memorial Sloan Kettering Cancer Center

9:15 a.m. **Novel Statistical Network Methodology to Identify and Analyze Cancer Biomarkers—**◆ Thomas Bartlett,

9:25 a.m. **Fast Exact Bootstrap Principal Component Analysis for P>1 Million: Leveraging Low-Dimensional Structure Across High-Dimensional Bootstrap Samples—**◆ Aaron Fisher; Brian Scott Caffo, Johns Hopkins University; Vadim Zipunnikov, Johns Hopkins University

9:30 a.m. **Understanding How Treatments Affecting the Brain Work: Functional Rank Preserving Models for Causal Mediation—**◆ Yenny Webb-Vargas, Johns Hopkins Bloomberg School of Public Health; Michael Sobel,

Monday



- 9:35 a.m. Columbia University; Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health
Statistical Models for Imaging and Genetic Data in Cocaine Addiction—◆Shabnam Azadeh, MD Anderson Cancer Center; Brian P. Hobbs, MD Anderson Cancer Center; Frederick G. Moeller, Virginia Commonwealth University; Veera Baladandayuthapani, MD Anderson Cancer Center
- 9:40 a.m. **Statistical Tests for Group Differences in Brain Functional Networks**—◆Junghi Kim; Wei Pan, University of Minnesota
- 9:45 a.m. **Statistical Image Separation of Multiple Simultaneously Excited fMRI Slices Using a Single Coil**—◆Daniel Rowe, Marquette University
- 9:50 a.m. **Cross-Validation and Hypothesis Testing in Neuroimaging**—◆Lan Huo, NYU Child Study Center; Philip T. Reiss, New York University School of Medicine
- 9:55 a.m. **Improving Reliability of Subject- \neq Level Resting State Parcellation with Empirical Bayes**—◆Amanda Mejia; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health; Brian Scott Caffo, Johns Hopkins University
- 10:00 a.m. **A Monte Carlo Simulation Study Comparing Robust MSE, Jackknife, and Bootstrapping for Some Robust Regression Estimators in Brain Imaging Research**—◆Hung-Wen Yeh, University of Kansas Medical Center; Josh N. Powell, University of Kansas Medical Center; Cary R. Savage, University of Kansas Medical Center
- 10:05 a.m. **Longitudinal Changes in Brain Structure of Chronically Infected HIV Patients**—◆Jaroslav Harezlak, Indiana University Fairbanks School of Public Health and School of Medicine
- 10:10 a.m. **Analysis of Multi-Sequence Time Series Data from MS Lesions on Structural MRI**—◆Elizabeth Sweeney, Johns Hopkins Bloomberg School of Public Health; Russell Shinohara, University of Pennsylvania; Daniel S. Reich; Ciprian Crainiceanu, Johns Hopkins University; Ani Eloyan, Johns Hopkins University
- 10:15 a.m. **A Spatio-Temporal Approach to the Inference of Activations in fMRI Group Studies**—◆David Degras, DePaul University; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health

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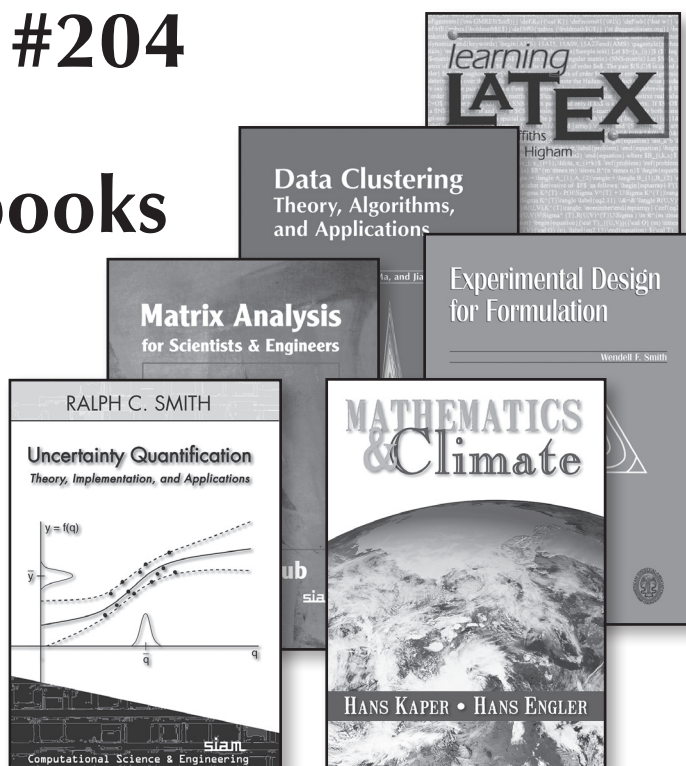
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Contributed Sessions 8:30 a.m.–10:20 a.m.
124 **CC-252B**
Recent Developments for the Analysis of Correlated and Clustered Data—Contributed

ENAR, WNAR

Chair(s): Wen Ye, University of Michigan

- 8:35 a.m. **The Minimum Required Number of Clusters in Cluster-Randomized Trials**—◆Zhiying You; Qing Li, Michigan State University
- 8:50 a.m. **Regression Calibration to Correct Correlated Errors in Outcome and Exposure**—◆Pamela Shaw, University of Pennsylvania ; Jiwei He, University of Pennsylvania; Bryan Shepherd, Vanderbilt University
- 9:05 a.m. **Evaluating Intervention and Mediator Effects on HIV/STI Risk Reduction When Mediators and Outcomes Are Measured Repeatedly**—◆Alisa Stephens; John Jemmott III, University of Pennsylvania; Marshall Joffe, University of Pennsylvania
- 9:20 a.m. **Comparison of Dependent Spearman Correlation Coefficients**—◆Bernard Rosner, Harvard Medical School; Wei Wang, Channing Division of Network Medicine; Heather Eliassen, Channing Division of Network Medicine; Eileen Hibert, Channing Division of Network Medicine
- 9:35 a.m. **Efficient Estimation of the Regression Parameter in Forward and Backward Recurrence Time Data Using the Accelerated Failure Time Model**—◆Pourab Roy, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill; Jason Fine, University of North Carolina at Chapel Hill
- 9:50 a.m. **Evaluating Quantile Regression for Health Care-Associated Infections Gap Time Data**—◆Jonathan Edwards, CDC
- 10:05 a.m. **Comparison of Methods for Analyzing Cluster Randomized Trials with Binary Outcomes When Cluster Size Varies and Intraclass Correlation Coefficients Are Unequal**—◆Sheng Wu, University of California, Los Angeles; Catherine Crespi, University of California, Los Angeles; Weng Kee Wong, University of California, Los Angeles

125 **CC-157A**
Model-Based Issues for Biostatistics Data—Contributed

SSC

Chair(s): Qian Zhou, Simon Fraser University

- 8:35 a.m. **Simultaneous Inference for Low-Dose Risk Estimation with Abbott-Adjusted Quantal Response Models in Benchmark Analysis**—◆Jianan Peng, Acadia University
- 8:50 a.m. **Checking Multistate Models Under Intermittent Observations**—◆Narges Nazeri Rad, University of Waterloo; Jerald F. Lawless, University of Waterloo
- 9:05 a.m. **Joint Location-Scale Testing in Genetic Association Studies**—◆David Soave, University of Toronto; Lei Sun, University of Toronto
- 9:20 a.m. **Model Misspecification and Model Checking for Survival Data with Covariate Measurement Error**—◆Ying Yan, University of Waterloo; Grace Yi, University of Waterloo
- 9:35 a.m. **Analysis of Mover-Stayer Models with Misclassified States**—◆Feng He, University of Waterloo; Grace Yi, University of Waterloo
- 9:50 a.m. **A Phase II–III Design with Biomarker-Guided Subpopulation Selection and Its Application to a Case Study of NCIC CTG Trial**—◆Keyue Ding, Queen’s University
- 10:05 a.m. **Opinion-Driven Behavioral Dynamics Model of Tobacco Product Use: Results and Validation**—◆Patrick Finley, Sandia National Laboratories; Thomas W. Moore, Sandia National Laboratories; Greg Lambert, Sandia National Laboratories; Nancy S. Brodsky, Sandia National Laboratories

126 **CC-251**
Biased Sampling Study Designs—Contributed

Biometrics Section

Chair(s): Kelly Kidwell, University of Michigan

- 8:35 a.m. **Analysis of Biased Sampling Designs in Longitudinal Data**—◆Leila Zelnick, University of Washington; Patrick Heagerty, University of Washington; Jonathan Schildcrout, Vanderbilt University
- 8:50 a.m. **Variable Selection for Case-Cohort Studies with Failure Time Outcome**—◆Andy Ni; Jianwen Cai, University of North Carolina at Chapel Hill
- 9:05 a.m. **Use Whole Cohort Information to Improve the Efficiency of Multivariate Marginal Hazard Model for Case-Cohort Studies**—◆Hongtao Zhang; Jianwen Cai, University of North Carolina at Chapel Hill



9:20 a.m. **More Efficient Inference of Marginal Structural Cox Models with Case-Cohort Sampling**—◆ Hana Lee; Michael G. Hudgens, University of North Carolina; Jianwen Cai, University of North Carolina at Chapel Hill

9:35 a.m. **Semiparametric Mean Residual Life Model for the Case-Cohort Study**—◆ Mu Zhao, Northwestern University; Hongmei Jiang, Northwestern University

9:50 a.m. **Supplementing Sub-Samples with Population Data via Calibration**—◆ Elizabeth Malecha, Harvard; Sebastien Haneuse, Harvard School of Public Health

10:05 a.m. **Floor Discussion**

127 CC-258C **Bayesian Designs in Clinical Trials—Contributed**

Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA)

Chair(s): Eric Frimpong, FDA

8:35 a.m. **Bayesian Adaptive Dose-Finding Designs in Drug Combination Clinical Trials**—◆ Yuehui Wu, GlaxoSmithKline; Tian Chen, GlaxoSmithKline

8:50 a.m. **A Bayesian Approach to Incorporate Prior Information in Interim Decisionmaking with Internal DMC**—◆ Gang Jia, Merck; Bruce Binkowitz, Merck; Paul DeLuca, Merck

9:05 a.m. **Designing a Time-to-Event Bayesian Clinical Trial That Incorporates Historical Data**—◆ Barry Eggleston, RTI International; Catellier Diane, RTI International; Joseph Ibrahim, University of North Carolina

9:20 a.m. **A Bayesian Optimal Design Using Natural Conjugate Prior Families in Two-Arm, Randomized Phase II Clinical Trials with Endpoints from Exponential Families**—◆ Wei Jiang, University of Kansas Medical Center; Jo A. Wick, University of Kansas Medical Center; Matthew S. Mayo, Kansas University Medical Center

9:35 a.m. **Considerations on Bayesian Dose Window Escalation: Part II**—◆ Xue Lin, FDA

9:50 a.m. **A Simple Method for Predicting a Binomial Response Rate in a Bayesian Interim Analysis of a Single-Arm Trial When Observing Responses and Failures Requires Prolonged Follow-Up**—◆ Gary Hantsbarger, Astellas

10:05 a.m. **A Bayesian Confirmatory Factor Model for Familial Data with Multiple Outcomes**—◆ Qiaolin Chen, Novartis; Robert E. Weiss, University of California, Los Angeles; Catherine A. Sugar, University of California, Los Angeles

128 CC-258B **Statistical Methods for Early Stopping and Go/No-Go Decision—Contributed**

Biopharmaceutical Section

Chair(s): Lihan Yan, FDA

8:35 a.m. **Properties of Covariate-Adjusted Response-Adaptive Designs with Early Stopping**—◆ Yaping Wang, University of Texas Health Science Center at Houston; Jack Lee, MD Anderson Cancer Center; Hongjian Zhu, University of Texas School of Public Health

8:50 a.m. **Group-Sequential Strategies When Considering Multiple Binary Outcomes as Co-Primary Endpoints**—◆ Toshimitsu Hamasaki, Osaka University Graduate School of Medicine; Koko Asakura, Osaka University; Scott R. Evans, Harvard School of Public Health

9:05 a.m. **Comparison Between Adaptive Designs for Bio-Equivalence Study**—◆ Shuai Yuan, Merck; Fang Liu, Merck; Jialin Xu, Merck

9:20 a.m. **Predictive Approach in Group Sequential Design for Time-to-Event Endpoint**—◆ Soumi Lahiri, Novartis; Satrajit Roy Choudhury, Novartis

9:35 a.m. **Futility Monitoring with Conditional Power: A Rationale for the Choice of Theta Assumption Based on Type II Error Probability**—◆ Thomas Dobbins, Merck

9:50 a.m. **Continuous Covariate Imbalance and Conditional Power for Clinical Trial Interim Analyzes**—◆ Jody Ciolino, Northwestern University; Renee' Martin, Medical University of South Carolina; Wenle Zhao, Medical University of South Carolina; Edward Jauch, Medical University of South Carolina; Michael Hill, University of Calgary; Yuku Palesch, Medical University of South Carolina

10:05 a.m. **Single-Arm Two-Stage Phase 2 Clinical Trials with Go/No-Go/Grey-Zone Outcomes**—◆ Bob Zhong, Johnson & Johnson

129 CC-153A

■ Seasonal Adjustment and Hypothesis Testing—Contributed

Business and Economic Statistics Section, Section on Statistics in Marketing

Chair(s): William R. Bell, U.S. Census Bureau

- 8:35 a.m. **Monitoring CPS Seasonally Adjusted Series with an Eye to Recession Effects**—◆ Thomas Evans, Bureau of Labor Statistics; Jennifer Oh, Bureau of Labor Statistics
- 8:50 a.m. **Geographic Seasonal Adjustment of Foreign Trade Data**—◆ Renee Reeves, U.S. Census Bureau; Andreeana Able, U.S. Census Bureau; Neeta Lall, U.S. Census Bureau
- 9:05 a.m. **The Bullwhip Effect for Seasonal Demand Processes**—◆ Chaitra Nagaraja, Fordham University; A. Thavaneswaran, University of Manitoba; S. S. Appadoo, University of Manitoba
- 9:20 a.m. **ANOVA-Based Tests for Stable Seasonal Pattern, with Applications to Forecasting Economic Data**—◆ Stanley Sclove, University of Illinois at Chicago; Fangfang Wang, University of Illinois at Chicago
- 9:35 a.m. **Improved Stepdown Methods for Asymptotic Control of Generalized Error Rates**—◆ Grayson Calhoun, Iowa State University
- 9:50 a.m. **The Effect of the Direction of Skewness on Pairwise Comparisons in ANOVA**—◆ Mary Whiteside, University of Texas at Arlington; Mark Eakin, University of Texas at Arlington
- 10:05 a.m. **Simultaneous Estimation of Several CDFs: Homogeneity Constraint**—◆ Golam Kibria, Florida International University; A K Md E Saleh, Carleton University

130 CC-204A

■ ● Bayesian Variable Selection—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Christine Peterson, Stanford University

- 8:35 a.m. **Bayesian Variable Selection for Median Latent Variable Model**—◆ Yifan Wang; Zhibin Xu, Capital University of Economics and Business; Hong Ji, Capital University of Economics and Business
- 8:50 a.m. **Bayesian Variable Selection with Robit Model for Ordinal Data**—◆ Chi-Kin Lam, University of Hong Kong; Guosheng Yin, University of Hong Kong
- 9:05 a.m. **Bayesian Sparse Group Selection**—◆ Ray-Bing Chen, National Cheng Kung University; Chi-Hsiang Chu, National University of Kaohsiung;

Shinsheng Yuan, Academia Sinica; Ying Nian Wu, University of California, Los Angeles

- 9:20 a.m. **Nonparametric Variable Selection, Clustering, and Prediction for High-Dimensional Regression**—◆ Subharup Guha, University of Missouri; Veera Baladandayuthapani, MD Anderson Cancer Center
- 9:35 a.m. **Asymptotic Performance of Bayesian Variable Selection Based on G-Priors in Normal Linear Regression Models**—◆ Minerva Mukhopadhyay, Indian Statistical Institute
- 9:50 a.m. **Bayesian Structural Variable Selection in Linear Regression Models**—◆ Min Wang, Michigan Technological University; Xiaoqian Sun, Clemson University; Tao Lu, State University of New York
- 10:05 a.m. **A Two-Component G Prior for Variable Selection**—◆ Hongmei Zhang, University of Memphis; Jianjun Gan, GlaxoSmithKline; Wilfried Karmaus, University of Memphis; Tara Sabo-Attwood, University of Florida

131 CC-207

Big Data: Advances in Dimension Reduction—Contributed

Section on Nonparametric Statistics

Chair(s): Wenli Luo, AstraZeneca

- 8:35 a.m. **Adjusted Information Criteria for High-Dimensional Sparse Variable Selection**—◆ Maarten Jansen, Universite Libre de Bruxelles
- 8:50 a.m. **Linear Semiparametric Estimation Procedure for the Segmentation of Multiple Series Based on a Lasso Strategy**—◆ Cristian Meza, Universidad de Valparaiso; Karine Bertin, Universidad de Valparaiso; Xavier Collilieux, IGN-Université Paris Diderot; Emilie Lebarbier, AgroParisTech
- 9:05 a.m. **Integrating Data Transformation in Principal Components Analysis**—◆ Mehdi Maadooliat, Marquette University; Jianhua Z. Huang, Texas A&M; Jianhua Hu, MD Anderson Cancer Center
- 9:20 a.m. **Nonparametric Independence Screening via the Variance of the Regression Function**—◆ Won Chul Song, Penn State; Michael G. Akritas, Penn State
- 9:35 a.m. **Beta-Skeletons Depth Functions and Medians**—◆ Mengta Yang; Reza Modarres, George Washington University
- 9:50 a.m. **Penalized Rank Regression Using Adjusted Adaptive Lasso**—◆ Asuman Turkmen, Ohio State University; Omer Ozturk, Ohio State University



10:05 a.m. **Sufficient Dimension Reduction for Multi-Populations**—◆ Xuerong Wen, Missouri University of Science & Technology; Tao Wang, Hongkong Baptist University; Lixing Zhu, Hong Kong Baptist University

132 **Novel Applications Using Nonparametric Methods—Contributed** **CC-206B**
Section on Nonparametric Statistics

Chair(s): Vicki Burt, National Health and Nutrition Examination Survey

8:35 a.m. **Uncertainty Measures and Limiting Distributions for Filament Estimation**—◆ Yen-Chi Chen, Carnegie Mellon; Christopher Genovese, Carnegie Mellon; Larry Wasserman, Carnegie Mellon

8:50 a.m. **Novel Scale Development for Fear of Falling and Falls: Analyzed Using a Semiparametric Ratio Estimator (SPRE)**—◆ Deborah Weissman-Miller, Brenau University; Kay C. Graham, Brenau University

9:05 a.m. **Revisiting I.J. Good's Bump Surgery Algorithm**—◆ David Scott, Rice University

9:20 a.m. **Nonparametric Modeling and Testing of Chemical-Chemical Interaction**—◆ Mingyu Xi, University of Maryland Baltimore County

9:35 a.m. **Nonparametric Testing and Ranking Methods for Monitoring Customer Satisfaction with Application to Tourists' Opinions**—◆ Rosa Arboretti, University of Padua; Paolo Bordignon, University of Padova; Eleonora Carrozzo, University of Padova

9:50 a.m. **Identifying Pollution Source Locations Using Particle Back Trajectories and Filtered Kriging**—◆ William Christensen, Brigham Young University

10:05 a.m. **Nonparametric Estimators of Dose-Response Functions: A Simulation Study**—◆ Michela Bia, CEPS/Instead; Carlos Flores, Orfalea College of Business, Cal Poly; Alfonso Flores-Lagunes, SUNY Binghamton University; Alessandra Mattei, University of Florence

133 **DOE and Other Statistical Methods for Industrial Applications—Contributed** **CC-156A**

Quality and Productivity Section, Section on Physical and Engineering Sciences

Chair(s): Laura Lancaster, JMP Division, SAS Institute

8:35 a.m. **Deconstruction of Effects by Exposure Dose**—◆ William Heavlin, Google

8:50 a.m. **Holistic DOE: Learning in the Face of Uncertainty**—◆ Scott Wise, JMP Division, SAS Institute

9:05 a.m. **Assessing Variation: a Unifying Approach for All Scales of Measurement**—◆ Emil Bashkansky, ORT Braude College of Engineering; Tamar Gadrich, ORT Braude College of Engineering; Ricardas Zitikis, University of Western Ontario

9:20 a.m. **Generalized Inferences of $R = Pr(X>Y)$ for Pareto Distribution**—◆ Sumith Gunasekera, University of Tennessee at Chattanooga

9:35 a.m. **A Prediction Interval Estimator for the Original Response When Using Box-Cox Transformations**—◆ Michael Walker, University of Alabama; Marcus Perry, University of Alabama

9:50 a.m. **Predictive Density Estimation in Accelerated Life Testing for Lognormal Life Distributions**—◆ Ananda Jayawardhana, Pittsburg State University; V. A. Samaranyake, Missouri University of Science & Technology

10:05 a.m. **Robust Optimization of Biological Protocols**—◆ Patrick Flaherty, Worcester Polytechnic Institute; Ronald W. Davis, Stanford University

134 **Functional and Longitudinal Models—Contributed** **CC-103**

Section on Statistical Computing

Chair(s): Ryan Hafen, Pacific Northwest National Laboratory

8:35 a.m. **Zero-Inflated Beta Hidden Markov Model**—◆ Luna Sun, Oregon State University; Alix I. Gitelman, Oregon State University

8:50 a.m. **Joint Modeling of Longitudinal Drug Using Pattern and Time to First Relapse in Cocaine Dependence Treatment Data**—◆ Jun Ye, University of Akron; Yehua Li, Iowa State University; Yongtao Guan, University of Miami

9:05 a.m. **Joint Modeling and Clustering Paired Generalized Longitudinal Trajectories**—◆ Hui Huang, Peking University; Yongtao Guan, University of Miami; Yehua Li, Iowa State University

9:20 a.m. **New Computing Method for Joint Modeling Longitudinal and Survival Data**—◆ Xiaoyu Liu, Penn State; Runze Li, Penn State

9:35 a.m. **Minimum Hellinger Distance Estimation of a Regression Function in a Parametric Family with a Random Design**—◆ Hemalika Abeysundara; Frits

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Ruymgaart, Texas Tech University
- 9:50 a.m. **A Generalization to the Counting Process and Its Consequences**—◆ Mian Arif Shams Adnan, Jahangirnagar University; Zahida Sultana Irin, Uttara University; Asif Shams Adnan, Jahangirnagar University; M. Shamsuddin, Uttara University
- 10:05 a.m. **Generating Studies with Time-to-Event Outcomes and Correlated Time-Dependent Covariates**—◆ Maria E. Montez-Rath, Stanford University; Aya Mitani, Stanford University; Kristopher Kapphahn, Stanford University; Manisha Desai, Stanford University

135 **CC-101**
Statistical Consulting Medley—Contributed

Section on Statistical Consulting, Statistics Without Borders
 Chair(s): James Grady, University of Connecticut Health Center

- 8:35 a.m. **Estimating HIV Incidence, Prevalence, and Proportion Undiagnosed Based on CD4 Data**—◆ Ruiguang Song, CDC; Celia Landmann Szwarcwald, Brazil Ministry of Health; Timothy A. Green, CDC; H. Irene Hall, CDC
- 8:50 a.m. **A Comparative Study of TELBS Robust Linear Regression**—◆ Hong Li,
- 9:05 a.m. **Effects of Chemical Mixtures on the Risk of Non-Hodgkin Lymphoma**—◆ Jenna Czarnota, Virginia Commonwealth University; Chris Gennings, Virginia Commonwealth University; David Wheeler, Virginia Commonwealth University
- 9:20 a.m. **Linking Sensory and Consumer Data: Multivariate Modeling and Visualization Strategies for ‘Short and Wide’ Data**—◆ Jason Parcon, PepsiCo
- 9:35 a.m. **An Empirical Bayesian Approach Applied to the Globular Cluster Pulsar Population**—◆ Philip Turk, West Virginia University; Duncan Lorimer, West Virginia University
- 9:50 a.m. **Ordinal Response Modeling Application for Evaluation of Outcomes from a Prevention Education Program**—◆ Xiaohui Wang, University of Texas Pan American
- 10:05 a.m. **Outliers in Exponential Family of Distribution: A Case of Extreme Values in Health Care Expenditure**—◆ Gandhi R. Bhattarai, OptumInsight

136 **CC-104A**
Network Data—Contributed

Section on Statistical Learning and Data Mining
 Chair(s): Fulton Wang, MIT

- 8:35 a.m. **Estimating a Change-Point in High-Dimensional Markov Random Field Models**—◆ Sandipan Roy, University of Michigan; Yves Atchade, University of Michigan; George Michailidis, University of Michigan
- 8:50 a.m. **Controllability of Random Networks**—◆ Mohamad Kazem Shirani Faradonbeh, University of Michigan; Ambuj Tewari, University of Michigan; George Michailidis, University of Michigan
- 9:05 a.m. **Estimating Switching Regimes in Dynamic Networks**—◆ Jing Ma, University of Michigan; George Michailidis, University of Michigan
- 9:20 a.m. **On Estimation Problems of Network Sampling Methods**—◆ Ran Wei, Ohio State University; Tao Shi, Ohio State University
- 9:35 a.m. **Integrative Network Analysis of TCGA Data for Ovarian Cancer**—◆ Qingyang Zhang, Northwestern University; Joanna Burdette, University of Illinois at Chicago; Ji-Ping Wang, Northwestern University
- 9:50 a.m. **Dynamic Analysis of Online Review Ratings Using a State-Space Model with Point Process Observations**—◆ Yaonan Zhang, Boston University; Theodoros Lappas, Stevens Institute of Technology; Uri T. Eden, Boston University; Mark Crovella, Boston University; Eric Kolaczyk, Boston University
- 10:05 a.m. **Floor Discussion**

137 **CC-105**
Big Data and Technology Applications—Contributed

Section on Statistical Learning and Data Mining
 Chair(s): Jason E. Gillikin, Priority Health

- 8:35 a.m. **Statistical Interpretation of Technologies Using IPC Codes in Patents**—◆ Daiho Uhm, University of Arkansas at Fort Smith; Sunghae Jun, Cheongju University
- 8:50 a.m. **Conjoint Parameters Directed to Isolating ‘Hot Spots’ Within Big Data**—◆ Turkan K. Gardenier, Pragmatica Corp.; John S. Gardenier, NCHS (Retired)
- 9:05 a.m. **Robust Analysis of Clustered Principal Component Analysis Method for Large Multivariate Data**—◆ Nasser Fard, Northeastern University; ◆ Yuanchen Fang, Northeastern University; Huyang Xu, Northeastern University
- 9:20 a.m. **Factor Analysis via Modern Optimization Lens**—◆ Rahul Mazumder; Dimitris Bertsimas, MIT
- 9:35 a.m. **Recover Low-Rank Matrices with Heteroscedastic Noise**—◆ Jingshu Wang, Stanford University; Art Owen, Stanford University

Monday



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

9:50 a.m. **Logistic PCA Through an Extension of Pearson's MSE Optimality Criterion to Binary Data**—◆ Andrew Landgraf, Ohio State University; Yoonkyung Lee, Ohio State University

10:05 a.m. **Floor Discussion**

138 Nonresponse Adjustment - 2— Contributed

CC-208

Survey Research Methods Section, Government Statistics Section

Chair(s): Pushpal Mukhopadhyay, SAS Institute

8:35 a.m. **EM and Data Augmentation Algorithms for Social Network Analysis with Missing Data**—◆ Junchi Guo; Michael Larsen, George Washington University

8:50 a.m. **Panel Analysis of Household Nonresponse and Person Coverage in the Current Population Survey**—◆ Edwin Robison, Bureau of Labor Statistics; Antoinette Lubich, U.S. Census Bureau

9:05 a.m. **Missing Data in Afghanistan: A Latent Class Examination of Item Nonresponse**—◆ Ann Arthur, Gallup Research Center; Jill Heese, Gallup Research Center; Allan McCutcheon, University of Nebraska-Lincoln

9:20 a.m. **Different Ways of Dealing with Missingness in Hierarchical Data Sets**—◆ Matthias Speidel, Institute for Employment Research; Jörg Drechsler, Institute of Employment Research; Joseph Sakshaug, Institute for Employment Research

9:35 a.m. **Modeling Frame Deficiencies and the Effect of Calibration**—◆ Eric Slud, U.S. Census Bureau

9:50 a.m. **Investigating Nonresponse Error in Change Estimates**—◆ Joanna Fane Lineback, U.S. Census Bureau; Martin Klein, U.S. Census Bureau; Joseph L. Schafer, U.S. Census Bureau

10:05 a.m. **Bayesian Post-Stratification Models Using Multilevel Penalized Spline Regression**—◆ Qixuan Chen, Columbia University; Yajuan Si, Columbia University; Andrew Gelman, Columbia University

139 ● Novel Methods for Genetic Association Studies and Vaccine Safety Surveillance—Contributed

CC-254A

Section on Statistics in Epidemiology

Chair(s): Susan Stewart, University of California, Davis

8:35 a.m. **A Novel Approach with an Optimal Power for Joint Multiple-QTL Mapping of Complex Traits**—◆ Riyan Cheng; Justin Borevitz, Australian National University

8:50 a.m. **Regularized Robust Regression for Quantitative Genetic Traits**—◆ Chad He, Fred Hutchinson Cancer Research Center; Yanhua Wang, Fred Hutchinson Cancer Research Center; Linglong Kong, University of Alberta; Sijian Wang, University of Wisconsin

9:05 a.m. **Pleiotropic Approach Identifies Genetic Regions Missed in Single Phenotype Analyses: Example in Alzheimer's Disease (AD) Pathology**—◆ Lori B. Chibnik, Brigham & Women's Hospital/Harvard Medical School; Charles C. White, Brigham & Women's Hospital; Towfique Raj, Brigham & Women's Hospital; David A. Bennett, Rush Alzheimer's Disease Center; Philip L. De Jager, Brigham & Women's Hospital

9:20 a.m. **Robust Estimation for Secondary Trait Association in Case-Control Genetic Studies**—◆ Jean de Dieu Tapsoba, Fred Hutchinson Cancer Research Center; Charles Kooperberg, Fred Hutchinson Cancer Research Center; Alexander P. Reiner, University of Washington; Ching-Yun Wang, Fred Hutchinson Cancer Research Center; James Y. Dai, Fred Hutchinson Cancer Research Center

9:35 a.m. **Bayesian Bridge Regression for Genetic Association Studies**—◆ Himel Mallick, University of Alabama at Birmingham; Nengjun Yi, University of Alabama at Birmingham

10:05 a.m. **Floor Discussion**

140 Advances in Ecological Modeling— Contributed

CC-152

Section on Statistics and the Environment

Chair(s): Henry Scharf, Colorado State University

8:35 a.m. **Harnessing a Latent Beta Distribution for Ordinal Regression with Application to Plant Cover Data**—◆ Kathryn Irvine, U.S. Geological Survey; Ilai Keren, Washington Department of Fish and Wildlife; Thomas Rodhouse, National Park Service

8:50 a.m. **Modeling Density Dependence in the Presence of Observation Error**—◆ Quinn Payton, Oregon State University; Paul Murtaugh, Oregon State University; Virginia Lesser, Oregon State

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- University
- 9:05 a.m. **A Multivariate Spatial Model of the Migration Behavior of American Robins**—◆Yong Wang; Juan Hu, DePaul University
- 9:20 a.m. **Evaluating Multi-Species Occupancy Models for Rare and Elusive Species**—◆Kristin M. Broms, Colorado State University; John Tipton, Colorado State University; Viviana Ruiz, Colorado State University; Mevin Hooten, Colorado State University
- 9:35 a.m. **Modeling Bark Beetle Outbreaks Using Generalized Method of Moments Estimation**—◆Kimberly Kaufeld, University of Northern Colorado
- 9:50 a.m. **Estimating and Monitoring the Long-Term Growth and Productivity of Boreal Forests on Reclaimed Oil Sands Sites: Preliminary Results and Future Outlook**—◆Shongming Huang, Alberta Environment & Sustainable Resource Development; Brad Pinno, Canadian Forest Service; Robert Vassov, Shell Canada Energy, Shell Albian Sands; Bradley Tomm, Natural Resources Canada; Yuqing Yang, Alberta Environment & Sustainable Resource Development
- 10:05 a.m. **Floor Discussion**

Special Presentation 10:30 a.m.–12:20 p.m.

141 CC-258C

Late-Breaking Session I: Statistical Science and the President's BRAIN Initiative—Invited

ASA, ENAR, IMS, SSC, WNAR, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, Statistics Without Borders

Organizer(s): Sreelatha Meleth, RTI International; Steve Pierson, ASA
Chair(s): Sreelatha Meleth, RTI International

- 10:35 a.m. **Statistics Under the BRAIN Initiative**—◆Robert E. Kass, Carnegie Mellon
- 11:00 a.m. **Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain**—◆Sean Simpson, Wake Forest School of Medicine
- 11:25 a.m. **Statistics in the Wake of the BRAIN Initiative**—

◆Emery Brown, Massachusetts Institute of Technology

- 11:50 a.m. **Disc:** Satish Iyengar, University of Pittsburgh
- 12:15 p.m. **Floor Discussion**

Invited Sessions 10:30 a.m.–12:20 p.m.

142 CC-156A

Medallion Lecture—Invited

IMS

Organizer(s): Nancy Reid, University of Toronto
Chair(s): Nancy Reid, University of Toronto

- 10:35 a.m. **What Do We Know About Linear Structural Equation Models?**—◆Mathias Drton, University of Washington
- 12:15 p.m. **Floor Discussion**

143 CC-157C

High-Dimensional Time Series, Sparsity, and Dynamic Networks—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Mike West, Duke University
Chair(s): Dawn B. Woodard, Cornell University

- 10:35 a.m. **Modeling Approaches for Multiple Types of Brain Signals**—◆Raquel Prado, University of California, Santa Cruz
- 11:00 a.m. **Modeling and Prediction of Financial Trading Networks: An Application to the Nymex Natural Gas Futures Market**—◆Abel Rodriguez, University of California, Santa Cruz; Brenda Betancourt, University of California, Santa Cruz
- 11:25 a.m. **Bayesian Robust Analysis for Large Vector Autoregression Model**—◆Hongxia Yang, IBM Research; Ban Kawas, IBM Research
- 11:50 a.m. **High-Dimensional Dynamic Models and Time-Adaptive Sparsity in Networks**—◆Mike West, Duke University
- 12:15 p.m. **Floor Discussion**

144 CC-104B

Eye in the Sky: The Player Tracking Revolution in Sports Analytics—Invited



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Section on Statistics in Sports

Organizer(s): Luke Bornn, Harvard

Chair(s): Mark Glickman, Boston University

- 10:35 a.m. **Courtvision: Emerging from the Defensive Analytics Dark Ages**—◆ Kirk Goldsberry, Harvard
- 11:00 a.m. **Optical Tracking of NHL Hockey Games: A Big Data Approach**—◆ Marc Appleby, Powerscout Hockey
- 11:25 a.m. **From Big Data to Actionable Intelligence in Pro Sports**—◆ Alexander Arthur Rucker, Toronto Raptors
- 11:50 a.m. Disc: Luke Bornn, Harvard
- 12:15 p.m. **Floor Discussion**

145 **CC-258B**
Recent Advances in Methodology for Time-to-Event Analysis—Invited

ENAR, International Chinese Statistical Association

Organizer(s): Min Zhang, University of Michigan

Chair(s): Min Zhang, University of Michigan

- 10:35 a.m. **Designs and Analysis of Two-Phase Cohort Studies**—◆ Danyu Lin, University of North Carolina; Donglin Zeng, University of North Carolina at Chapel Hill
- 11:00 a.m. **On Estimation of Optimal Treatment Regimes in Survival Analysis**—◆ Wenbin Lu, North Carolina State University; Rui Song, North Carolina State University; Runchao Jiang, North Carolina State University; Marie Davidian, North Carolina State University
- 11:25 a.m. **Some Results on Semiparametric Transformation Models**—◆ Zhiliang Ying, Columbia University
- 11:50 a.m. **Life Beyond the Logrank Test and Hazard Ratio Estimation in Survival Analysis**—◆ Hajime Uno, Dana-Farber Cancer Institute; Brian Claggett, Harvard Medical School; Lu Tian, Stanford University; Lee Jen Wei, Harvard
- 12:15 p.m. **Floor Discussion**

146 **CC-208**
■ Analyzing Images from Far Places: Kilometers to Megaparsecs Away—Invited

Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Organizer(s): Kary Myers, Los Alamos National Laboratory

Chair(s): Kary Myers, Los Alamos National Laboratory

- 10:35 a.m. **Finding Fast Radio Bursts with the Very Large Array**—◆ Earl Lawrence, Los Alamos National Laboratory; Scott Vander Wiel, Los Alamos National Observatory
- 11:05 a.m. **Data-Driven Approaches to Detection in Complex Spectral Imagery**—◆ David Messinger, Rochester Institute of Technology
- 11:35 a.m. **Seeing the Unseen with Seismic Imaging**—◆ Terry Young, Colorado School of Mines
- 12:05 p.m. **Floor Discussion**

147 **CC-151B**
■ ● Pro Analysis: From Meaningful Use to Interpretation—Invited

Health Policy Statistics Section

Organizer(s): Kelly Zou, Pfizer

Chair(s): Kelly Zou, Pfizer

- 10:35 a.m. **Pro Analysis: From Meaningful Use to Interpretation**—◆ Tito Mendoza, MD Anderson Cancer Center; Valen Johnson, Texas A&M
- 11:00 a.m. **Use and Interpretation of Pros in Early Phase Cancer Clinical Trials**—◆ Amylou Dueck, Mayo Clinic; Pamela Atherton, Mayo Clinic; Rui Qin, Mayo Clinic; Jeff Sloan, Mayo Clinic
- 11:25 a.m. **Mediation Models in Patient-Reported Outcomes Research**—◆ Joseph C. Cappelleri, Pfizer; Kelly Zou, Pfizer; Andrew G. Bushmakin, Pfizer; Jose Ma. J. Alvir, Pfizer; Demissie Alemayehu, Pfizer; Tara Symonds, Pfizer
- 11:50 a.m. **Pragmatic Trials Using Pro Data Found in Electronic Health Records**—◆ Laura Lee Johnson, NIH/NCCAM
- 12:15 p.m. **Floor Discussion**

148 **CC-206A**
■ Measuring Same-Sex Couples, Sexual Orientation, and Gender Identity in Population-Based Surveys—Invited

Government Statistics Section

Organizer(s): Christopher H. Johnson, CDC

Chair(s): Christopher H. Johnson, CDC

- 10:35 a.m. **Measuring Same-Sex Couples: Results from a Split-**

Monday



- Panel Test of Alternative Relationship and Marital Status Questions**—◆ Nancy Bates, U.S. Census Bureau; Jamie Lewis Thomas, U.S. Census Bureau; Matthew Streeter, U.S. Census Bureau; Shawn Bucholtz, U.S. Department of Housing and Urban Development
- 10:55 a.m. **Sexual Orientation Questions in the National Survey on Drug Use and Health**—◆ Grace O'Neill, SAMHSA/HHS; Rachel Lipari, SAMHSA/HHS; David Dean Jr, SAMHSA/HHS
- 11:15 a.m. **Development and Resulting Data of a Sexual Identity Measure**—Kristen Miller, NCHS; Jim Dahlhamer, NCHS; ◆ Jennifer Madans, NCHS
- 11:35 a.m. **Best Practices in Measuring Gender Identity in Population-Based Surveys**—◆ Gary Gates, University of California, Los Angeles
- 11:55 a.m. Disc: Randall L. Sell, Drexel University School of Public Health
- 12:15 p.m. **Floor Discussion**

149 CC-257B **Global Development of Biopharmaceutical Products: Past, Present and Future—Invited**

Biopharmaceutical Section, Section on Medical Devices and Diagnostics
Organizer(s): Bo Yang, AbbVie
Chair(s): Joshua Chen, Merck

- 10:35 a.m. **Global Development of Biopharmaceutical Products: Past, Present, and Future**—◆ Kevin J. Carroll, KJC Statistics
- 11:15 a.m. Disc: David DeMets, University of Wisconsin-Madison
- 11:25 a.m. Disc: Frank Shen, AbbVie
- 11:35 a.m. Disc: Simon Day, Clinical Trials Consulting & Training
- 11:45 a.m. Disc: H.M. James Hung, FDA
- 11:55 a.m. Disc: Qin Huang, China sFDA
- 12:05 p.m. **Floor Discussion**

150 CC-153A **Employment Dynamics: Data and Statistical Modeling—Invited**

Business and Economic Statistics Section
Organizer(s): John M. Abowd, Cornell University, ILR School
Chair(s): Scott Holan, University of Missouri

- 10:35 a.m. **The Structure and Dynamics of U.S. Labor Market Networks**—◆ Kevin McKinney, U.S. Census

- Bureau; John M. Abowd, Cornell University, ILR School
- 11:00 a.m. **Job-to-Job Flows: New Statistics from Matched Employer-Employee Data**—◆ Erika McEntarfer, U.S. Census Bureau; Henry Richard Hyatt, U.S. Census Bureau; Stephen Tibbets, U.S. Census Bureau
- 11:25 a.m. **Hires, Separations, and the Job Tenure Distribution in Administrative Earnings Records**—◆ Henry Richard Hyatt, U.S. Census Bureau; James Spletzer, U.S. Census Bureau
- 11:50 a.m. **Measurement of Displacement Events and Their Consequences**—◆ Lars Vilhuber, Cornell University; Kalyani Raghunathan, Cornell University
- 12:15 p.m. **Floor Discussion**

151 CC-258A **JASA (Theory and Methods) Invited Paper and Discussions—Invited**

JASA, Theory and Methods, Statistics Without Borders
Organizer(s): Xuming He, University of Michigan; Jun Liu, Harvard
Chair(s): Xuming He, University of Michigan

- 10:35 a.m. **Estimation and Accuracy After Model Selection**—◆ Bradley Efron, Stanford University
- 11:20 a.m. Disc: Lan Wang, University of Minnesota
- 11:35 a.m. Disc: Lawrence Brown, Wharton School
- 11:50 a.m. Disc: Soumendra Lahiri, North Carolina State University
- 12:10 p.m. **Floor Discussion**

Invited Panels 10:30 a.m.–12:20 p.m.

152 CC-102A **Bridging Statisticians with Public Health Practice Professionals in Disease Surveillance, II—Invited**

Section on Statistical Learning and Data Mining, Statistics Without Borders
Organizer(s): Howard Burkom, Johns Hopkins Applied Physics Laboratory
Chair(s): Marc Paladini, U.S. Department of Transportation

- Panelists:** ◆ Howard Burkom, Johns Hopkins Applied Physics Laboratory
 ◆ Julia Gunn, Boston Public Health Commission

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- ◆ Wilbert van Panhuis, University of Pittsburgh
- ◆ Kevin Konty, New York City Department of Health and Mental Hygiene

12:15 p.m. **Floor Discussion**

153 **CC-153B**
● Developing a Statistics Curriculum for the Data Revolution—Invited

ASA, Statistics Without Borders, International Indian Statistical Association, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Marie Davidian, North Carolina State University; Nathaniel Schenker, ASA President; Robert N. Rodriguez, SAS Institute

Chair(s): Marie Davidian, North Carolina State University

- Panelists:**
- ◆ Deepak Agarwal, LinkedIn
 - ◆ William S. Cleveland, Purdue University
 - ◆ Ryan Hafen, Pacific Northwest National Laboratory
 - ◆ Mark Hansen, Columbia University

12:15 p.m. **Floor Discussion**

Topic-Contributed Sessions
10:30 a.m.–12:20 p.m.

154 **CC-156C**
■ ● Bayes and Big Data—Topic-Contributed

International Society for Bayesian Analysis (ISBA), Section on Statistics in Marketing, Statistics Without Borders, International Indian Statistical Association, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Steven L. Scott, Google

Chair(s): Fernando Bonassi, Google

- 10:35 a.m. **SDA-Bayes and MAD-Bayes for Large-Scale Bayesian Analysis**—◆ Michael Jordan, University of California, Berkeley
- 10:55 a.m. **Scaling Bayesian Models for Large-Scale Infectious Disease Surveillance**—◆ Marc Suchard, University of California, Los Angeles
- 11:15 a.m. **Big Data, Big Models, Big Problems: Consensus Monte Carlo Methods for Distributed Bayesian Inference**—◆ Alexander Blocker, Google; Steven L. Scott, Google; Fernando Bonassi, Google

11:35 a.m. **A Spatiotemporal Analysis of Professional Basketball**—◆ Andrew Miller,

11:55 a.m. **Medians in the Space of Probability Distributions and Applications to Robust and Scalable Bayesian Inference**—◆ Sanvesh Srivastava, SAMSI/Duke University

12:15 p.m. **Floor Discussion**

155 **CC-157A**
■ ● Causal Inference Is a Missing Data Problem!—Topic-Contributed

Section on Bayesian Statistical Science, Health Policy Statistics Section, Mental Health Statistics Section, International Society for Bayesian Analysis (ISBA)

Organizer(s): Elizabeth Zell, Stat-Epi Associates

Chair(s): Roderick Little, University of Michigan

10:35 a.m. **Multiple Imputation of Potential Outcomes**—◆ Stef van Buuren, Netherlands Organisation for Applied Scientific Research; Paula van Dommelen, Netherlands Organisation for Applied Scientific Research; Hedwig Hofstetter, Netherlands Organisation for Applied Scientific Research; Donald B. Rubin, Harvard

10:55 a.m. **A Potential Outcomes Approach to Documenting the Public Health Impact of the Introduction of PCV13 for the Prevention of Invasive Pneumococcal Disease**—◆ Elizabeth Zell, Stat-Epi Associates

11:15 a.m. **Bayesian Inference for Sequential Treatments Under Latent Sequential Ignorability**—◆ Fabrizia Mealli, University of Florence; Alessandra Mattei, University of Florence; Federico Ricciardi, University of Florence

11:35 a.m. **Powerful Potential Outcomes Estimators and the Role of Unknowable Correlation**—◆ Cassandra Pattanayak, Wellesley College; Donald B. Rubin, Harvard; Elizabeth Zell, Stat-Epi Associates

11:55 a.m. **Disc: Donald B. Rubin, Harvard**

12:15 p.m. **Floor Discussion**



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Monday



156 **CC-152**
■ ● Challenges in Environmental Risk Assessment—Topic-Contributed

Section on Statistics and the Environment

Organizer(s): *Jing Zhang, Miami University*

Chair(s): *Bin Zhang, Cincinnati Children's Hospital Medical Center*

- 10:35 a.m. **Bayesian Model Averaging in Benchmark Dose Estimation**—◆ Susan Simmons, University of North Carolina at Wilmington; Cuixian Chen, University of North Carolina at Wilmington; Xiaosong Li, UNCW; Yishi Wang, UNCW; Walt Piegorsch, University of Arizona; Qijun Fang, University of Arizona; Troy Kling, UNCW; Otis Evans, UNCW
- 10:55 a.m. **Using Historical Experimental Information in Aquatic Toxicity Testing**—◆ Jing Zhang, Miami University; A. John Bailer, Miami University; James T. Oris, Miami University
- 11:15 a.m. **Robust Statistical Inference via Model Uncertainty and Model Averaging in Risk Assessment**—◆ Hojin Moon, California State University, Long Beach; Steven B. Kim, University of California, Irvine; Ralph L. Kodell, University of Arkansas for Medical Sciences
- 11:35 a.m. **Quantile Benchmark Dose Estimation for Continuous Endpoints**—◆ Matthew Wheeler, NIOSH; A. John Bailer, Miami University; Kan Shao, U.S. Environmental Protection Agency
- 11:55 a.m. Disc: A. John Bailer, Miami University
- 12:15 p.m. **Floor Discussion**

157 **CC-213**
■ ● Impact of Statistics on Imaging Studies in Drug Development—Topic-Contributed

Biopharmaceutical Section, Section on Statistics in Imaging

Organizer(s): *Richard Baumgartner, Merck*

Chair(s): *Shubing Wang, Merck*

- 10:35 a.m. **Estimation of Within Subject Coefficient of Variability (Wscv) in Clinical Positron Emission Tomography (Pet) Test-Retest Studies**—◆ Richard Baumgartner, Merck; Dai Feng, Merck; Aniket Joshi, Merck
- 10:55 a.m. **Exploring Network Analysis for a Resting-State fMRI Study for Alzheimer Imaging Biomarker Research**—◆ Yuefeng Lu,
- 11:15 a.m. **Nonrigid Image Registration Problem Using Fluid Dynamics and Mutual Information**—◆ Xiang

- Huang,
- 11:35 a.m. **Using Ordered Values of Longitudinal Changes in Regional Knee Cartilage Thickness as an Efficacy Biomarker in Osteoarthritis**—◆ Robert Buck, StatAnswers Consulting LLC
- 11:55 a.m. Disc: Dai Feng, Merck
- 12:15 p.m. **Floor Discussion**

158 **CC-204B**
■ Modeling Response for Tailoring in Contact Strategies in Censuses and Surveys—Topic-Contributed

Survey Research Methods Section, Government Statistics Section

Organizer(s): *Benjamin M. Reist, U.S. Census Bureau*

Chair(s): *Benjamin M. Reist, U.S. Census Bureau*

- 10:35 a.m. **Lessons Learned from Implementing Response Propensity Models in the 2013 Census Test**—◆ Gina Walejko, U.S. Census Bureau
- 10:55 a.m. **Examining Economic Census Reporting Patterns**—◆ Eric Fink, U.S. Census Bureau; Joanna Fane Lineback, U.S. Census Bureau
- 11:15 a.m. **Using Integer Programming to Determine the Optimal Assignment of Internet to Mail Mode Switch Strategies**—◆ Thomas Chesnut, U.S. Census Bureau
- 11:35 a.m. **Predicting Initial Response Mode in Advance of Data Collection in the NSCG**—◆ Stephanie M. Coffey, U.S. Census Bureau; Chandra Erdman, U.S. Census Bureau; Benjamin M. Reist, U.S. Census Bureau
- 11:55 a.m. **Predicting Response Mode During Data Collection in the National Survey of College Graduates**—◆ Chandra Erdman, U.S. Census Bureau; Stephanie M. Coffey, U.S. Census Bureau
- 12:15 p.m. **Floor Discussion**

159 **CC-257A**
■ ● Recent Developments of Statistical Methods in Pleiotropic Genetic Association Studies—Topic-Contributed

Biometrics Section

Organizer(s): *Colin O. Wu, NHLBI/NIH*

Chair(s): *Xin Tian, NHLBI/NIH*

- 10:35 a.m. **Joint Regression Models for Pleiotropic Genetic Association Studies**—◆ Colin O. Wu, NHLBI/NIH; Minjung Kwak, Yeungnam University
- 10:55 a.m. **A Robust Method for Correlated RNA Sequence Data**—◆ Jinfeng Xu; Hong Zhang, Fudan

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- University
- 11:15 a.m. **Joint Analysis of Binary and Quantitative Traits with Data Sharing and Outcome-Dependent Sampling**—◆Jungnam Joo, National Cancer Center, Korea
- 11:35 a.m. Disc: Neal Jeffries, NHLBI/NIH
- 11:55 a.m. Disc: Xiaofeng Zhu, Case Western Reserve University
- 12:15 p.m. **Floor Discussion**

160 **CC-206B**

■ ● Using Adaptive Design and Collection Strategies to Improve Data Quality in Business Surveys—Topic-Contributed

Survey Research Methods Section, Government Statistics Section, Section on Statistics in Marketing, Statistics Without Borders
Organizer(s): Jenny Thompson, U.S. Census Bureau
Chair(s): Broderick Oliver, U.S. Census Bureau

- 10:35 a.m. **Strategies for Selecting a Follow-Up Sample of Nonrespondents in Business Surveys**—◆Elisabeth Neusy, Statistics Canada; Wesley Yung, Statistics Canada; Jean-François Beaumont, Statistics Canada; Mike Hidiroglou, Statistics Canada; David Haziza, Université de Montréal
- 10:55 a.m. **Strategies for Subsampling Nonrespondents for Economic Programs**—◆Stephen Kaputa, U.S. Census Bureau; Laura Bechtel, U.S. Census Bureau ; Daniel Whitehead, U.S. Census Bureau; Jenny Thompson, U.S. Census Bureau
- 11:15 a.m. **The Use of Indicators to Assess the Quality of the Survey Returns During Data Collection**—◆Daniel Whitehead, U.S. Census Bureau; Yarissa González, U.S. Census Bureau; Broderick Oliver, U.S. Census Bureau
- 11:35 a.m. **Adaptive Integration of Survey Data with Other Information Sources**—◆John Eltinge, Bureau of Labor Statistics
- 11:55 a.m. Disc: David Haziza, Université de Montréal
- 12:15 p.m. **Floor Discussion**

161 **CC-203**

■ Statistical Methods Analyzing Accelerometry Data—Topic-Contributed

Korean International Statistical Society
Organizer(s): Jungwha (Julia) Lee, Northwestern University
Chair(s): Kwang-Youn Kim, Northwestern University Feinberg School of Medicine

- 10:35 a.m. **Learning the Language of Human Activity in the**

- Wild**—◆Jiawei Bai, Johns Hopkins University; Vadim Zipunnikov, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University
- 10:55 a.m. **Modeling Accelerometer-Based Physical Activity Using a Measurement Error Approach**—◆Jungwha (Julia) Lee, Northwestern University; Jing Song, Northwestern University; Dorothy Dunlop, Northwestern University
- 11:15 a.m. **Estimating the Probability of Compliance with CDC Guidelines for PA**—◆Alicia Carriquiry, Iowa State University; Brian Stanfill, Iowa State University; David Osthus, Iowa State University; Sarah Nusser, Iowa State University; Wayne A. Fuller, Iowa State University
- 11:35 a.m. **Bayesian Mixed-Effects Location Scale Models for the Analysis of Objectively Measured Physical Activity Data from a Lifestyle Intervention Trial**—◆Juned Siddique, Northwestern University; Donald Hedeker, University of Illinois at Chicago; Bonnie Spring, Northwestern University
- 11:55 a.m. **Quantifying the Life-Time Circadian Rhythm of Physical Activity: A Covariate-Dependent Functional Approach**—◆Luo Xiao, Cornell University; Lei Huang, Johns Hopkins University; Jennifer Schrack, Johns Hopkins University/National Institute on Aging; Luigi Ferrucci, National Institute on Aging; Vadim Zipunnikov, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University
- 12:15 p.m. **Floor Discussion**

162 **CC-153C**

Statistical Methods for Generalized Functional Data—Topic-Contributed

Section on Nonparametric Statistics, International Indian Statistical Association
Organizer(s): Sonja Greven, LMU Munich
Chair(s): Ana-Maria Staicu, North Carolina State University

- 10:35 a.m. **Ordinal and Nominal Functional Data Analysis**—◆Bruce Swihart, Johns Hopkins Bloomberg School of Public Health
- 10:55 a.m. **Modeling Binary Functional Data with Application to Animal Husbandry**—◆Jan Gertheiss, Georg August University; Verena Maier, Ludwig Maximilians University; Engel F. Hessel, Georg August University; Ana-Maria Staicu, North Carolina State University
- 11:15 a.m. **Additive Mixed Models for Generalized Functional Data**—◆Fabian Scheipl,
- 11:35 a.m. **The Functional Linear Array Model**—◆Sonja Greven, LMU Munich; Sarah Brockhaus, Ludwig Maximilians University; Fabian Scheipl; Torsten

Monday



- 11:55 a.m. Hothorn, University of Zurich
Nonparametric Functional Concurrent Regression Models—◆ Arnab Maity, North Carolina State University; Janet Kim, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 12:15 p.m. **Floor Discussion**

- Experiments in Constrained Regions**—◆ Ryan Lekivetz, SAS Institute; Bradley Jones, SAS Institute
- 11:35 a.m. **Statistical Challenges in the Aerospace Industry**—◆ Stephen Jones, Boeing
- 11:55 a.m. **Practical Approaches to Spatio-Temporal Analysis**—◆ Huijing Jiang, IBM; Yasuo Amemiya, IBM Research
- 12:15 p.m. **Floor Discussion**

163 CC-103 **Statistical Computing and Graphics Student Paper Competition—Topic-Contributed**

Section on Statistical Computing

Organizer(s): Nicholas J. Lewin-Koh, Genentech

Chair(s): Yelena Perkhounkova, University of Iowa

- 10:35 a.m. **The Curse of Three Dimensions: Why Your Brain Is Lying to You**—◆ Susan Ruth VanderPlas, Iowa State University
- 10:55 a.m. **Sparse Regression Incorporating Graphical Structure Among Predictors**—◆ Guan Yu, University of North Carolina at Chapel Hill; Yufeng Liu, University of North Carolina at Chapel Hill
- 11:15 a.m. **Visualizing the Effects of a Changing Distance Using Continuous Embeddings**—◆ Gina Gruenhage, Artificial Intelligence Group, TU Berlin, BCCN Berlin; Simon Barthelme, University of Geneva
- 11:35 a.m. **An Adaptive Method for Lossy Compression of Big Images**—◆ Geoffrey Thompson, Iowa State University; Ranjan Maitra, Iowa State University
- 11:55 a.m. Disc: Aarti Munjal, University of Colorado Denver
- 12:15 p.m. **Floor Discussion**

164 CC-151A **Solving Unique Statistical Challenges in Industry—Topic-Contributed**

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Shan Ba, Procter & Gamble

Chair(s): Shan Ba, Procter & Gamble

- 10:35 a.m. **Application and Challenges of Computer Experiments in Industry**—◆ William Myers, Procter & Gamble
- 10:55 a.m. **Challenges in Designing for Real-World Variation**—◆ Erica Mesaros, Pratt & Whitney; Jaime Glanovsky, Pratt & Whitney; Grant Reinman, Pratt & Whitney; Steven Finley, Pratt & Whitney
- 11:15 a.m. **Fast Flexible Space-Filling Designs for Computer**

165 CC-204A **Statistical Methods and Applications in Psychology and Educational Psychology—Topic-Contributed**

Committee on Applied Statisticians, Mental Health Statistics Section

Organizer(s): Gongjun Xu, University of Minnesota, Twin Cities

Chair(s): Gongjun Xu, University of Minnesota, Twin Cities

- 10:35 a.m. **On Overall and Domain Latent Traits Estimation**—◆ Chun Wang, University of Minnesota; Gongjun Xu, University of Minnesota, Twin Cities
- 10:55 a.m. **Joint Maximum Likelihood Estimation for Cognitive Diagnostic Models**—◆ Chia-Yi Chiu, Rutgers University; Yi Zheng, University of Illinois at Urbana-Champaign; Robert Henson, University of North Carolina at Greensboro
- 11:15 a.m. **Analyzing Responses and Response Times in Time-Limit Tests: A Mixture Cure-Rate Model Approach**—◆ Yi-Hsuan Lee, Educational Testing Service; Zhiliang Ying, Columbia University
- 11:35 a.m. **Detection and Treatment of Careless Responses in Survey Research**—◆ Ying Cheng; Jeffrey Patton, University of Notre Dame
- 11:55 a.m. **Smoothing Spline Analysis of Variance Models for Electroencephalography Data Analysis**—◆ Nathaniel Helwig, University of Illinois
- 12:15 p.m. **Floor Discussion**

166 CC-212 **The Statistical Classroom: Session Activities Utilizing Student-Generated Data—Topic-Contributed**

Section on Statistical Education, Statistics in Business Schools Interest Group

Organizer(s): Amy S. Nowacki, Cleveland Clinic

Chair(s): Shannon McClintock, Emory University

- 10:35 a.m. **Puzzling Statistics**—◆ AndrÈ Michelle Lubecke, Lander University
- 10:55 a.m. **Experimenting with Experiments**—◆ Diane Evans, Rose-Hulman Institute of Technology

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 11:15 a.m. **Teaching Statistics from the Operating Table: Minimally Invasive and Maximally Educational**—◆ Amy S. Nowacki, Cleveland Clinic
- 11:35 a.m. **Catapulting Student Interest in Statistics: A Little Bit Flipped, Scale'd, and Real**—◆ A. Godfrey, North Carolina State University; Jerome P. Lavelle, North Carolina State University
- 11:55 a.m. Disc: Allan Rossman, Cal Poly, San Luis Obispo
- 12:15 p.m. **Floor Discussion**

- 11:15 a.m. **Retrospective Look at Adaptive Design by Applying Potvin's Method**—◆ Juhui Jiao, Janssen; Sudhakar Rao, Janssen
- 11:25 a.m. **Screening Predictors for Logistic Regression Using the Information Value Statistic**—◆ Bruce Lund, Marketing Associates
- 11:30 a.m. **Group Structured Integrative Clustering for Feature Discovery and Coherent Samples Identification in Inter-Related Multiple Genomic Data Sets**—◆ SungHwan Kim; Yong Seok Park, University of Pittsburgh; George Tseng, University of Pittsburgh
- 11:35 a.m. **Optimal Fingerprinting in Detecting Changes in Climate Extremes**—◆ Jun Yan, University of Connecticut; Xuebin Zhang, Environment Canada; Zhuo Wang, University of Connecticut
- 11:40 a.m. **Performance of Classifiers Under Unbalanced Case and Control Sample Sizes: Advantages and Disadvantages**—◆ Deanna Greenstein, NIMH/NIH; Abhijit Dasgupta, NIAMS/NIH
- 11:45 a.m. **A Quantile-Based Convergence Diagnostic for MCMC**—◆ Michael Lerch, Montana State University
- 11:50 a.m. **LogitROC: An R Package for Making Inferences on ROC Curves and Surfaces Using Nonparametric and Semiparametric Approaches**—◆ Dong Zhang, Bloomsburg University
- 11:55 a.m. **A New Goodness-of-Fit Test for Time Series Models Based on Correlation Between the Sample Autocorrelation and Partial Autocorrelation Sequences**—◆ James Faulkner, University of Washington; Donald B. Percival, University of Washington
- 12:00 p.m. **Type I and Type II Error Properties for White's Robust Covariance Matrix Estimator in Longitudinal Designs**—◆ Keith Williams, University of Arkansas for Medical Sciences
- 12:05 p.m. **Interactive Web Application with Shiny**—◆ Bharat Bahadur,
- 12:10 p.m. **The Power of Fragmentation: Enabling Effective Audience Targeting on Television**—◆ McCall McIntyre, Simulmedia; Alexandra Schorr, Simulmedia
- 12:15 p.m. **Interactive Career Explorer**—◆ James Joseph, INC Research

Contributed Sessions 10:30 a.m.–12:20 p.m.

167 CC-255

Speed Session #2: Topics in Biopharmaceutical Research and Statistical Programming and Analysis, Part 1—Contributed

Section for Statistical Programmers and Analysts, Biopharmaceutical Section

Chair(s): Yong Seok Park, University of Pittsburgh

- 10:35 a.m. **Incorporation of Survival Information in Diagnostic Test Evaluation**—◆ Chang Xu, Ventana Medical Systems; Dean Billheimer, University of Arizona; Bonnie Lafleur, Ventana Medical Systems
- 10:40 a.m. **The Cox Model and 'Type 3' Tests**—◆ Terry Therneau, Mayo Clinic
- 10:45 a.m. **Bayesian Dose-Finding Procedure Based on Information Utility**—◆ Lei Gao, George Mason University; William F. Rosenberger, George Mason University
- 10:50 a.m. **Bayesian Hierarchical Bias Model for Establishing Biosimilarity**—◆ Joseph Wu, Boston University School of Public Health; Sandeep Menon, Pfizer; Gheorghe Doros, Boston University School of Public Health; Mark Chang, AMAG Pharmaceuticals; Kerry Barker, Pfizer
- 10:55 a.m. **Evaluating the Performance of Simultaneous Stepwise Confidence Intervals for the Difference Between Two Poisson Rates**—◆ Brianna Bright, University of Nebraska-Lincoln; Julia Soulakova, University of Nebraska-Lincoln
- 11:00 a.m. **A Bayesian Adaptive Design with Time-to-Event Data for Claiming Noninferiority for Therapeutic Cardiovascular Medical Device**—◆ Baohui Zhang, Johnson & Johnson; Hui Wang, Consultant
- 11:05 a.m. **Bayesian Analysis for Crossover Trials with Repeated Measurements in Soft Contact Lens Trials**—◆ Quan Zhang, University of Minnesota; Youssef Toubouti, Johnson & Johnson; Bradley P. Carlin, University of Minnesota
- 11:10 a.m. **Sample Size Reestimation for Ordinal Data Based**

Contributed Sessions 10:30 a.m.–12:20 p.m.

- 168 CC-156B
- **Inference—Contributed**
- IMS, Section on Statistics in Epidemiology, Social Statistics Section
- Chair(s): Pramita Bagchi, University of Michigan

Monday



- 10:35 a.m. **Oracle Inference for Misspecified Models**—◆ Mihai Giurcanu, University of Florida; Brett Presnell, University of Florida
- 10:50 a.m. **Toward a General Theory of Observational Causal Inference**—◆ Sterling Portwood, Center for Interdisciplinary Science
- 11:05 a.m. **A Paradox from Randomization-Based Causal Inference**—◆ Peng Ding, Harvard
- 11:20 a.m. **Approximate Likelihood Inference via Dimension Reduction in Latent Variable Models**—◆ Silvia Cagnone, University of Bologna; Silvia Bianconcini, University of Bologna; Dimitris Rizopoulos, Erasmus University Medical Center
- 11:35 a.m. **A Minimax Contrast for the Isotonic Change-Point Problem**—◆ Karl D'Silva, North Dakota State University
- 11:50 a.m. **Group Invariance for Graphical Gaussian Models**—◆ Piotr Zwiernik, University of California, Berkeley
- 12:05 p.m. **Extreme Value Copula Estimation for Subordinated Processes**—◆ Jan Beran, University of Konstanz

169 **Hierarchical and Multilevel Models—Contributed** CC-254B

Biometrics Section

Chair(s): Kevin Lawson, PPD

- 10:35 a.m. **Cormotif: a Hierarchical Mixture Model Framework for Integrating Heterogeneous Genomic Data**—◆ Hongkai Ji, Johns Hopkins Bloomberg School of Public Health; Yingying Wei, Johns Hopkins Bloomberg School of Public Health
- 10:50 a.m. **A Bayesian Feature Allocation Model for Tumor Heterogeneity**—◆ Juhee Lee, University of California, Santa Cruz; Peter Mueller, University of Texas at Austin; Yuan Ji, NorthShore University HealthSystem; Kamalakar Gulukota, NorthShore University HealthSystem
- 11:05 a.m. **Hierarchical Group Testing for Multiple Infections**—◆ Peijie Hou, University of South Carolina; Joshua Tebbs, University of South Carolina
- 11:20 a.m. **Sources of Correlation on a Hierarchical Logistic Regression Model**—◆ Kyle Irimata, Arizona State University; Katherine Cai, Arizona State University; Jeffrey Wilson, Arizona State University
- 11:35 a.m. **Impact of Multiple Sources of Correlation on Hierarchical Logistic Regression Models**—◆ Katherine Cai, Arizona State University; Kyle

Irimata, Arizona State University; Jeffrey Wilson, Arizona State University

- 11:50 a.m. **Approximating Power for Multilevel and Longitudinal Studies with Missing Data**—◆ Brandy Ringham, University of California, Los Angeles; Sarah Kreidler, University of Colorado Denver; Keith Muller, University of Florida; Deborah Glueck, University of Colorado Denver
- 12:05 p.m. **Combinatorial Polyfunctionality Analysis of Single-Cell Genomic Data**—◆ Lynn Lin, Fred Hutchinson Cancer Research Center

170 **Missing Data—Contributed** CC-254A

Biometrics Section

Chair(s): Richard Entsuah, Merck

- 10:35 a.m. **Linear Regression Modeling with Partially Observed Informative Cluster Size: Application to a Repeated Pregnancy Study**—◆ Ashok Chaurasia, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Danping Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 11:05 a.m. **A Robust Iterative Algorithm for Regression Analysis of Data with Nonresponse**—◆ Gong Tang, University of Pittsburgh
- 11:20 a.m. **Sensitivity Analysis for Nonignorable Drop Out in Longitudinal Studies Using Semiparametric Selection Models**—◆ Emin Tahirovic, University of Pennsylvania; Andrea Beth Troxel, University of Pennsylvania
- 11:35 a.m. **Valid Post-Correction Inference for Censored Regression Problems**—◆ Yuekai Sun, Stanford University; Jonathan Taylor, Stanford University
- 11:50 a.m. **Floor Discussion**

171 **Survival Analysis—Contributed** CC-252A

Biometrics Section

Chair(s): Jongphil Kim, Moffitt Cancer Center & Research Institute

- 10:35 a.m. **Group Sequential Designs for the Supremum**

- Weighted Log-Rank Test for Survival Data with Time-Varying Treatment Effects**—◆ Qiang Zhang, American College of Radiology; Junfeng Liu, GCE Solutions; Michael Kosorok, University of North Carolina at Chapel Hill
- 10:50 a.m. **Efficient Semiparametric Estimators for Proportional Hazards Models with Measurement Error**—◆ Yuhang Xu, Iowa State University; Yehua Li, Iowa State University; Xiao Song, University of Georgia
- 11:05 a.m. **Testing Violations of Exponential Assumption in Cancer Clinical Trials with Survival Endpoints**—◆ Gang Han, Yale; Michael Schell, Moffitt Cancer Center & Research Institute; Daniel Zelterman, Yale; Christos Hatzis, Yale Cancer Center; Lajos Pusztai, Yale Cancer Center
- 11:20 a.m. **Latent Class Approach to Survival Analysis with a Compound Poisson Frailty Model with an Application to HIV Prevention Trials**—◆ Rebecca Coley, University of Washington; Elizabeth Brown, Fred Hutchinson Cancer Research Center
- 11:35 a.m. **Comparison of Survival Analysis and Logistic Regression for Correlated Data**—◆ Niloofar Ramezani, University of Northern Colorado
- 11:50 a.m. **D-Optimal Designs for a Continuous Predictor in Longitudinal Trials with Discrete-Time Survival Endpoints**—◆ Maryam Safarkhani; Mirjam Moerbeek, Utrecht University
- 12:05 p.m. **Tests and Sample Size Determination for Noninferiority Trial of Two Survival Functions Using a Proportional Odds Survival Model**—◆ Elvis Martinez, Florida State University; Debajyoti Sinha, Florida State University; Wenting Wang, MD Anderson Cancer Center; Stuart R. Lipsitz, Harvard Medical School; Richard J. Chappell, University of Wisconsin-Madison; Juliana Cobre, University of São Paulo

172 **CC-259A**
■ Statistical Methods in Oncology Trials—Contributed

Biopharmaceutical Section

Chair(s): *Manuela Buzoianu, FDA*

- 10:35 a.m. **Clinical Utility Estimation for Assay Cut-Offs in Early-Phase Oncology Enrichment Trials**—◆ Jared Lunceford, Merck
- 10:50 a.m. **Randomized vs. Single Arm Phase II Oncology Clinical Trials, as Well as Endpoint Selection**—◆ Grace Liu, Janssen
- 11:05 a.m. **Exploring Futility and Enrichment in the Context of a Multi-Arm Phase II Oncology Study**—

- ◆ Grace Zhang, GlaxoSmithKline; Liz Krachey, GlaxoSmithKline; Anthony M. D'Amelio, GlaxoSmithKline; Vlad Dragalin, Aptiv Solutions
- 11:20 a.m. **A Rescue Approach in an Oncology Pivotal Study**—◆ Guohui Liu, Takeda; Jianchang Lin, Takeda
- 11:35 a.m. **Analyzing OS in the Presence of Secondary Treatment Using Marginal Structural Model (MSM) and Rank-Preserving Structural Failure Time Model (RPSFT)**—◆ Yong Zhang, Novartis; Hongtao Zhang; Kalyanee Appanna, Novartis; Can Cai, Novartis; Kaushal Mishra, Novartis
- 11:50 a.m. **Considerations in Event Projection for Double-Blinded Oncology Trials**—◆ Peng Sun; Grace Zhang, GlaxoSmithKline
- 12:05 p.m. **Predictability of OS with Subsequent Therapies or Treat Crossover in Oncology Clinical Trials**—◆ Jianchang Lin, Takeda; Guohui Liu, Takeda

173 **CC-260**
■ Biopharmaceutical Section Student Paper Competition—Contributed

Biopharmaceutical Section

Chair(s): *Richard McNally, Covance*

- 10:35 a.m. **Propensity Process for Time-Varying Covariates with Application to Assessing Treatment Effect in ALS Patients**—◆ Pallavi S. Mishra-Kalyani, Emory University; Qi Long, Emory University; Brent A. Johnson, Emory University
- 10:50 a.m. **Meta-Analysis of Rare Events: From Combining Confidence Intervals to Combining Confidence Distributions**—◆ Guang Yang, Rutgers University; Dungang Liu, Yale; Junyuan Wang, BMS; Min-ge Xie, Rutgers University
- 11:05 a.m. **Sample Size Under the Additive Hazards Model**—◆ Lee McDaniel, University of Wisconsin-Madison; Menggang Yu, University of Wisconsin-Madison; Richard J. Chappell, University of Wisconsin-Madison
- 11:20 a.m. **Landmark Proportional Subdistribution Hazards Models for Dynamic Prediction of Cumulative Incidence Probabilities**—◆ Qing Liu, University of Pittsburgh; Chung-Chou Chang, University of Pittsburgh
- 11:35 a.m. **Subgroup-Based Adaptive (SUBA) Designs for Multi-Arm Biomarker Trials**—◆ Yanxun Xu; Lorenzo

Monday



Trippa, Harvard School of Public Health; Peter Mueller, University of Texas at Austin; Yuan Ji, NorthShore University HealthSystem

11:50 a.m. Floor Discussion

174 Methods for Correlated Data—Contributed

CC-157B

Section on Nonparametric Statistics

Chair(s): Jin Wang, Northern Arizona University

- 10:35 a.m. **Learning with Sparse Temporal and Spatial Data**—◆ Reza Hosseini, IBM Research; Akimichi Takemura, University of Tokyo; Kiros Berhane, University of Southern California
- 10:50 a.m. **Semiparametric Spatial Single Index Model**—◆ Hamdy Fayez Farahat Mahmoud, Virginia Tech; Inyoung Kim, Virginia Tech
- 11:05 a.m. **Multivariate Analysis of Nonparametric Estimates of Correlation Matrices**—◆ Ritwik Mitra, Rutgers University; Cun-Hui Zhang, Rutgers University
- 11:20 a.m. **Gini Covariance Matrix and Its Affine Equivariant Version**—◆ Lauren Weatherall; Xin Dang, University of Mississippi; Hailin Sang, University of Mississippi
- 11:35 a.m. **A New Approach to Variance Estimation for Time-Ordered Dependent Data**—◆ Molly M. Davies, University of California, Berkeley; Mark J. van der Laan, University of California, Berkeley
- 11:50 a.m. **New Tests for Regression Error Autocorrelation**—◆ Alexander Thomas, Rose-Hulman Institute of Technology; Mark Inlow, Rose-Hulman Institute of Technology
- 12:05 p.m. **Rank Procedures for Testing Linear Hypotheses in Repeated Measures Design**—◆ Danush Wijekularathna, Texas Tech University; Hossein Mansouri, Texas Tech University

175 Physical Sciences: Likelihood and Beyond—Contributed

CC-104C

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): K. Bhat, Los Alamos National Laboratory

- 10:35 a.m. **Understanding and Addressing the Unbounded ‘Likelihood’ Problem**—◆ Shiyao Liu, Genentech; William Q. Meeker, Iowa State University; Huaiqing Wu, Iowa State University
- 10:50 a.m. **Frequency-Domain Methods for Change-Point Detection**—◆ Karim Rahim, Queen’s University; David J. Thomson, Queen’s University
- 11:05 a.m. **Global Mechanistic Computer Network Traffic Models with Applications to Network Cokriging**—◆ Joel Vaughan; Stilian Stoev, University of Michigan; George Michailidis, University of Michigan
- 11:20 a.m. **Engineering Design Optimization Using Validated Local Domains**—◆ Dorin Drignei, Oakland University; Zissimos Mourelatos, Oakland University
- 11:35 a.m. **Inference from Short Atmospheric Time Series**—◆ Alexander Gluhovsky, Purdue University
- 11:50 a.m. **A Statistical-Physical Approach for Air Quality Forecasting**—◆ YoungDeok Hwang, IBM Research; Emre Barut, IBM Research; Kyongmin Yeo, IBM Research
- 12:05 p.m. **Measuring the Mass of a Galaxy: An Evaluation of the Performance of Bayesian Mass Estimates Using Statistical Simulation**—◆ Gwendolyn Eadie, McMaster University

176 Spatial Analysis—Contributed

CC-101

Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America

Chair(s): Andrew Hoegh, Virginia Tech

- 10:35 a.m. **Efficient Estimation and Prediction for Spatial Generalized Linear Mixed Models**—◆ Vivekananda Roy, Iowa State University
- 10:50 a.m. **Event and Location Analytics for Real-Time Logistics Optimization**—◆ Michael O’Connell, TIBCO Spotfire
- 11:05 a.m. **Optimal Approximations and Search for Feasible Circulant Matrix Embeddings for the Synthesis of Stationary Gaussian Random Fields**—◆ Stefanos Kechagias, University of North Carolina at Chapel Hill; Hannes Helgason, University of Iceland; Vladas Pipiras, University of North Carolina at Chapel Hill
- 11:20 a.m. **Kolmogorov-Smirnov Goodness-of-Fit Test for Spatial Data**—◆ Jose Guardiola, Texas A&M;

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 11:35 a.m. Nancy Glenn, Texas Southern University
Faster Exact Probabilities for Statistics of Overlapping Pattern Occurrences—◆ Donald Martin, North Carolina State University
- 11:50 a.m. **Association Rule Mining in the U.S. Vaccine Adverse Event Reporting System (VAERS)**—◆ Lai Wei, FDA; John Scott, FDA/CBER/OBE
- 12:05 p.m. **An Agent-Based Epidemiological Model of Incarceration**—◆ Kristian Lum, Virginia Tech

177 **CC-211**
Quantitative Literacy and Introductory Statistics—Contributed

Section on Statistical Education

Chair(s): Philip D. Loud, University of Marne at Machias

- 10:35 a.m. **Connecting the Dots: Ways to Enhance a Noncalculus-Based Introductory Statistics Course**—◆ Adrienne Chu,
- 10:50 a.m. **Introducing Hypothesis Testing with a Reflection Exercise and Student-Selected Synonyms**—◆ Frank Matejcik, South Dakota School of Mines and Technology; Ahmed Al-Asfour, Oglala Lakota College
- 11:05 a.m. **Information Bias in Surveys**—◆ William Rybolt, Babson College; George Recck, Babson College
- 11:20 a.m. **Teaching Statistics Using Political Polls**—◆ T. Ceesay, Merck
- 11:35 a.m. **Statistics in Journalism: Guiding Students to Uncrunch the Numbers**—◆ Nancy Pfenning, University of Pittsburgh
- 11:50 a.m. **Against All Odds: Inside Statistics**—◆ Marsha Davis, Eastern Connecticut State University
- 12:05 p.m. **Quantitative Literacy: Analysis of a Q-Course**—◆ Kimberly Massaro, University of Texas at San Antonio; Ermine Orta, University of Texas at San Antonio; Rajendra Boppana, University of Texas at San Antonio; Daniel Sass, University of Texas at San Antonio; Christopher Straud, University of Texas at San Antonio; Michael Sanchez, University of Texas at San Antonio

178 **CC-104A**
Applications with Data Mining—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Wei-Min Huang, Lehigh University

- 10:35 a.m. **Functional Logistic Regression Using Elastic Methods**—◆ James Derek Tucker, Florida State University; Wei Wu, Florida State University; Anuj Srivastava, Florida State University

- 10:50 a.m. **Discriminant Coordinates for Multivariate Functional Data**—◆ Lukasz Waszak, Adam Mickiewicz University; Tomasz Gorecki, Adam Mickiewicz University; Miroslaw Krzysko, Adam Mickiewicz University; Waldemar Wolynski, Adam Mickiewicz University
- 11:05 a.m. **Analysis of Spike Train Data: Classification and Bayesian Alignment**—◆ David B. Hitchcock, University of South Carolina; Wen Cheng, University of South Carolina; Ian L. Dryden, University of Nottingham; Huiling Le, University of Nottingham
- 11:20 a.m. **Estimating a Common Period for a Set of Irregularly Sampled Functions with Applications to Astronomy Data**—◆ James Long, Texas A&M; Eric Chi, Rice University; Richard G. Baraniuk, Rice University
- 11:35 a.m. **A Bayesian Model for Dependent Functional Data**—◆ Daniel Kowal, Cornell University; David Scott Matteson, Cornell University; David Ruppert, Cornell University
- 11:50 a.m. **Regularized Additive Principal Components**—◆ Xin Lu Tan, Wharton School; Andreas Buja, Wharton School; Zongming Ma, Wharton School
- 12:05 p.m. **GAMSel: A Penalized Regression Approach to Model Selection for Generalized Additive Models**—◆ Alexandra Chouldechova, Stanford University

179 **CC-102B**
Statistical Applications in Defense and National Security—Contributed

Section on Statistics in Defense and National Security, Statistical Learning and Data Mining Section

Chair(s): Peter Parker, NASA

- 10:35 a.m. **Empirical Signal-to-Noise Ratios from Operational Test Data**—◆ Matthew Avery, Institute for Defense Analyses
- 10:50 a.m. **Case Study Demonstration of the Application of Experimental Design to Operational Testing**—◆ Kelly McGinnity, Institute for Defense Analyses; Laura Freeman, IDA
- 11:05 a.m. **Second-Order Response Surface Modeling Within a Blocked Split-Plot Structure**—◆ Luis Cortes, Applied Research Solutions; James R. Simpson, JKanalytics; William Duff, Colorado State University
- 11:20 a.m. **Applications of Probabilistic Interpolation to Ship Tracking**—◆ Timothy Hammond, DRDC Atlantic
- 11:35 a.m. **The Economy and Enlisted Retention in the Navy**—◆ Yevgeniya Pinelis; Jared Huff, CNA
- 11:50 a.m. **Depression, Economics, and Population in Social Media**—◆ Elizabeth Hohman, Naval Surface Warfare Center; David Marchette, Naval Surface Warfare Center; Glen Coppersmith, Johns Hopkins University

Monday



12:05 p.m. **Storytelling: Chains and Maps**—◆John Rigsby, Naval Surface Warfare Center; Daniel Barbar, George Mason University; Jeffrey Solka, Naval Surface Warfare Center

180 Choice, Maxdiff, and Tweaks— Contributed

Section on Statistics in Marketing
Chair(s): Julia Bienias, A.C. Nielsen

10:35 a.m. **Sanitation Inspector Allocation in San Francisco Using Yelp Reviews**—◆Guillaume Pouliot; Michael Luca, Harvard Business School

10:50 a.m. **Products Cannibalization and Synergy Estimation via MaxDiff Data**—Stan S. Lipovetsky, GfK; ◆Michael W. Conklin, GfK

11:05 a.m. **Using MaxDiff Scaling for Message Bundle Optimization in Presence of Interaction Effects**—◆Faina Shmulyian, Markettools; Dimitri Liakhovitski, GfK

11:20 a.m. **Best - Worst Conjoint: Does the Model Matter?**—◆Robert Mee, University of Tennessee

11:35 a.m. **Improving Donor Campaigns Around Crises with Twitter-Analytics**—◆Chen Wang, Robert H. Smith School of Business; Shawn Mankad, University of Maryland; William Rand, Robert H. Smith School of Business

11:50 a.m. **On the Modeling of Exchange Rates with Twitter Network Covariates**—Mario A. Morales, Simulmedia; ◆Ivan Zalamea, Stockholm University

12:05 p.m. **The Good, the Bad, and the Fitting: A Hierarchical Bayes Model for Patient Preferences Elicited Through Discrete Choice Experiments**—◆Anna Liza Malazarte Antonio, University of California, Los Angeles; Catherine Crespi, University of California, Los Angeles; Robert E. Weiss, University of California, Los Angeles; Christopher Saigal, University of California, Los Angeles

181 Statistical Modeling, Missing Data, and Observational Studies—Contributed

Social Statistics Section
Chair(s): Ned English, NORC at the University of Chicago

10:35 a.m. **Causal Inference in the Presence of Interference**

and Unmeasured Confounders—◆Cheng Zheng, University of Washington

10:50 a.m. **Causal Mediation Analysis in Multi-Site Trials: An Application of Ratio-Of-Mediator-Probability Weighting to the Head Start Impacts Study**—◆Xu Qin, University of Chicago; Guanglei Hong, University of Chicago

11:05 a.m. **Sensitivity Analysis for Grouped Data: Bias Amplification 'Danger Zones'**—◆Marc Scott, New York University; Jennifer Hill, New York University; Ronli Diakow, New York University; Joel Middleton, New York University

11:20 a.m. **Data Imputation in Multi-Level Quantile Regression**—◆Luke Fostvedt, Iowa State University; Mack Shelley, Iowa State University

11:35 a.m. **Local Dependence in Random Graph Models: Characterization, Properties, and Statistical Inference**—◆Michael Schweinberger, Rice University; Mark S. Handcock, University of California, Los Angeles

11:50 a.m. **Dynamic Network Logistic-Regression with Missing Data: Theory and Methods**—◆Zack W. Almquist, University of Minnesota; Carter T. Butts, University of California, Irvine

12:05 p.m. **An Empirical Study of Polychoirc Instrumental Variable Estimation in Structural Equation Models**—◆Shaobo Jin, Uppsala University; Hao Luo, University of Hong Kong; Fan Yang-Wallentin, Uppsala University

182 Estimation Issues—Contributed

CC-209

Survey Research Methods Section, Government Statistics Section
Chair(s): Shar Barracks, Columbia University

10:35 a.m. **Implementation of an Efficient Sampling and Case Processing Method**—◆Shelton M. Jones, RTI International; Tenbroeck Smith, American Cancer Society; Katherine Treiman, RTI International; Mai Nguyen, RTI International; Connie Hobbs, RTI International; Alyssa Troeschel, American Cancer Society

10:50 a.m. **Study of Error in Survey Reports of Move Month Using the U.S. Postal Service Change of Address Records**—◆Mary Mulry; Elizabeth M. Nichols, U.S. Census Bureau; Jennifer Hunter Childs, U.S.

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Census Bureau
- 11:05 a.m. **Reliability and Validity of Administrative Register Data**—◆ Daniel Oberski, Tilburg University
- 11:20 a.m. **A Shared Platform for Orchestrating Adaptive Data Collection in Surveys**—◆ Michael Thieme, U.S. Census Bureau; Anup Mathur, U.S. Census Bureau
- 11:35 a.m. **Identifying Data Problems and Improving Data Quality**—◆ Catherine Haggerty, NORC at the University of Chicago; Micah R. Sjoblom, NORC at the University of Chicago; Steven Pedlow, NORC at the University of Chicago
- 11:50 a.m. **Nonresponse Bias and Sample Quality Indicators**—◆ Cong Ye, American Institutes for Research; Roger Tourangeau, Westat
- 12:05 p.m. **Floor Discussion**

183 **CC-251**
Advanced Statistical Modeling in Spatial and Environmental Epidemiology—Contributed

Section on Statistics in Epidemiology
Chair(s): Mulugeta Gebregziabher, Medical University of South Carolina

- 10:35 a.m. **Semiparametric Time-Varying Coefficient Model for Matched Case-Crossover Studies**—◆ Ana Maria Ortega Villa, Virginia Tech; Inyoung Kim, Virginia Tech
- 10:50 a.m. **Selection Bias in Causal Mediation Analysis**—◆ Linda Valeri, Harvard; Brent Coull, Harvard School of Public Health
- 11:05 a.m. **A Bayesian Model with Shrinkage Prior to Solve the Uncertainty of Modeled Hazard Air Pollutant Concentrations**—◆ Yi Cai, University of Texas Health Science Center at Houston; Michael Swartz, University of Texas Health Science Center at Houston; Wenyaw Chan, University of Texas Health Science Center at Houston; Philip J. Lupo, Baylor College of Medicine
- 11:20 a.m. **On Efficient Use of Logistic Regression When a Continuous Biomarker Is Assayed on Pooled Biospecimens**—◆ Robert Lyles, Emory University; Emily Mitchell, NICHD; Clarice Weinberg, NIEHS; David M. Umbach, NIEHS; Enrique Schisterman, NICHD
- 11:35 a.m. **Combining ROC Curve Analysis and Generalized Logistic Regression to Estimate Continuous Cutpoints Discriminating Three Categories**—◆ Rey DeCastro, CDC/NCEH
- 11:50 a.m. **The Timing of Geographic Power**—◆ David Wheeler, Virginia Commonwealth University; Kate Calder, Ohio State University
- 12:05 p.m. **An Overdispersion and Inflated Zeros Model for the Spatial Scan Statistic**—◆ Luiz Duczmal, Universidade Federal de Minas Gerais; Max Sousa

de Lima, Universidade Federal do Amazonas; JosÈ Cardoso Neto, Universidade Federal do Amazonas; Leticia Pereira Pinto, Universidade Federal de Minas Gerais

184 **CC-252B**
Modern Methods in Missing Data Imputation—Contributed

Section on Statistics in Epidemiology
Chair(s): Yan Ma, Weill Medical College of Cornell University

- 10:35 a.m. **On Optimal Imputation Strategies for Natural Effect Models Probing Mediation**—◆ Johan Steen, Ghent University; Tom Loeys, Ghent University; Beatrijs Moerkerke, Ghent University; Stijn Vansteelandt, Ghent University
- 10:50 a.m. **Issues When Using Multilevel Multiple Imputation to Handle Missing Binary Data in Cluster Randomized Trials**—◆ Jinhui Ma, Children's Hospital of Eastern Ontario; Monica Taljaard, Ottawa Hospital Research Institute; Lisa Dolovich, McMaster University; Janusz Kaczorowski, McMaster University; Larry Chambers, ...lisabeth BruyÈre Research Institute; Lehana Thabane, McMaster University
- 11:05 a.m. **A Framework for Integrating Multiple Imputation and the Bootstrap**—◆ Susan Shortreed, Group Health Research Institute; Russell Steele, McGill University
- 11:20 a.m. **A Simple Method for Estimating the Odds Ratio with Incomplete Paired Data**—◆ Stephen Looney, Georgia Regents University; Kelly M. Miller, Georgia Regents University
- 11:35 a.m. **Comparative Studies for Cox Hazards Model Based on the Suita Study**—◆ Michikazu Nakai, National Cerebral and Cardiovascular Center; Yuhlong Lio, University of South Dakota; Din Chen, University of Rochester; Kunihiro Nishimura, National Cerebral and Cardiovascular Center; Makoto Watanabe, National Cerebral and Cardiovascular Center; Yoshihiro Miyamoto, National Cerebral and Cardiovascular Center
- 11:50 a.m. **Increase Chance for Recovery vs. Risk Reduction**—◆ Lev S. Sverdlov, Redmond Analytics
- 12:05 p.m. **Analysis of Sequence Data Under Multivariate Trait-Dependent Sampling**—◆ Ran Tao; Danyu Lin, University of North Carolina; Donglin Zeng, University of North Carolina at Chapel Hill

Monday



Speed Poster Presentations

10:30 a.m.–11:15 a.m.

185 CC-Exhibit Hall B2

Speed Session #1: Topics in Epidemiology and Imaging, Part 2—Contributed

Section on Statistics in Epidemiology, Section on Statistics in Imaging

Chair(s): *Wenyi Wang, MD Anderson Cancer Center*

Section on Statistics in Epidemiology

- 1 **A Framework for Classifying Relationships Using Dense SNP Data and Putative Pedigree Information**—◆ Zhen Zeng, University of Pittsburgh; Eleanor Feingold, University of Pittsburgh
- 2 **Job Stress and Job Satisfaction Among Medical Health Care Professionals**—◆ Abdul Salam, KAIMRC; Munir Abu-Helalah, KAIMRC; Khalid Niaz, NGH; Abu Elgasim Awad Mohamed Mansour, KAIMRC; Ali Ahmed Qarni, KAIMRC
- 3 **Cancer-Specific Penetrance Distribution Estimation for Families with Li-Fraumeni Syndrome**—◆ Seung Jun Shin, MD Anderson Cancer Center; Gang Peng, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center; Wenyi Wang, MD Anderson Cancer Center
- 4 **Eigenanalysis on SNP Data with an Interpretation of Identity by Descent**—◆ Xiuwen Zheng, University of Washington; Bruce Spencer Weir, University of Washington
- 5 **A Joint Test for Detecting Mean and Variance Heterogeneity Adjusting for Family Relatedness**—◆ Ying Cao, University of Texas Health Science Center at Houston; Taylor Maxwell, University of Texas Health Science Center at Houston; Peng Wei, University of Texas School of Public Health
- 6 **Effects of Quiescence and Senescence on Hematopoietic Stem Cell Population Dynamics and Extinction**—◆ Mary Sehl; Hua Zhou, North Carolina State University; Han Su Myat, University of California, Los Angeles; Trevor R. Shaddox, University of California, Los Angeles; Sanggu Kim, University of California, Los Angeles; Irvin S.Y. Chen, University of California, Los Angeles; Janet S.Y. Sinsheimer, University of California, Los Angeles; Kenneth L. Lange, University of California, Los Angeles
- 7 **Comparison of Variable Selection Methods for High-Dimensional Data in Applications to Genetic Association Studies with Gene-Environment Interactions**—◆ Jaejoon Song, MD Anderson Cancer Center; Michael Swartz, University of Texas Health Science Center at Houston
- 8 **Gene Expression-Based Predictive Models for Cancer**

- 9 **Drug Sensitivity**—◆ Umut Ozbek, Icahn School of Medicine at Mount Sinai; Jaya Satagopan, Memorial Sloan Kettering Cancer Center
- 9 **Novel Statistical Network Methodology to Identify and Analyze Cancer Biomarkers**—◆ Thomas Bartlett,
- 10 **Fast Exact Bootstrap Principal Component Analysis for P>1 Million: Leveraging Low-Dimensional Structure Across High-Dimensional Bootstrap Samples**—◆ Aaron Fisher; Brian Scott Caffo, Johns Hopkins University; Vadim Zipunnikov, Johns Hopkins University
- 11 **Understanding How Treatments Affecting the Brain Work: Functional Rank Preserving Models for Causal Mediation**—◆ Yenny Webb-Vargas, Johns Hopkins Bloomberg School of Public Health; Michael Sobel, Columbia University; Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health
- 12 **Statistical Models for Imaging and Genetic Data in Cocaine Addiction**—◆ Shabnam Azadeh, MD Anderson Cancer Center; Brian P. Hobbs, MD Anderson Cancer Center; Frederick G. Moeller, Virginia Commonwealth University; Veera Baladandayuthapani, MD Anderson Cancer Center
- 13 **Statistical Tests for Group Differences in Brain Functional Networks**—◆ Junghi Kim; Wei Pan, University of Minnesota
- 14 **Statistical Image Separation of Multiple Simultaneously Excited fMRI Slices Using a Single Coil**—◆ Daniel Rowe, Marquette University
- 15 **Cross-Validation and Hypothesis Testing in Neuroimaging**—◆ Lan Huo, NYU Child Study Center; Philip T. Reiss, New York University School of Medicine
- 16 **Improving Reliability of Subject- \neq Level Resting State Parcellation with Empirical Bayes**—◆ Amanda Mejia; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health; Brian Scott Caffo, Johns Hopkins University
- 17 **A Monte Carlo Simulation Study Comparing Robust MSE, Jackknife, and Bootstrapping for Some Robust Regression Estimators in Brain Imaging Research**—◆ Hung-Wen Yeh, University of Kansas Medical Center; Josh N. Powell, University of Kansas Medical Center; Cary R. Savage, University of Kansas Medical Center
- 18 **Longitudinal Changes in Brain Structure of Chronically Infected HIV Patients**—◆ Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health and School of Medicine
- 19 **Analysis of Multi-Sequence Time Series Data from MS Lesions on Structural MRI**—◆ Elizabeth Sweeney, Johns Hopkins Bloomberg School of Public Health; Russell Shinohara, University of Pennsylvania; Daniel S. Reich; Ciprian Crainiceanu, Johns Hopkins University; Ani Eloyan, Johns Hopkins University



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 20 **A Spatio-Temporal Approach to the Inference of Activations in fMRI Group Studies**—◆David Degras, DePaul University; Martin Lindquist, Johns Hopkins Bloomberg School of Public Health

186 **Contributed Oral Poster Presentations: Biometrics Section—Contributed**

CC-Exhibit Hall B2

Biometrics Section

Chair(s): Daniel S. Cooley, Colorado State University

Biometrics Section

- 1 **Genotype to Phenotype Maps: Multiple Input Abiotic Signals Combine to Produce Growth Effects via Attenuating Signaling Interactions in Maize**—◆Cuixian Chen, University of North Carolina at Wilmington
- 2 **A Joint Modeling Approach for Right-Censored Multivariate Longitudinal Data**—◆Miran Jaffa, American University of Beirut; Ayad A. Jaffa, American University of Beirut; Mulugeta Gebregziabher, Medical University of South Carolina
- 3 **Joint Assessment of Dependent Discrete Disease State Processes**—◆David Engler; Brian Healy, Massachusetts General Hospital
- 4 **Factors Associated with Falls and Injurious Falls in Community-Dwelling Adults Aged 18–64 Years Old**—◆Feifei Wei, University of Arkansas for Medical Sciences; Amy L. Hester, University of Arkansas for Medical Sciences; Amy M. Schrader, University of Arkansas
- 5 **Power Calculation in Candidate Marker Detection in RNA-Seq Experiment**—◆Ge Liao, University of Pittsburgh; George Tseng, University of Pittsburgh
- 6 **Comparison of Storer's and mTPI Designs with Simulation**—◆Hong Wang, University of Pittsburgh Cancer Institute
- 7 **Using Doubly Robust Estimator to Estimate an Average Treatment Effect in Observational Studies When Treatment Switching Exists**—◆Chunhao Tu, University of New England; Woon Yuen Koh, University of New England
- 8 **An Application of the Nonlinear Mixed Effect Model Using Regression Splines**—◆Yiichieh Huang; Karen J. Coleman, Kaiser Permanente
- 9 **Attributable Fractions and Excess Fractions with Multiple Exposure Level: The Relations and Bounds**—◆Yasutaka Chiba,
- 10 **Multivariate Polynomial Temporal Genetic Association and Genetic Causality Methods**—◆Luan Lin; Kayee Yeung, University of Washington; Roger E. Bumgarner, University of Washington; Eric E. Schadt, Icahn School of Medicine at Mount Sinai; Jun E. Zhu, Icahn School of Medicine at Mount Sinai
- 11 **Multiple Inflation Negative Binomial Model with L1 Regularization**—◆Arvind Tripathi, University of Alabama at Birmingham; Kui Zhang, University of Alabama at Birmingham; Xiaogang Su, University of Texas at El Paso
- 12 **Identifying Patient-Specific Biomarker and Predicting Anti-Cancer Drug Sensitivity via Robust Statistical Methodology**—◆Heewon Park, University of Tokyo; Teppei Shimamura, University of Tokyo; Seiya Imoto, University of Tokyo; Satoru Miyano, University of Tokyo
- 13 **A Hierarchical Modeling Strategy for Identifying Gene Expression Heterosis**—◆William Landau, Iowa State University; Jarad Niemi, Iowa State University; Peng Liu, Iowa State University; Dan Nettleton, Iowa State University
- 14 **Predicting Patients' Responses to Treatment for Personalized Medicine**—◆Wei-Jiun Lin, Feng Chia University; James J. Chen, NCTR/FDA
- 15 **Goodness-of-fit for U-Process**—◆Youngjoo Cho, Penn State; Debashis Ghosh, Penn State
- 16 **Gene-Dependent Normalization of RNA-Seq Data**—◆Andrew Lithio, Iowa State University; Dan Nettleton, Iowa State University
- 17 **Effects and Detection of Link Misspecification in Generalized Linear Mixed Models**—◆Shun Yu; Xianzheng Huang, University of South Carolina
- 18 **Application of GEV in Analysis of Survival Data**—◆Dooti Roy, University of Connecticut; Dipak Dey, University of Connecticut; Vivekananda Roy, Iowa State University
- 19 **A Statistical Framework for Expression QTL Mapping via Two-Way Mixture Model**—◆Ningtao Wang, Penn State; Yaqun Wang, Penn State; Bruce G. Lindsay, Penn State; Rongling Wu, Penn State
- 20 **Evaluation of Statistical Methods for Longitudinal Count Data with Dropouts**—◆Takayuki Abe, Keio University School of Medicine; Kazuhito Shiosakai, Daiichi Sankyo Co.; Yuji Sato, Keio University School of Medicine; Manabu Iwasaki, Seikei University
- 21 **Comparison of Two Crossing Survival Curves**—◆Zheng Chen, Southern Medical University; Huimin Li, Southern Medical University; Yawen Hou, Jinan University
- 22 **Estimation of Covariate Effects for Interval-Censored Competing Risks Data Under the Joint Modeling Framework**—◆Bo Fu, Merck; Chung-Chou Chang, University of Pittsburgh; Ching-wen Lee, University of Pittsburgh
- 23 **Combining P-Values for Gene Set Analysis**—◆Ziwen Wei, Merck; Lynn Kuo, University of Connecticut
- 24 **Family-Based Gene-Trait Similarity U Test**—◆Changshuai Wei, Michigan State University; Qing Lu, Michigan State University
- 25 **Imputation of Rare Genetic Variants**—◆Thomas Hoffmann, University of California, San Francisco

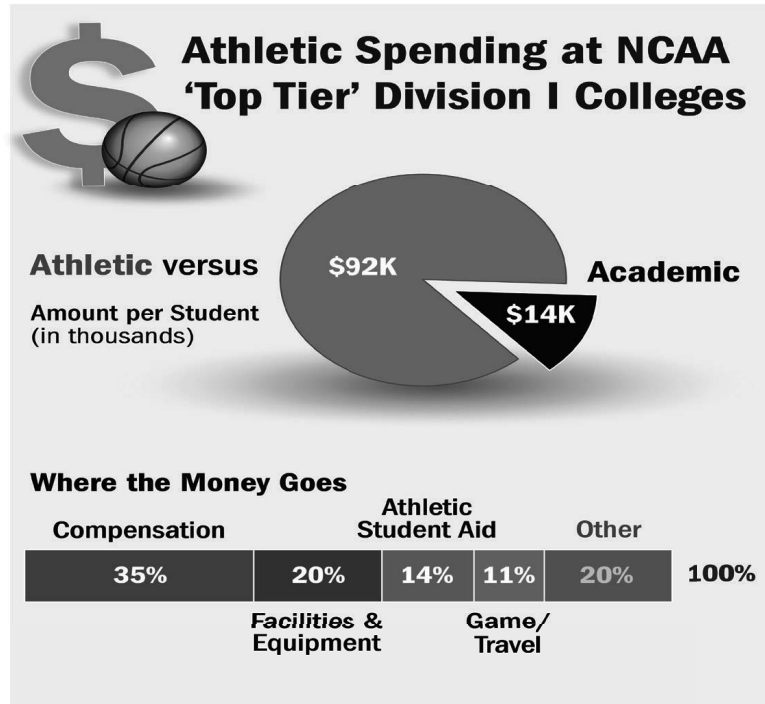


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Source: Academic Spending Versus Athletic Spending Report, Delta Cost Project, AIR, January 2013

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● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 26 **Constrained Randomness and the Evolution of Artificial Neural Networks**—◆Thomas W. Woolley, Samford University; Steven F. Donaldson, Samford University; Nick Dzugan, Samford University; Jason Goebel, Samford University
- 27 **A New Approach to Calculating Expected Value of Sample Information for a Clinical Trial**—◆Robert A. Parker, Massachusetts General Hospital; Pamela Pen-Erh Pei, Massachusetts General Hospital; Milton Weinstein, Harvard School of Public Health
- 28 **Visualizing a Large Number of Regression Models Fitted to RNA-Sequencing Data**—◆Yanming Di, Oregon State University
- 29 **Accounting for Nuisance Covariates When Using RNA-Seq Data to Identify Differentially Expressed Genes**—◆Yet T. Nguyen, Iowa State University; Dan Nettleton, Iowa State University
- 30 **Multistate Hidden Markov Model for High-Frequency Repeated Measures in Applications to Studies of Physical Activities with Accelerometers**—◆Jaejoon Song, MD Anderson Cancer Center; Karen Basen-Engquist, MD Anderson Cancer Center
- 31 **Objective Bayes Variable Selection for Site-Occupancy Models Using Latent Normal Mixtures**—◆Daniel Taylor Rodriguez, University of Florida; Claudio Fuentes; Andrew Womack, University of Florida; Nikolay Bliznyuk, University of Florida
- 32 **Joint Hypothesis Testing Application**—◆Jing You, Cleveland Clinic; Edward Mascha, Cleveland Clinic
- 33 **A Classification Approach for DNA Methylation Profiling with Bisulphite Next-Generation Sequencing Data**—◆Longjie Cheng; Yu Zhu, Purdue University
- 34 **Identifying Genetic Variants for Addiction via Propensity Score Adjusted Generalized Kendall's Tau**—◆Yuan Jiang, Oregon State University; Ni Li, Hainan Normal University; Heping Zhang, Yale
- 35 **Box-Cox Transformations for Generalized Linear Models**—◆Patrick Johnston,
- 36 **Modeling Arbitrarily Interval-Censored Data with Time-Dependent Covariates**—◆Wei Fang,
- 37 **Statistical Analysis of Glycoprotein Data in Breast Cancer Cell Lines**—◆Spencer Bowen, SFSU; Alexandra Piryatinska, San Francisco State University; Leslie Timpe, San Francisco State University

187 **Contributed Oral Poster Presentations: ENAR—Contributed**

ENAR

Chair(s): Daniel S. Cooley, Colorado State University

- 38 **A Recursive Formula for the Kaplan-Meier Estimator**

- with Mean Constraints—◆Yifan Yang,
- 39 **Efficient Estimation of Partial Rank-Based Correlation with Missing Data**—◆Wei Ding, University of Michigan; Peter Song, University of Michigan
- 40 **Models for Multivariate Longitudinal Data: A Comparative Study**—◆Gemechis Djira, South Dakota State University; Budhinath Padhy, South Dakota State University
- 41 **A Procedure to Detect General Association Based on Distance of Ranks**—◆Pratyaydipta Rudra, University of North Carolina at Chapel Hill; Fred Wright, North Carolina State University

188 **Contributed Oral Poster Presentations: Health Policy Statistics Section—Contributed**

CC-Exhibit Hall B2

Health Policy Statistics Section

Chair(s): Daniel S. Cooley, Colorado State University

- 42 **Combining Generalized Linear Mixed Modeling and Random Effects Modeling to Investigate Probability of Outcome Over Time: a NIDRR Traumatic Brain Injury Model Systems Sponsored Presentation**—◆Christopher Pretz, Craig Hospital
- 43 **Evidence-Based Use of Different Types of Oral Contraceptive Pills and the Risk of Cardiovascular Diseases**—◆Shun Zhang, National Center for Primary Care; Rust George, National Center for Primary Care; Djana Harp, Morehouse School of Medicine; Hedwige Saint-Louis, Morehouse School of Medicine
- 44 **Ecological Inference and the Ecological Fallacy: An Examination of the Use of Aggregate Geographic Data in Public Health Communication Planning**—◆William Pollard,
- 45 **Costs of Depression from Claims Data for Medicare Recipients in a Population-Based Follow-Up Study**—◆Seunyoung Hwang, Johns Hopkins Bloomberg School of Public Health; Pierre K. Alexandre, Johns Hopkins Bloomberg School of Public Health; Kimberly B. Roth, Johns Hopkins Bloomberg School of Public Health; Joseph J. Gallo, Johns Hopkins Bloomberg School of Public Health; William W. Eaton, Johns Hopkins Bloomberg School of Public Health
- 46 **Estimating Service Times in Batch-Sharing Queues**—◆Xuan Che, NIH; Chunxiao Zhou, NIH; Ao Yuan, Georgetown University; Minh Hyunh, NIH
- 47 **Explore Quantitative Methods in Health Disparity Measurement**—◆Yufeng Li, University of Alabama at Birmingham; Bradford Jackson, University of Alabama

Monday



- at Birmingham; Mona Fouad, University of Alabama at Birmingham; Edward Partridge, University of Alabama at Birmingham; Karan Singh, University of Alabama at Birmingham; Sejong Bae, University of Alabama at Birmingham
- 48 **Estimating Clustering in Survey Responses Among Primary Care Providers and Practice Staff: Initial Evidence from the Comprehensive Primary Care (CPC) Initiative**—◆Derekh Cornwell, Mathematica Policy Research; Jared Coopersmith, Mathematica Policy Research
- 49 **Detecting Influenza Epidemics Using Health Surveillance Data**—◆Xian Yu, University of Arkansas at Little Rock; Pankaj Choudhary, University of Texas at Dallas
- 50 **Using Instrumental Variable Regression to Explore Best Clinical Practices for Electronic Glucose Management Protocols for Non-Diabetics in an Adult Intensive Care Unit**—◆Justin Dickerson, Intermountain Medical Center; Michael Lanspa, Intermountain Medical Center; Emily Wilson, Intermountain Medical Center; John Holmen, Intermountain Medical Center
- 51 **Socio-Economic and Public Records Data for Health Risk Assessment and Interventions**—◆Donghui Wu, LexisNexis; Xin Deng, LexisNexis; Ognian Asparouhov, LexisNexis

189 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: IMS—Contributed

IMS

Chair(s): Daniel S. Cooley, Colorado State University

- 52 **A More Powerful Test Procedure for Multiple Hypothesis Testing**—◆Huann-Sheng Chen, National Cancer Institute; Shunpu Zhang, University of Nebraska
- 53 **Higher-Order Approximations to Multivariate Mann-Whitney Statistics**—◆Xinyan Chen; John Kolassa, Rutgers University
- 54 **Diagnostics of Generalized Linear Models**—◆Heike Schuhmacher, University of Bern; Lutz Duembgen, University of Bern
- 55 **Covariance and Correlation for Multivariate Functional Data**—◆Alexander Petersen, University of California, Davis; Hans-Georg Müller, University of California, Davis
- 56 **A Study on the Almost Sure Rate of Convergence of Stochastic Approximation Algorithms**—◆Samira Sadeghi, University of Alberta
- 57 **On Robust Multivariate Kaplan Meier Estimator**—◆Purba Mondal, Indian Statistical Institute; Anannya

Nath, Indian Statistical Institute

- 58 **A Method to Exploit the Structure of Genetic Ancestry Space to Enhance Case Control Studies**—◆Corneliu Alexandru Bodea, Carnegie Mellon; Bernie Devlin, University of Pittsburgh School of Medicine; Kathryn Roeder, CMU
- 59 **Sparse Regression with Nonsparse Latent Features**—◆Zemin Zheng, University of Southern California; Jinchi Lv, University of Southern California; Pallavi Basu, University of Southern California

Speaker with Lunch 12:30 p.m.–1:50 p.m.

190 CC-259B Section on Statistics in Sports Speaker with Lunch (Fee Event)—Speaker with Lunch

Section on Statistics in Sports

Organizer(s): Tracy Morris, University of Central Oklahoma

- ML11 Analyzing Umpire Performance Using PITCHf/x**—◆Andrew Swift, University of Nebraska at Omaha

Roundtables with Lunch 12:30 p.m.–1:50 p.m.

191 CC-Ballroom West Social Statistics Section P.M. Roundtable Discussion (Fee Event)

Social Statistics Section

- ML12 Longitudinal Employer-Household Dynamics Program**—◆Erika McEntarfer, U.S. Census Bureau

192 CC-Ballroom West Biometrics Section P.M. Roundtable Discussion (Fee Event)

Biometrics Section

Organizer(s): Rebecca Hubbard, Group Health Research Institute

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

ML13 **Ethical Issues in Peer Reviewing: The Good, the Bad, the Ugly, and What We Should Put in a Set of Guidelines**—◆Jon Shuster, University of Florida; Robert Oster, University of Alabama at Birmingham; Shelley Hurwitz, Harvard Medical School; Laura Lee Johnson, NIH/NCCAM

193 **Business and Economic Statistics Section P.M. Roundtable Discussion (Fee Event)**

Business and Economic Statistics Section

Organizer(s): Beth Andrews, Northwestern University

ML14 **BYOBAP: Build Your Own Business Analytics Program**—◆J. Keith Ord, Georgetown University

194 **Health Policy Statistics Section P.M. Roundtable Discussion (Fee Event)**

Health Policy Statistics Section

Organizer(s): Yuanjia Wang, Columbia University

ML15 **Statistics and Policy**—◆Thomas Louis, U.S. Census Bureau/Johns Hopkins University

ML16 **From Accelerometers to Androids: Design and Analytic Issues in Mobile Phone-Based Health Studies**—◆Warren Comulada, University of California, Los Angeles Center for Community Health

195 **Quality and Productivity Section P.M. Roundtable Discussion (Fee Event)**

Quality and Productivity Section

Organizer(s): Alix Robertson, Sandia National Laboratories

ML17 **Sensitivity Testing: Theory and Practice**—◆Barry Neyer, Excelitas Technologies

196 **Section for Statistical Programmers and Analysts P.M. Roundtable Discussion (Fee Event)**

Section for Statistical Programmers and Analysts

Organizer(s): Michael Carniello, Takeda

ML18 **Inconsistencies in Estimating Propensity Scores**—◆William Holmes, University of Massachusetts, Boston

197 **Section on Bayesian Statistical Science P.M. Roundtable Discussion (Fee Event)**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Kate Calder, Ohio State University

ML19 **Bayes-Inspired Experiential Learning: Critical Thinking with Interactive Data Visualization**—◆Leanna House, Virginia Tech; Scotland Leman, Virginia Tech

198 **Section on Statistical Consulting P.M. Roundtable Discussion (Fee Event)**

Section on Statistical Consulting

Organizer(s): Kim Love-Myers, University of Georgia

ML20 **Building the LISA 2020 Mentoring Network to Support Newly Created Stat Labs in Developing Countries**—◆Eric Vance, LISA-Virginia Tech

199 **Section on Statistical Education P.M. Roundtable Discussion (Fee Event)**

Section on Statistical Education

Organizer(s): Erin Blankenship, University of Nebraska-Lincoln

ML21 **Publishing in Statistics Education Journals**—◆Robert Gould, University of California, Los Angeles



Angeles
ML22 Using Games and Case Studies to Engage Students in the Introductory Class—◆ Shonda Kuiper, Grinnell College

200 CC-Ballroom West
Section on Statistical Learning and Data Mining P.M. Roundtable Discussion (Fee Event)

Section on Statistical Learning and Data Mining

Organizer(s): Matt Taddy, University of Chicago

ML23 Snowden, Google, and Text Networks—◆ David Banks, Duke University

201 CC-Ballroom West
Survey Research Methods Section P.M. Roundtable Discussion (Fee Event)

Survey Research Methods Section

Organizer(s): Daniell Toth, Bureau of Labor Statistics

ML24 Analyzing Survey Nonresponse—◆ Polly Phipps, Bureau of Labor Statistics

Invited Sessions 2:00 p.m.–3:50 p.m.

202 CC-157A
Shape-Restricted Function Estimation—Invited

Section on Nonparametric Statistics

Organizer(s): Bodhisattva Sen, Columbia University

Chair(s): Mary Meyer, Colorado State University

2:05 p.m. **Nonparametric Inference About a Density's Mode via Shape Constraints**—◆ Charles Doss, University of Minnesota; Jon Wellner, University of Washington

2:30 p.m. **Risk Bounds in Bivariate Isotonic Regression**—◆ Adityanand Guntuboyina, University of California, Berkeley

2:55 p.m. **Variable Selection in Convex Regression**—◆ John Lafferty, University of Chicago; Min Xu, Carnegie Mellon; Minhua Chen, University of Chicago

3:20 p.m. **Estimation of a Two-Component Mixture Model with Applications to Multiple Testing**—◆ Rohit Kumar Patra, Columbia University; Bodhisattva Sen, Columbia University

3:45 p.m. **Floor Discussion**

203 CC-153C
New Techniques for Functional Data Analysis—Invited

SSC

Organizer(s): Yichao Wu, North Carolina State University

Chair(s): Peng Zeng, Auburn University

2:05 p.m. **Densities as Functional Data**—◆ Hans-Georg Müller, University of California, Davis; Alexander Petersen, University of California, Davis

2:30 p.m. **Multicategory Angle-Based Large-Margin Classification**—Chong Zhang, University of North Carolina; ◆ Yufeng Liu, University of North Carolina at Chapel Hill

2:55 p.m. **Asymptotic Equivalence and Adaptive Recovery of Functional Data**—◆ Fang Yao, University of Toronto; Mark Koudstaal, University of Toronto

3:20 p.m. **Bayesian Spatial Functional Models for High-Dimensional Genomics Data**—◆ Veera Baladandayuthapani, MD Anderson Cancer Center; Jeffrey S. Morris, MD Anderson Cancer Center; Lin Zhang, MD Anderson Cancer Center; Keith Baggerly, MD Anderson Cancer Center

3:45 p.m. **Floor Discussion**

204 CC-104A
Ethical Issues in Clinical and Translational Biostatistics: Sample Size, Comparator Treatments, Research Accountability—Invited

Section on Statistical Consulting, Statistics Without Borders, Scientific and Public Affairs Advisory Committee, Committee on Professional Ethics

Organizer(s): Shelley Hurwitz, Harvard Medical School; Thomas Belin, University of California, Los Angeles

Chair(s): Shelley Hurwitz, Harvard Medical School

2:05 p.m. **Breaking Free of Sample Size Dogma**—◆ Peter Bacchetti, University of California, San Francisco

2:25 p.m. **Ethical and Practical Dilemmas in the Design of Clinical Trials for Evidence-Based Medicine**—◆ David Alan Schoenfeld, Massachusetts General Hospital

2:45 p.m. **Reproducible Research, Replicability, and Ethical Practice**—◆ Ronald Thisted, University of Chicago

3:05 p.m. **Toward Accountable Data Analyses**—◆ Jonathan Adam Letterman Gelfond, University of Texas at San Antonio; Bradley Pollock, University of Texas Health Science Center at Houston; Elizabeth

Heitman, Vanderbilt University; Craig Klugman, DePaul University; Leah Welty, Northwestern University Feinberg School of Medicine; Christopher Loudon, University of Texas Health Science Center at Houston

- 3:25 p.m. Disc: Peter Imrey, Cleveland Clinic
 3:35 p.m. Disc: Avital Cnaan, Children's National Medical Center
 3:45 p.m. **Floor Discussion**

205 CC-156C

■ ● Environmental Monitoring Using Networks of Sensors—Invited

Section on Statistics and the Environment

Organizer(s): Marian Scott, University of Glasgow

Chair(s): Matthew Pratola, Ohio State University

- 2:05 p.m. **Dynamic Spatial Temporal Evaluation of Deterministic Air Quality Models Using Network Sensor Systems**—◆ Elizabeth Mannshardt, North Carolina State University; Montserrat Fuentes, North Carolina State University; Soumendra Lahiri, North Carolina State University; Kristen Foley, Environmental Protection Agency
- 2:30 p.m. **Spatio-Temporal Methodology for Space Weather Monitoring**—◆ Peter Craigmile, Ohio State University/University of Glasgow; Qingying Shu, University of Glasgow; Matteo Ceriotti, University of Glasgow; Lyndsay Fletcher, University of Glasgow; Marian Scott, University of Glasgow
- 2:55 p.m. **Assessing the Effect of Air Pollution on Human Health Using Drug Sale Data**—Marta Blangiardo, Imperial College London; Michela Cameletti, University of Bergamo; ◆ Francesco Finazzi, University of Bergamo
- 3:20 p.m. Disc: Claire Miller, University of Glasgow
 3:45 p.m. **Floor Discussion**

206 CC-104B

■ ● Bridging the Gap Between Academia and Industry in Quality and

Productivity—Invited

Quality and Productivity Section, Section on Physical and Engineering Sciences, Statistics Without Borders

Organizer(s): Ming Li, REANCON.COM

Chair(s): Zhanpan Zhang, GE Global Research Center

- 2:05 p.m. **Field Failure Prediction Based on Multi-Level Repair and System Usage Information**—◆ William Q. Meeker, Iowa State University; Yili Hong, Virginia Tech; Zhibing Xu, Virginia Tech
- 2:30 p.m. **Industrial Internet: An Opportunity for Statistician in Data Science and Big Data Revolution**—◆ Ming Li, REANCON.COM
- 2:55 p.m. **Optimal Design Development for a Chemical Kinetic Model with Random Batch Effects: A Multi-Way Collaboration**—◆ Ketil Tvermosegaard, GlaxoSmithKline; John Joseph Peterson, GlaxoSmithKline; David Woods, University of Southampton
- 3:20 p.m. **Distribution Fitting of Skewed Data: An Industrial Case Study**—◆ Thomas J. Bzik, Air Products and Chemicals
- 3:45 p.m. **Floor Discussion**

207 CC-209

■ Applications of Calibration and Empirical Bayes Estimation Methods—Invited

Survey Research Methods Section, Government Statistics Section, International Society for Bayesian Analysis (ISBA)

Organizer(s): Carma R. Hogue, U.S. Census Bureau

Chair(s): Carma R. Hogue, U.S. Census Bureau

- 2:05 p.m. **Evaluating Calibration Estimators for the Annual Survey of Local Government Finance**—◆ Elizabeth Lynn Love, U.S. Census Bureau; Bac Tran, U.S. Census Bureau
- 2:25 p.m. **Calibrating the Empirical Bayes to Decision-Based Estimates in the Annual Survey of Public Employment and Payroll**—◆ Justin Nguyen, U.S. Census Bureau; Joseph Barth, U.S. Census Bureau
- 2:45 p.m. **An Evaluation of Different Small Area Estimators for the Annual Survey of Public Employment and Payroll**—◆ Bac Tran, U.S. Census Bureau; Brian Dumbacher, U.S. Census Bureau
- 3:05 p.m. Disc: Phillip Kott, RTI International
 3:25 p.m. Disc: Partha Lahiri, University of Maryland
 3:45 p.m. **Floor Discussion**

208 CC-258A

● Modern Statistical Method for Large-



Scale Data Analysis—Invited

ENAR, International Chinese Statistical Association, Statistics Without Borders, Conference on Statistical Practice Steering Committee

Organizer(s): Kevin He, University of Michigan

Chair(s): Yi Li, University of Michigan

- 2:05 p.m. **Multi-Task Quantile Regression Under the Transnormal Model**—◆Jianqing Fan, Princeton University; Lingzhou Xue, Penn State; Hui Zou, University of Minnesota
- 2:30 p.m. **A Fast, Valid, and Powerful New Test for E↯GWAS Interaction with Measurement Error in E**—◆Donna Spiegelman, Harvard School of Public Health; Huges Aschard, Harvard School of Public Health; Molin Wang, Harvard School of Public Health; Peter Kraft, Harvard School of Public Health
- 2:55 p.m. **Challenges and Strategies in Administrative Data Analysis**—Joan X. Hu, Simon Fraser University; ◆Rhonda J. Rosychuk, University of Alberta
- 3:20 p.m. **Resampling Methods for Variable Selection in the Presence of Missing Data for Small- and Large-Scale Problems**—◆Qi Long, Emory University; Brent A. Johnson, Emory University
- 3:45 p.m. **Floor Discussion**

209 CC-103
■ Computational Topology and Differential Geometry—Invited

Section on Statistical Computing, Interface Foundation of North America

Organizer(s): Susan Holmes, Stanford University

Chair(s): Susan Holmes, Stanford University

- 2:05 p.m. **Exact Inference After Model Selection via the Lasso**—Jonathan Taylor, Stanford University; Jason Lee, Stanford University; Dennis Sun, Stanford University; Yuekai Sun, Stanford University
- 2:30 p.m. **Geometrically Faithful Nonlinear Dimension Reduction**—Dominique Perrault-Joncas, Amazon.com; ◆Marina Meila, University of Washington
- 2:55 p.m. **Hamiltonian Monte Carlo: Are We There Yet?**—◆Christof Seiler, Stanford University; Susan Holmes, Stanford University; Simon Rubinsteyn-Salzedo, Stanford University
- 3:20 p.m. **Topological Consistency for Estimation of Density Level Sets**—Omer Bobrowski, Duke University; Sayan Mukherjee, Duke University; Jonathan

Taylor, Stanford University

3:45 p.m. **Floor Discussion**

210 CC-258B
● Advances in Statistical Methods for Large-Scale Genetic Data and Their Impact on Public Health—Invited

Section on Statistics in Epidemiology, Mental Health Statistics Section, Statistics Without Borders

Organizer(s): Iuliana Ionita-Laza, Columbia University

Chair(s): Seunggeun Lee, University of Michigan

- 2:05 p.m. **A Unified Framework for Two-Stage Gene-Environment Interaction Tests with Adaptive Filtering**—◆Lin Chen, University of Chicago
- 2:30 p.m. **Integrating Competing but Complementary Association Tests with Applications to Rare Variants Analyzes and Interaction Studies**—◆Lei Sun, University of Toronto
- 2:55 p.m. **Risk Prediction Using Whole-Genome Data: Methods and Prospects**—◆Peter Kraft, Harvard School of Public Health
- 3:20 p.m. **Floor Discussion**

211 CC-151B
Statistica Sinica Young Statisticians Invited Session—Invited

International Chinese Statistical Association

Organizer(s): Qiwei Yao, London School of Economics

Chair(s): Qiwei Yao, London School of Economics

- 2:05 p.m. **Models and Statistics for Detection of Genome Structural Variation**—◆Nancy Zhang, University of Pennsylvania; David Siegmund, Stanford University; Benjamin Yakir, Hebrew University
- 2:35 p.m. **On Convex Regression**—◆Bodhisattva Sen, Columbia University
- 3:05 p.m. **Impacts of High-Dimensionality in Finite Samples**—◆Jinchi Lv, University of Southern California
- 3:35 p.m. **Floor Discussion**

Invited Panels 2:00 p.m.—3:50 p.m.

212 CC-212
■ ● Treatment of Uncertainty in Climate Change Assessments—Invited

ASA Advisory Committee on Climate Change Policy, Statistics Without Borders

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Organizer(s): Richard W. Katz, NCAR

Chair(s): Bruno Sanso, University of California, Santa Cruz

- Panelists:** ◆ Kerry Emanuel, Massachusetts Institute of Technology
 ◆ Leonard A. Smith, London School of Economics
 ◆ Andrew R. Solow, Woods Hole Oceanographic Institution
 ◆ Gary W. Yohe, Wesleyan University

3:45 p.m. **Floor Discussion**

213 **CC-153B**
■ Flipping the Biostatistics Classroom—Invited

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines, Statistics in Business Schools Interest Group

Organizer(s): Todd A. Schwartz, University of North Carolina at Chapel Hill

Chair(s): Dalene Stangl, Duke University

- Panelists:** ◆ Rebecca R. Andridge, Ohio State University
 ◆ Megan L. Neely, Duke University
 ◆ Kristin L. Sainani, Stanford University
 ◆ Todd A. Schwartz, University of North Carolina at Chapel Hill

3:45 p.m. **Floor Discussion**

Topic-Contributed Sessions 2:00 p.m.—3:50 p.m.

214 **CC-102B**
■ ● Predictive Policing—Topic-Contributed

Section on Statistical Learning and Data Mining

Organizer(s): Cynthia D. Rudin, MIT

Chair(s): Tong Wang, MIT

2:05 p.m. **Learning to Detect Patterns of Crime**—◆ Cynthia D. Rudin, MIT; Tong Wang, MIT; Dan Wagner, Cambridge Police Department; Rich Sevieri, Cambridge Police Department

2:25 p.m. **Point Process Models on Networks**—◆ Andrea Bertozzi, University of California, Los Angeles

2:45 p.m. **Measuring the Effect of the Experience of Incarceration on Reoffending**—◆ Daniel Nagin, Carnegie Mellon; Jose Zubizarreta, Columbia University

3:05 p.m. **Forecasting Intimate Partner Violence to Inform Law Enforcement Interventions**—◆ Richard Berk, University of Pennsylvania

3:25 p.m. **Kernel Space-Time Interaction Tests for Identifying Leading Indicators of Crime**—◆ Seth Flaxman; Daniel Neill, Carnegie Mellon; Alex Smola, Carnegie Mellon

3:45 p.m. **Floor Discussion**

215 **CC-259A**
■ ● New Statistical Methodology on Supervised and Unsupervised Learning Problems—Topic-Contributed

WNAR, ENAR, Section on Physical and Engineering Sciences

Organizer(s): Jingyi Jessica Li, University of California, Los Angeles

Chair(s): Jingyi Jessica Li, University of California, Los Angeles

2:05 p.m. **A Plug-In Approach to Supervised Binary Classification Problems in High-Dimensional Space Under the Neyman-Pearson Paradigm**—◆ Anqi Zhao, Harvard; Xin Tong, University of Southern California; Yang Feng, Columbia University; Lie Wang, MIT

2:25 p.m. **Kernel-Based Measures of Association**—◆ Ying Liu, Columbia University; Victor de la Pena, Columbia University; Tian Zheng, Columbia University

2:45 p.m. **Inferring Gene Functional Modules and Association Networks Using Sparse Canonical Correlation Analysis**—◆ Haiyan Huang,

3:05 p.m. **A Plug-In Approach to Neyman-Pearson Classification**—◆ Xin Tong, University of Southern California

3:25 p.m. **Equitability and the Maximal Information Coefficient**—◆ David Reshef, MIT/Harvard; Yakir Reshef, Harvard/MIT; Pardis Sabeti, Harvard; Michael Mitzenmacher, Harvard

3:45 p.m. **Floor Discussion**

216 **CC-211**

Monday



Longtime Member Reception

BY INVITATION ONLY

Monday, August 4
6:30 p.m. – 7:30 p.m.
Seaport Boston Hotel
Plaza Ballroom C

If you joined the ASA 35 or more years ago, the American Statistical Association would like to thank you for your longtime support.

Please join us for a reception in your honor.

Special thanks to RTI International and Westat for their sponsorship



- 2:45 p.m. Southwest Research Institute
- 2:45 p.m. **Four Men Who Were Presidents in the History of the American Statistical Association: Selected Vignettes**—Fritz Scheuren, NORC at the University of Chicago; ◆ Mary Batcher, Ernst & Young
- 3:05 p.m. **Women Presidents in the History of the American Statistical Association: Selected Vignettes**—Mary Batcher, Ernst & Young; ◆ Fritz Scheuren, NORC at the University of Chicago
- 3:25 p.m. Disc: Jeri Metzger Mulrow, NSF
- 3:45 p.m. **Floor Discussion**

217 CC-257B

■ **The Role of Statisticians in Risk-Based Monitoring and Fraud Detection in Clinical Trials—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Richard C. Zink, JMP Life Sciences, SAS Institute

Chair(s): Kelci J. Miclaus, JMP Life Sciences, SAS Institute

- 2:05 p.m. **Ensuring Data Quality and Identifying Potential Fraud in Clinical Trials**—◆ Nancy Geller, NIH
- 2:25 p.m. **Signal Detection of Potentially Fraudulent Activity in Clinical Trials**—◆ Richard C. Zink, JMP Life Sciences, SAS Institute
- 2:45 p.m. **Risk-Based Monitoring and Statisticians: An Evolving Role in Methods, Collaboration, Education, and Implementation**—◆ Rakhi Kilaru, PPD
- 3:05 p.m. **The Role of Statisticians in Risk-Based Monitoring**—◆ William Lawton, Boehringer Ingelheim
- 3:25 p.m. Disc: Andy Grieve, Aptiv Solutions
- 3:45 p.m. **Floor Discussion**

● **175 Years of the American Statistical Association and Its 110 Presidents—Topic-Contributed**

Survey Research Methods Section, Committee on ASA Archives and Historical Materials, Statistics Without Borders, ASA 175th Anniversary Steering Committee

Organizer(s): John D. McKenzie Jr., Babson College

Chair(s): Alan Hutson, University of Buffalo

- 2:05 p.m. **A Brief History of the American Statistical Association: 1839–2014, Part 1**—◆ Robert Mason, Southwest Research Institute; John D. McKenzie Jr., Babson College
- 2:25 p.m. **A Brief History of the American Statistical Association: 1839–2014, Part 2**—◆ John D. McKenzie Jr., Babson College; Robert Mason,

218 CC-206A

■ ● **Statisticians Need to Adapt to the Changing Payer Evidence Generation Paradigm—Topic-Contributed**

Social Statistics Section, International Chinese Statistical Association

Organizer(s): Ianju Zhang, AbbVie

Chair(s): Ianju Zhang, AbbVie

- 2:05 p.m. **Some Design Considerations for Time-to-Event Trials in the Context of Comparative Efficacy Needs for Payer Evidence Groups**—◆ Stephen Lane, GlaxoSmithKline
- 2:25 p.m. **Statistical Challenges and Solutions for Real-World**

Data and Comparative Effectiveness Research—
◆Wei Shen, Eli Lilly and Company; Douglas Faries, Eli Lilly and Company

2:45 p.m. **Use of Multinational Randomized Clinical Trials to Address Global Payer Needs: Challenges and Opportunities for Statisticians—**◆John Cook, Merck

3:05 p.m. Disc: Frank Shen, AbbVie

3:25 p.m. **Floor Discussion**

219 CC-260 **Analysis with Kronecker Product Structured Covariance Matrices—Topic-Contributed**

Biometrics Section

Organizer(s): Dietrich von Rosen, Swedish University of Agricultural Sciences

Chair(s): Dietrich von Rosen, Swedish University of Agricultural Sciences

2:05 p.m. **Kronecker-Product Variance-Covariance Structures: Some Important Elements of Estimation and Testing—**◆Pierre Dutilleul, McGill University

2:25 p.m. **Two-Stage Principal Component Analyses of Symbolic Data Using Patterned Covariance Structures—**◆Anuradha Roy, University of Texas at San Antonio; Chengcheng Hao, Stockholm University; Yuli Liang, Stockholm University

2:45 p.m. **Expectation-Maximization Algorithm for the Multilinear Normal Distribution—**◆Martin Singull; Thomas Sch[^]n, Uppsala University

3:05 p.m. **Likelihood Estimation with Incomplete Array Variate Observations—**◆Deniz Akdemir, Cornell University

3:25 p.m. **On Estimation of Block Toeplitz Covariance Matrix in Mixed Linear Models—**◆Tatjana Von Rosen, Stockholm University

3:45 p.m. **Floor Discussion**

220 CC-156A **HPSS Student Paper Competition Winners Presentation—Topic-Contributed**

Health Policy Statistics Section

Organizer(s): Yuanjia Wang, Columbia University

Chair(s): Yuanjia Wang, Columbia University

2:05 p.m. **A Spatio-Temporal Point Process Model for Ambulance Demand—**◆Zhengyi Zhou, Cornell University; David Scott Matteson, Cornell University; Dawn B. Woodard, Cornell University; Shane Henderson, Cornell University; Athanasios Micheas, University of Missouri-Columbia

2:25 p.m. **Matching to Estimate the Causal Effects from Multiple Treatments—**◆Michael Lopez, Brown University; Roe Gutman, Brown University

2:45 p.m. **Instrumental Variables Estimation with Some Invalid Instruments and Its Application to Mendelian Randomization—**◆Hyunseung Kang, University of Pennsylvania; Anru Zhang, University of Pennsylvania; Tony Cai, University of Pennsylvania; Dylan Small, University of Pennsylvania

3:05 p.m. **Projecting Benefits and Harms of Novel Cancer Screening Biomarkers: a Study of Pca3 and Prostate Cancer—**◆Jeanette Birnbaum, University of Washington; Ziding Feng, MD Anderson Cancer Center; Jing Fan, University of Washington; Roman Gulati, Fred Hutchinson Cancer Research Center; Ruth Etzioni, Fred Hutchinson Cancer Research Center

3:25 p.m. **Using Post-Quality of Life Measurement Information in Censoring by Death Problems—**◆Fan Yang, Wharton School; Dylan Small, University of Pennsylvania

3:45 p.m. **Floor Discussion**

221 CC-157B **SBSS Student Travel Award Winners - Session 1—Topic-Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Sudipto Banerjee, University of Minnesota

Chair(s): Sudipto Banerjee, University of Minnesota

2:05 p.m. **Bayesian Inference of Multiple Gaussian Graphical Models—**◆Christine Peterson, Stanford University; Francesco Stingo, MD Anderson Cancer Center; Marina Vannucci, Rice University

2:25 p.m. **Relative Fixed-Width Stopping Rule and Its Application to Spatial Bayesian Models on fMRI Time-Series Data—**◆Lei Gong, University of California, Riverside; James Flegal, University of California, Riverside

2:45 p.m. **Bayesian Modeling with Blockwise Hyper-G**



- 3:05 p.m. **Priors**—◆Agniva Som, Ohio State University; Christopher Hans, Ohio State University; Steven N. MacEachern, Ohio State University
- 3:25 p.m. **Joint Clustering and Registration for Functional Data**—◆Yafeng Zhang, Amgen; Donatello Telesca, University of California, Los Angeles; Steve Horvath, University of California, Los Angeles
- 3:45 p.m. **Hierarchical Gene-Proximity Models for Genome-Wide Association Studies**—◆Ian Johnston, Boston University; Timothy Hancock, National ICT Australia, Victoria Research Laboratory; Hiroshi Mamitsuka, Kyoto University; Luis Carvalho, Boston University
- 3:45 p.m. **Floor Discussion**

- 2:05 p.m. **Co-Clustering Exchangeable Array and Graph Data**—◆David S. Choi, Carnegie Mellon; Patrick Wolfe, University College London
- 2:25 p.m. **Two-Sample Hypothesis Testing for Random Dot Product Graphs via Adjacency Spectral Embedding**—◆Minh Tang,
- 2:45 p.m. **Testing for Commonality Among Graphs and Subgraphs**—◆Daniel Sussman, Johns Hopkins University
- 3:05 p.m. **Reconstructability and Distinguishability of Sparse Stochastic Block Models**—◆Praneeth Netrapalli, University of Texas at Austin; Joe Neeman, University of Texas at Austin
- 3:25 p.m. **Progress in Network Estimation and Comparison**—◆Cosma Shalizi, Carnegie Mellon
- 3:45 p.m. **Floor Discussion**

222 CC-254A **■ ● Showcasing the Application of Bayesian Methods in Drug Development via Case Studies—Topic-Contributed**

Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA)

Organizer(s): Radha A. Railkar, Merck

Chair(s): Karen Lynn Price, Eli Lilly and Company

- 2:05 p.m. **Exploring Bayesian Analogs to Two Frequentist Methods in Noninferiority Testing Through Examples**—◆Margaret Gamalo, FDA/CDER/OB; Ram Tiwari, FDA
- 2:25 p.m. **Generalized Mixture Commensurate Priors for Combining Nonexchangeable Functional Data Sources with Applications in Oncology**—◆Thomas Murray, University of Minnesota; Brian P. Hobbs, MD Anderson Cancer Center; Bradley P. Carlin, University of Minnesota
- 2:45 p.m. **An Application of Bayesian Method in Control-Based Pattern Mixture Models for Longitudinal Studies with Missing Data**—◆Frank Liu, Merck
- 3:05 p.m. **Bayesian Adaptive Trials for Rare Diseases: A Case Study**—◆Melanie Quintana, Berry Consultants; Scott Berry, Berry Consultants; Mark Fitzgerald, Berry Consultants; Nuria Carrillo-Carrasco, NIH/NCATS
- 3:25 p.m. **Disc:** John Scott, FDA/CBER/OBE
- 3:45 p.m. **Floor Discussion**

223 CC-156B **Estimation and Testing for Models of Network Data—Topic-Contributed**

IMS

Organizer(s): David S. Choi, Carnegie Mellon

Chair(s): Karl Rohe, University of Wisconsin-Madison

224 CC-257A **● Biometrics Section Student Paper Award Session 2—Topic-Contributed**

Biometrics Section

Organizer(s): Michael Daniels, University of Texas at Austin

Chair(s): Michael Daniels, University of Texas at Austin

- 2:05 p.m. **Sparse Median Graphs Estimation in a High-Dimensional Semiparametric Model**—◆Fang Han, Johns Hopkins University; Han Liu, Princeton University; Brian Scott Caffo, Johns Hopkins University
- 2:25 p.m. **Hierarchical Feature Selection Incorporating Known and Novel Biological Information: Identifying Genomic Features Predictive of Cancer Recurrence**—◆Yize Zhao, Emory University; Matthias Chung, Virginia Tech; Brent A. Johnson, Emory University; Carlos Moreno, Emory University; Qi Long, Emory University
- 2:45 p.m. **Meta-Analysis of Sequencing Studies with Heterogeneous Genetic Associations**—◆Zhengzheng Tang, University of North Carolina at Chapel Hill; Danyu Lin, University of North Carolina
- 3:05 p.m. **Prediction of Cancer Drug Sensitivity Using High-Dimensional Genomic Features**—◆Ting-Huei Chen; Wei Sun, University of North Carolina at Chapel Hill
- 3:25 p.m. **Disc:** Michael Wu, Fred Hutchinson Cancer Research Center
- 3:45 p.m. **Floor Discussion**

225 CC-252B **■ Strategies to Mitigate Against**

Operational Bias in Adaptive Designs for Medical Device Trials—Topic-Contributed

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences

Organizer(s): *Greg Maislin, Biomedical Statistical Consulting*

Chair(s): *Greg Maislin, Biomedical Statistical Consulting*

- 2:05 p.m. **Strategies to Mitigate Against Operational Bias in Adaptive Designs for Medical Device Trials—**◆Caroline Morgan, Cytel
- 2:25 p.m. **The Use of ‘Fuzzy Promising Zones’ to Mitigate Against Operational Bias in Adaptive Sample Size Re-Estimation Designs—**◆Brendan Keenan, Biomedical Statistical Consulting; Greg Maislin, Biomedical Statistical Consulting
- 2:45 p.m. **Operational Bias in Adaptive Designs: Potential Sources and Mitigation Strategies—**◆Michelle Detry, Berry Consultants
- 3:05 p.m. **Mitigating Operational Bias in Adaptive Design: A Regulatory Perspective—**◆Martin Ho, FDA
- 3:25 p.m. Disc: Charity Morgan, University of Alabama at Birmingham
- 3:45 p.m. **Floor Discussion**

226 CC-104C **■ ● Evolving Statistical Methods for the Evolving Brain Networks—Topic-Contributed**

Section on Physical and Engineering Sciences, Section on Statistics in Imaging, Section on Physical and Engineering Sciences, Mental Health Statistics Section

Organizer(s): *Xi Luo, Brown University*

Chair(s): *Yi Zhao, Brown University*

- 2:05 p.m. **Modeling Neuronal Cross-Interactions—**◆Hernando Ombao, University of California, Irvine; Sam Behseta, California State University, Fullerton; Babak Shahbaba, University of California, Irvine; David Moorman, University of Massachusetts
- 2:25 p.m. **Sparse Partial Functional Linear Regression Model for Hyper-Acute Ischemic Stroke Study—**◆Linglong Kong, University of Alberta; Hongtu Zhu, University of North Carolina at Chapel Hill; Hongyu An, University of North Carolina; Andria Ford, Washington University in St. Louis
- 2:45 p.m. **Spatial-Temporal Functional Principal Component Analysis and Its Application on fMRI—**◆Lei Huang, Johns Hopkins University; Philip T. Reiss, New York University School of Medicine; Luo Xiao, Johns Hopkins University; Martin Lindquist, Johns Hopkins Bloomberg School of Public

Health; Ciprian Crainiceanu, Johns Hopkins University

- 3:05 p.m. **Estimating Networks from Big Neuroimaging Data—**◆Xi Luo, Brown University; Xiaoxing Cheng, Brown University; Yi Zhao, Brown University
- 3:25 p.m. **Floor Discussion**

Speed Session 2:00 p.m. - 3:50 p.m.

227 CC-255 **Speed Session #3: Topics in Survey Research Methods and Applications, Part 1 — Contributed Speed**

Section on Physical and Engineering Sciences, Section on Statistics in Sports, Social Statistics Section, Government Statistics Section

Chair(s): *Justin Post, North Carolina State University*



- 2:05 p.m. **Using Multilevel Modeling to Analyze Student Responses to a Sexual Health Curriculum Perceptions Survey** — ◆ Tammy Tom, University of Hawaii; Kelly Roberts, University of Hawaii
- 2:10 p.m. **A Model-Based Approach for Assessing Reproducibility and Outlier Detection in High-Throughput Biological Data** — ◆ Karthik Devarajan, Fox Chase Cancer Center; Xiaowei Chen, Fox Chase Cancer Center; Jeffrey Peterson, Fox Chase Cancer Center
- 2:15 p.m. **The Control of Type I Error and Power in Statistics for Spearman's Rho and Kendall's Tau Correlation Coefficients by Monte Carlo Method** — ◆ Chittannu Sitthisan, University of Northern Colorado
- 2:20 p.m. **A Statistical Model for Event Sequence Data** — ◆ Kevin Heins, University of California, Irvine; Hal S. Stern, University of California, Irvine
- 2:25 p.m. **How to Calculate Substitution, Insertion, and Deletion Probabilities for Fixed Sequences** — ◆ Jason Wilson, Biola University
- 2:30 p.m. **Breast Cancer Disparities: a Social Network Analysis Prospective** — ◆ Shun Zhang, National Center for Primary Care
- 2:35 p.m. **Mixed Effects Modeling in Conjoint Analysis with Multivariate Normal Responses** — ◆ Tanita Cronje, University of Pretoria; Frans H.J. Kanfer, University of Pretoria; Sollie Millard, University of Pretoria; Mohammad Arashi, Shahrood University
- 2:40 p.m. **Implications of a New Response Option for Questions About Driving in the Youth Risk Behavior Survey** — ◆ Emily Olsen, CDC; Ruth A. Shults, CDC
- 2:45 p.m. **Use of Treemapping Software for Visualizing Big, Hierarchical Data with Applications to the Federal Budget** — ◆ Daniel Habtemariam
- 2:55 p.m. **A Class of Regression Models for Parallel and Series Systems with a Random Number of Components** — ◆ Silvia L.P. Ferrari, University of São Paulo; Alice L. Morais, University of São Paulo
- 3:00 p.m. **The Status of Women Faculty in Departments of Statistics and Biostatistics** — ◆ Marcia Gumpertz, North Carolina State University; Jacqueline Hughes-Oliver, North Carolina State University
- 3:05 p.m. **Illustrating Split-Plot Designs with 3-D Models** — ◆ James Alloway, E.M.S.Q. Associates
- 3:10 p.m. **Forecast Model Comparisons of ISO New England Electricity Demand** — ◆ Timothy Fletcher, Northwestern University
- 3:15 p.m. **The Effect of Shot Selection Trends on Offensive Efficiency** — ◆ Justin Post, North Carolina State University; Michael Dickey, North Carolina State University
- 3:20 p.m. **Using NFL Draft Metrics to Predict Player Success** — ◆ Nicholas Kapur, North Carolina State University; Justin Post, North Carolina State University; James Gilman, North Carolina State University
- 3:25 p.m. **Efficiency of Scoring Baserunners in MLB** —

- ◆ William Knapp; Jason Osborne, North Carolina State University
- 3:30 p.m. **The Perfect Bracket: Machine Learning in NCAA Basketball** — ◆ Sara Stoudt, Smith College; Loren Santana, Smith College; Ben S. Baumer, Smith College
- 3:35 p.m. **Video Tracking of Hockey Players** — ◆ Brian Macdonald, United States Military Academy; Fred Ulrich, United States Military Academy; Timothy Nosco, United States Military Academy; Michael Martin, United States Military Academy; Nicholas Howard, United States Military Academy; Frank Wattenberg, United States Military Academy
- 3:40 p.m. **The Importance of Scoring the First Goal in the NHL: Game Winner or Superstition?** — ◆ Samantha Key; Michael Rutter, Penn State
- 3:45 p.m. **Applying Meta-Pathway Analyses Across Multiple Phosphoproteomics Data Sets to Identify Common Adaptive Responses to Tyrosine Kinase Inhibitors in Cancer Cells** — ◆ Yian Chen, Moffitt Cancer Center & Research Institute; Kate Fisher, Moffitt Cancer Center & Research Institute

Contributed Sessions 2:00 p.m.–3:50 p.m.

228

CC-157C

● Dependence—Contributed

IMS

Chair(s): Andrew Swift, University of Nebraska at Omaha

- 2:05 p.m. **M-Estimation Under Dependence**—◆ Pramita Bagchi, University of Michigan; Moulinath Banerjee, University of Michigan; Stilian Stoev, University of Michigan
- 2:20 p.m. **R-Estimation for Asymmetric Independent Component Analysis**—◆ Chintan Mehta,
- 2:35 p.m. **On Mean and Covariance Estimation for Repeated Time Series Under Long Memory Errors**—Jan Beran, University of Konstanz; ◆ Haiyan Liu, University of Konstanz
- 2:50 p.m. **Consistency of Large Sample Autocovariance Matrices**—◆ Sreenivas Konda, University of California, Santa Barbara
- 3:05 p.m. **Robust Scale Estimation Under Long-Range Dependence**—◆ Neville Weber, University of Sydney; Garth Tarr, University of Sydney; Samuel Mueller, University of Sydney
- 3:20 p.m. **On Characterizing Finite Exchangeability for Relational Data**—◆ Alexander Volfovsky, Harvard; Edoardo M. Airoldi, Harvard

3:35 p.m. **Correlation Structure of Time-Changed Pearson Diffusions**—◆Jebessa Mijena, Georgia College & State University

229 CC-151A Multivariate Data Models and Inferential Methods—Contributed

International Indian Statistical Association

Chair(s): Ashwini Maurya, Michigan State University

2:05 p.m. **Two-Sample Empirical Likelihood-Based Tests for Mean: From Frequentists to Bayesian Type Techniques with Applications to Case-Control Studies**—◆Ge Tao, University at Buffalo; Albert Vexler, University at Buffalo

2:20 p.m. **Bootstrap Precedence Tests for K-Samples**—◆Rajarshi Dey, Paul Nelson, Kansas State University

2:35 p.m. **Modeling Mutagenicity Status of a Diverse Set of Chemical Compounds by Envelope Methods**—◆Subhabrata Majumdar, University of Minnesota, Twin Cities

2:50 p.m. **Uniformly Consistent Autoregressive Spectral Estimates for Stationary Spatial Processes on a D-Dimensional Lattice**—◆Abhimanyu Gupta, University of Essex; Peter Robinson, LSE

3:05 p.m. **Selection of Random Effects Distributions in Mixed Counts Models: a Quasi-Likelihood Approach**—◆Jamie Riggs, Spanned Solutions

3:20 p.m. **Extending the Archimedean Copula Methodology to Model Multivariate Survival Data Grouped in Clusters of Variable Size**—◆Roel Braekers, Hasselt University; Leen Prenen, Hasselt University; Luc Duchateau, Ghent University

3:35 p.m. **Floor Discussion**

230 CC-203 Applied Causal Inference—Contributed

Biometrics Section

Chair(s): Matthew White, Harvard

2:05 p.m. **When Does the Causal Bias of Treatment Effect Increase by Adding a Confounder Z to a Regression Model and Decrease by Using Z as an Instrumental Variable?**—◆Susan Alber,

2:20 p.m. **Structural Equation Modeling of Immunotoxicity Associated with Exposure to Perfluorinated Compounds**—◆Ulla B. Mogensen, University of Copenhagen; Esben Budtz-Jørgensen, University

of Copenhagen; Philippe Grandjean, University of Southern Denmark; Carsten Heilmann, National University Hospital, Copenhagen; Flemming Nielsen, University of Southern Denmark; Pal Weihe, Faroese Hospital System

2:35 p.m. **Latent Mediators in Causal Mediation Analysis**—◆Jeffrey Albert, Case Western Reserve University; Cuiyu Geng, Case Western Reserve University; Suchitra Nelson, Case School of Dental Medicine

2:50 p.m. **Analysis of Data from Case-Control Studies Using Counterfactual Propensity Scores**—◆Irina Bondarenko, University of Michigan; Trivellore Raghunathan, University of Michigan

3:05 p.m. **From Descriptive to Mechanistic Models to Study Causal Effects: Application to the Effect of HAART on CD4 Count**—◆Melanie Prague, Harvard School of Public Health; Daniel Commenges, University Bordeaux INSERM U897 ISPED; Jon Michael Gran, University of Oslo; Odd Aalen, University of Oslo; Rodolphe ThiÉbaut, INSERM/INRIA

3:20 p.m. **A Coding Model for Time-Dependent Post-Randomization Covariates in Regression and SEM**—◆Thomas Templin, Wayne State University

3:35 p.m. **Causal Inference Estimation When Treatment Is Continuous Using the Rubin Potential Outcomes Framework**—◆Douglas Galagate,

231 CC-251 Mixed Effect Models for Longitudinal, Functional, and Spatial Data—Contributed

Biometrics Section

Chair(s): Momiao Xiong, University of Texas Health Science Center at Houston

2:05 p.m. **Prediction Error Estimation for Regularized Functional Mixed Models**—◆Abolfazl Safikhani, Michigan State University; Tapabrata Maiti, Michigan State University; Ping-Shou Zhong,



- Michigan State University
- 2:20 p.m. **Spatial Regression with Covariate Measurement Error: a Semiparametric Approach**—◆Md Hamidul Huque, University of Technology; Howard D. Bondell, North Carolina State University; Raymond J. Carroll, Texas A&M; Louise Ryan, University of Technology
- 2:35 p.m. **Bayesian Mixed-Effects Location and Scale Models for Multivariate Longitudinal Outcomes: An Application to Ecological Momentary Assessment Data**—◆Kush Kapur; Xue Li, Hines Veteran Affairs; Emily A. Blood, Boston Children's Hospital; Donald Hedeker, University of Illinois at Chicago
- 2:50 p.m. **A Test for Comparing the Location of Two Quadratic Growth Curves**—◆Wanchunzi Yu, Arizona State University; Mark Reiser, Arizona State University
- 3:05 p.m. **A Constrained Mixed Effects Model Based on Semi-Linear Differential Equation for Cell Polarity Signaling in Tip Growth of Pollen Tubes**—◆Zhen Xiao, University of California, Riverside
- 3:20 p.m. **Estimating Correlation Among Multiple Longitudinal Outcomes of Disease Progression in Patients Who Developed Primary Open-Angle Glaucoma**—◆Feng Gao, Washington University School of Medicine in St. Louis; J. Philip Miller, Washington University School of Medicine in St. Louis; Julia Beiser, Washington University School of Medicine in St. Louis; Ling Chen, Washington University in St. Louis; Mae Gordon, Washington University School of Medicine in St. Louis
- 3:35 p.m. **Floor Discussion**

232 CC-252A Model and Variable Selection— Contributed

Biometrics Section

Chair(s): Christine Schubert Kabban, Air Force Institute of Technology

- 2:05 p.m. **Statistical Inference for Inverse Regression Prediction with Applications to Tooth Dosimetry**—◆Eugene Demidenko, Dartmouth Medical School
- 2:20 p.m. **Theoretical Limits of Component Identification in a Separable Nonlinear Least Squares Problem**—◆Ross Hilton, Georgia Institute of Technology; Nicoleta Serban, Georgia Institute of Technology
- 2:35 p.m. **Asymmetric Linear Regression Models with Epsilon Skew Gamma Distribution**—◆Ebtisam Abdulah; Hassan Elsalloukh, University of Arkansas at Little Rock
- 2:50 p.m. **Double Threshold GARCH Model with Applications to EEG Data**—◆Sipan Aslan, Middle East Technical University; Hernando Ombao, University of California, Irvine

- 3:05 p.m. **Parametric or Nonparametric: The Focused Information Criterion Approach**—◆Martin Jullum, University of Oslo; Nils Lid Hjort, University of Oslo
- 3:20 p.m. **The Role of Akaike Weights in Model Selection**—◆Jessica K. Kohlschmidt, Ohio State University; Kati S. Maharry, Ohio State University; Clara D. Bloomfield, Ohio State University
- 3:35 p.m. **Promoting Similarity of Model Sparsity Structures in Integrative Analysis**—◆Yuan Huang, Penn State; Runze Li, Penn State; Jian Huang, University of Iowa; Shuangge Ma, Yale

233 CC-254B ■ Meta-Analysis in Biopharmaceutical Research—Contributed

Biopharmaceutical Section

Chair(s): Darcy Hille, Merck

- 2:05 p.m. **Bayesian Meta-Analysis with a Mixture of Mean Differences and Odds Ratios or Relative Risks to Achieve a Threshold**—◆Robert Grant, St George's, University of London & Kingston University
- 2:20 p.m. **Effect of Needle Size in EUS-Guided FNA Study with Rare Events Using Meta-Analysis**—◆Akshita Chawla, Michigan State University; Tapabrata Maiti, Michigan State University; Vivek Pradhan, Pfizer
- 2:35 p.m. **A Flexible Two-Dimensional Distribution for Combining Studies in Meta-Analyses of Binary Events**—◆Jingjing Yan, Ohio State University; Eloise Kaizar, Ohio State University; Steven N. MacEachern, Ohio State University
- 2:50 p.m. **Meta-Analyses, Disease Progression Models, and Trial Design and Analyses**—◆Russell Reeve, Quintiles
- 3:05 p.m. **Application of Network Meta-Analysis to Stroke Studies**—◆Junyuan Wang, BMS; Guang Yang, Rutgers University; Weihua Tang, BMS; Min-ge Xie, Rutgers University
- 3:20 p.m. **Evaluating Diagnostic Utility from the Literature**—◆John Johnson, PPD,
- 3:35 p.m. **Methods Reporting Quality in Cochrane Lupus Trials**—◆Charles Goldsmith, Simon Fraser University

234 CC-258C ■ Subgroup Analysis and Biomarkers— Contributed

Biopharmaceutical Section

Chair(s): Sharon Murray, GlaxoSmithKline

2:05 p.m. **Challenges and New Approaches in Identifying Treatment Specific Subgroups That Are Commercially Viable with Binary Outcomes**—◆ Lin Li, BioStat Solutions; Tobias Guennel, BioStat Solutions; Scott Marshall, BioStat Solutions

2:20 p.m. **Simultaneous Inference for Joint Overall and Subgroup Confirmatory Hypothesis Testing**—◆ Hui Wang, Palo Alto VA/CSPCC; Ying Lu, Palo Alto VA CSPCC/Stanford University; Ilana Belitskaya-Lévy, Palo Alto VA CSPCC; Gheorghe Doros, Boston University School of Public Health; Robert A. Lew, VA Cooperative Studies Program Coordinating Center; Mei Chiung Shih, Stanford University School of Medicine; Lu Tian, Stanford University

2:35 p.m. **Adjusting for Misclassification in the Design and Analysis of Stratified Biomarker Clinical Trials**—◆ Susan Halabi, Duke University; Chen-Yen Lin, Eli Lilly and Company; Aiyi Liu, NICHD

2:50 p.m. **The Plan of Enrichment Designs for Dealing with High Placebo Response**—◆ Xiangmin Zhang, University of Iowa; Yeh-Fong Chen, FDA

3:05 p.m. **Identify a Target Population for Future Clinical Trial**—◆ Aiyang Tao, Novartis; Lihui Zhao, Northwestern University; Lee Jen Wei, Harvard; Achim Guettner, Novartis

3:20 p.m. **Greediness Reduction Interaction Tree Algorithm for Subgroup Analysis in Clinical Trials**—◆ Yi-Fan Chen, University of Illinois at Chicago; Lisa Weissfeld, University of Pittsburgh

3:35 p.m. **A Predictive Modeling Approach to Identify Clinical Important Treatment Difference in a Subgroup: Fraternal Twins Method**—◆ Max Kuhn, Pfizer; Birol Emir, Pfizer; Ed Whalen, Pfizer

235 CC-105 ■ Time Series Modeling—Contributed

Business and Economic Statistics Section

Chair(s): David Doorn, West Chester University of Pennsylvania

2:05 p.m. **M-Estimation for General ARMA Processes with Infinite Variance**—◆ Rongning Wu, Baruch College

2:20 p.m. **Using a Gini-Based Methodology for Analyzing Time Series**—◆ Edna Schechtman, Ben Gurion University of the Negev; Amit Shelef, Shamoon College of Engineering

2:35 p.m. **Fitting Linear Time Series Models via the Gini Autocovariance Function**—◆ Marcel Carcea; Robert Serfling, University of Texas at Dallas

2:50 p.m. **A New Goodness-of-Fit Process for VARMA(P,Q) Models**—◆ Santiago Velilla, Universidad Carlos III de Madrid; Huong Nguyen, Universidad Carlos III de Madrid

3:05 p.m. **Goodness-of-Fit Test for Specification of Copula-Based Semiparametric Time-Series Models**—◆ Qian Zhou, Simon Fraser University; Shulin Zhang, Southwestern University of Finance and Economics, China; Huazhen Lin, Southwestern University of Finance and Economics, China

3:20 p.m. **A Long Memory Stochastic Parameter Regression**—◆ Jaechoul Lee, Boise State University; Rose Ocker, Boise State University

3:35 p.m. **Wavelet Transforms of Skewed Gaussian Long Memory Processes**—◆ Kyungduk Ko, Boise State University

236 CC-153A ■ Bayesian Inference for Large-Scale and High-Dimensional Data—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Naveen Naidu Narisetty, University of Michigan

2:05 p.m. **Bayesian Multiple Classification with Frequent Pattern Mining**—◆ Wensong Wu, Florida International University; Tan Li, Florida International University

2:20 p.m. **A Prior-Robust Posterior Distribution for Empirical Bayes Analysis of a Large Number of Parallel Effects**—◆ Jiangang Liao,

2:35 p.m. **A Hierarchical Mixture Model for State-Space Inference and Clustering**—◆ Chandler Zuo, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison

2:50 p.m. **Sparse Latent Factor Models with Interactions: Analysis of Gene Expression Data**—◆ Vinicius Mayrink, UFMG; Joseph Lucas, Quintiles/Duke University

3:05 p.m. **Multiple Imputation and Multidimensionality in Large-Scale Educational Assessments**—◆ Lauren Harrell; Thomas Belin, University of California, Los Angeles; Li Cai, University of California, Los Angeles/CRESST

3:20 p.m. **Bayesian Analysis of Dynamic Factor Models: An Ex-Post Approach Toward the Rotation Problem**—◆ Christian Aflmann; Jens Boysen-Hogrefe, Institute for World Economics; Markus Pape, University of Cologne

3:35 p.m. **Making the Cut: Improved Ranking and Selection for Large-Scale Inference**—◆ Nicholas Henderson; Michael Newton, University of Wisconsin

237 CC-204B Statistical Inference—Contributed

Monday



Government Statistics Section

Chair(s): Timothy A. Green, CDC

- 2:05 p.m. **The Simultaneous Effects of Obesity, Insurance Choice, and Medical Visit Choice on Health Care Costs**—◆ Ralph Bradley, BLS
- 2:20 p.m. **Estimation Considerations for the Occupational Requirements Survey**—◆ Brad Rhein, Bureau of Labor Statistics; Chester Ponikowski, Bureau of Labor Statistics; Erin McNulty, Bureau of Labor Statistics
- 2:35 p.m. **Daytime Population Estimations Based on Mobile Phone Metadata**—◆ Martijn Tennekens, Statistics Netherlands; May Offermans, Statistics Netherlands
- 2:50 p.m. **Statistical Modeling for Age-Specific Fertility Rate: A Finite Mixture Model Approach**—◆ Seongyong Kim, Korea University; Daeyoung Kim, University of Massachusetts, Amherst; Yousung Park, Korea University
- 3:05 p.m. **Network Inference from Grouping Data**—◆ Charles Weko,
- 3:20 p.m. **Simultaneous Analysis of Hyperspectral Data Using the Fused Lasso**—◆ Nicole Mendoza, University of California, Santa Cruz; Abel Rodriguez, University of California, Santa Cruz
- 3:35 p.m. **Floor Discussion**

238 CC-152 Nonparametric Tests—Contributed

Section on Nonparametric Statistics, Section on Statistics in Marketing
Chair(s): Sherri Rose, Harvard Medical School

- 2:05 p.m. **Regression-Robust Designs of Controlled Experiments**—◆ Nathan Kallus, MIT
- 2:20 p.m. **Analysis of Nonparametric Density Functionals Estimation (ANDFE): One-Way Layout**—◆ Su Chen, University of Memphis; Ibrahim Ahmad, Oklahoma State University
- 2:35 p.m. **Likelihood Ratio Tests for Functional Linear Regression Models**—◆ Simeng Qu, Purdue University; Xiao Wang, Purdue University
- 2:50 p.m. **Goodness-of-Fit Testing in Nonparametric Autoregressive Conditional Heteroscedastic Models**—◆ Xiaoqing Zhu,
- 3:05 p.m. **A New Test for Decreasing Mean Residual Lifetimes**—◆ Ganesh Malla, Xavier University; Hari Mukerjee, Wichita State University; Edgardo Lorenzo, University of Puerto Rico
- 3:20 p.m. **Frequentist-Bayes Nonparametric Goodness-of-Fit Testing**—◆ Taeryon Choi, Korea University; Jeffrey

D. Hart, Texas A&M; Seongbaek Yi, Pukyong National University; Hyungjoon Kim, Korea University

- 3:35 p.m. **The Use of Friedman's Test in the Case of Informatively Missing Data**—◆ Annie Howard, University of North Carolina at Chapel Hill

239 CC-206B ■ The Future of Stat Ed: Common Core, GAISE, and Beyond—Contributed

Section on Statistical Education, Section on Physical and Engineering Sciences, Government Statistics Section, Statistics in Business Schools Interest Group, Education Workgroup on Undergraduate Curriculum Guidelines, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials, ASA/AMATYC Joint Committee
Chair(s): Madhuri Mulekar, University of South Alabama

- 2:05 p.m. **The ASA Statistical Education Section: An Updated History with Emphasis on Its Last 25 Years**—◆ Katherine Halvorsen, Smith College; John D. McKenzie Jr., Babson College
- 2:20 p.m. **Partnering with OCTM: Statistics for Oregon's In-Service Math Teachers**—◆ Kathryn Hall, Hewlett Packard
- 2:35 p.m. **High-School Teachers' Conditional Probability Knowledge**—◆ Robert Molnar, University of Georgia
- 2:50 p.m. **Introductory Statistics in Two-Year Colleges: Important to Our Future**—◆ Brian Kotz, Montgomery College
- 3:05 p.m. **Implementing GAISE in the Cape Cod Community College Elementary Statistics Path**—◆ Mary Moynihan, Cape Cod Community College
- 3:20 p.m. **Redesigning Business Statistics and Related Courses in the Light of the Common Core State Standards**—◆ Bodapati Gandhi, University of Puerto Rico Business School; Srinivas P. Gandhi, University of Puerto Rico
- 3:35 p.m. **How One Government Agency Is Approaching Big Data**—◆ Barbara Stevens,

240 CC-102A Selection Methods—Contributed

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Section on Statistical Learning and Data Mining

Chair(s): Charles Kincaid, Experis

2:05 p.m. **Fused Lasso with the Adaptation of Parameter Ordering (Flapo) in Merging Multiple Studies with Repeated Measurements**—◆ Fei Wang, Ford Motor Credit; Lu Wang, University of Michigan; Peter Song, University of Michigan

2:20 p.m. **Variable Selection for High-Dimensional Nonparametric Ordinary Differential Equation Models with Applications to Dynamic Gene Regulatory Networks**—◆ Hongqi Xue, University of Rochester Medical Center

2:35 p.m. **Sequential Advantage Selection for Optimal Treatment Regime**—◆ Ailin Fan, North Carolina State University; Wenbin Lu, North Carolina State University; Rui Song, North Carolina State University

2:50 p.m. **Robust Group Variable Selection Methods**—◆ Kristin Lilly, Auburn University; Nedret Billor, Auburn University

3:05 p.m. **High-Dimensional Variable Selection with Reciprocal L₁ Regularization**—◆ Qifan Song, Texas A&M; Faming Liang, Texas A&M

3:20 p.m. **ThrEEBoost: Thresholded Boosting for Variable Selection and Prediction via Estimating Equations**—◆ Julian Wolfson, University of Minnesota; Christopher Miller, NAMSA

3:35 p.m. **Improving the Robustness of Variable Selection and Predictive Performance of Lasso and Elastic-Net Regularized Generalized Linear Models and Cox Proportional Hazard Models**—◆ Feng Hong, AbbVie; Viswanath Devanarayan, AbbVie

University of Minnesota
2:20 p.m. **Regularized Estimation in Sparse High-Dimensional Time Series Models**—◆ Sumanta Basu, University of Michigan; George Michailidis, University of Michigan

2:35 p.m. **Sparse Graphical Models for Multivariate Time Series**—◆ Xinwei Deng, Virginia Tech; Mohsen Pourahmadi, Texas A&M

2:50 p.m. **A Categorical Time Series Approach to Analyzing Middle English Alliterative Poetry**—◆ Roger Bilisoly, Central Connecticut State University

3:05 p.m. **Model-Based Time Series Clustering Using CHOMP**—◆ Yuan Zhuang, University of Georgia; Nicole Lazar, University of Georgia

3:20 p.m. **The Application of Time Series Methodology to Improve Short-Term Forecasts of Building Power Demand**—◆ Jeremy Coyle, University of California, Berkeley; Jason Trager, University of California, Berkeley; Jade Benjamin-Chung, University of California, Berkeley; Paul Wright, University of California, Berkeley

3:35 p.m. **Floor Discussion**

242 **Nonresponse Adjustment - 3—Contributed** CC-208

Survey Research Methods Section, Government Statistics Section

Chair(s): Daniel Oberski, Tilburg University

2:05 p.m. **Tools for Analyzing Nonresponse Adjustments in Survey Sampling**—◆ Ismael Flores Cervantes,

241 **Time Series Data Mining—Contributed** CC-101

Section on Statistical Learning and Data Mining

Chair(s): Jacob Bien, Cornell University

2:05 p.m. **Sparse Estimate of Vector Autoregressive Model**—◆ Abhirup Mallik; Snigdhanu Chatterjee,



- Westat
- 2:20 p.m. **Comparison of Traditional Weight Adjustments to Calibrating Weights in the Medical Expenditure Panel Survey for Both Non-Response and Post-Stratification**—◆ Robert Baskin, AHRQ, DHHS; Lap-Ming Wun, AHRQ
- 2:35 p.m. **Nonresponse Bias Correction via Calibration for the Brazilian National Household Sample Survey**—◆ Pedro Silva, IBGE/ENCE; Charles Miguel Ruiz, IBGE/National School of Statistical Sciences
- 2:50 p.m. **Substitution of Nonresponding Primary Selection Units**—◆ Raphael Nishimura, University of Michigan; James Lepkowski, University of Michigan
- 3:05 p.m. **A Comparison of Weighting Adjustment Methods for Nonresponse**—◆ R. Lee Harding, ICF International; Ronaldo Iachan, ICF International; Kurt Peters, ICF International
- 3:20 p.m. **Imputing Biomarker Outcome Refusals and Unasked Questions in a Nonresponse Follow-Up for Environmental Exposure Models**—◆ Brian M. Wells, University of Michigan; James Lepkowski, University of Michigan
- 3:35 p.m. **Combining State Behavioral Risk Factor Surveillance System Data: Weighting for National Estimates**—◆ William Robb, ICF International; Lee Harding, ICF International; Ronaldo Iachan, ICF International

243 CC-207 Novel Statistical Methods in Brain Imaging—Contributed

Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Chair(s): Daniel Rowe, Marquette University

- 2:05 p.m. **Signal Discrimination Without Denoising**—◆ Ferebee Tunno, Arkansas State University; Ashton Erwin, Arkansas State University
- 2:20 p.m. **Adaptive Tensor Regression in Neuroimaging Data Analysis**—◆ Yan Zhang, North Carolina State University
- 2:35 p.m. **A Quantitative Approach to the Diagnosis of Head Injuries Through a Spatio-Temporal Model of the Electrophysiological Assessment of Working Memory**—◆ Pavel Chernyavskiy, University of Nebraska-Lincoln; Caitlin M. Hudac, University of Nebraska-Lincoln; Dennis L. Molfese, University of Nebraska-Lincoln; David B. Marx, University of Nebraska
- 2:50 p.m. **Analysis of Multi-Modality Neuroimaging Data**—◆ Zhou Li,
- 3:05 p.m. **A Bayesian Cox Proportional-Hazards Regression**

- 3:20 p.m. **Fast Joint Estimation and Selection of Mixture Models via Model Averaging: Application to Diffusion Compartment Imaging of the White Matter Microstructure**—◆ Aymeric Stamm, Harvard Medical School/Boston Children's Hospital; Olivier Commowick, Visages INSERM/INRIA U746, IRISA - UMR CNRS 6074, Rennes, France; Patrick PÈrez, Technicolor; Christian Barillot, Visages INSERM/INRIA U746, IRISA - UMR CNRS 6074, Rennes, France; Simon K. Warfield, Harvard Medical School/Boston Children's Hospital
- 3:35 p.m. **Regression Models for Manifold-Valued Data from Longitudinal Studies**—◆ Emil Cornea, University of North Carolina at Chapel Hill; Hongtu Zhu, University of North Carolina at Chapel Hill; Joseph Ibrahim, University of North Carolina

244 CC-204A ● Innovative Methods for Predictive Modeling and Interesting Applications—Contributed

Section on Statistics in Epidemiology

Chair(s): Jasmin Divers, Wake Forest University

- 2:05 p.m. **Local Likelihood-Based Estimation for Quantile Classification in Binary Regression Models**—◆ John Rice, University of Michigan; Jeremy Taylor, University of Michigan
- 2:20 p.m. **Hidden Markov Modeling of Oral Fluid Detection of PRRSV Antibody in Swine Herds**—◆ Yaxuan Sun, Iowa State University; Chong Wang, Iowa State University
- 2:35 p.m. **Ranking of Pandemic Influenza Mitigation Strategies**—◆ Greg Lambert, Sandia National Laboratories; Andrew Huff, Sandia National Laboratories; Patrick Finely, Sandia National Laboratories
- 2:50 p.m. **A Latent Class Model to Estimate Vaccine Effectiveness**—◆ Tracy Pondo, CDC; Nong Shang, CDC
- 3:05 p.m. **Adjusting for Covariates Using Propensity Scores When Area Under the Curve Is Used as Measure of Risk Effect**—◆ Hadiza Galadima, Virginia Commonwealth University; Donna K. McClish, Virginia Commonwealth University
- 3:20 p.m. **Coupling Model Selection with Evaluation in Prognostic Model Development**—◆ Aastha Bansal, University of Washington; Patrick Heagerty, University of Washington
- 3:35 p.m. **Multiple Comparisons of Disease Prevalence in the Presence of Misclassification**—◆ Ping Yang; Wai Yin Poon, Chinese University of Hong Kong; Siu

Hung Cheung, Chinese University of Hong Kong

Yong Seok Park, University of Pittsburgh; George Tseng, University of Pittsburgh

Speed Poster Presentations 2:00 p.m.–2:45 p.m.

245 **Speed Session #2: Topics in Biopharmaceutical Statistics and Programming and Analysis, Part 2—Contributed**

CC-Exhibit Hall B2

Biopharmaceutical Section, Section for Statistical Programmers and Analysts

Chair(s): Bonnie Lafleur, Ventana Medical Systems

- 1 **Incorporation of Survival Information in Diagnostic Test Evaluation**—◆ Chang Xu, Ventana Medical Systems; Dean Billheimer, University of Arizona; Bonnie Lafleur, Ventana Medical Systems
- 2 **The Cox Model and ‘Type 3’ Tests**—◆ Terry Therneau, Mayo Clinic
- 3 **Bayesian Dose-Finding Procedure Based on Information Utility**—◆ Lei Gao, George Mason University; William F. Rosenberger, George Mason University
- 4 **Bayesian Hierarchical Bias Model for Establishing Biosimilarity**—◆ Joseph Wu, Boston University School of Public Health; Sandeep Menon, Pfizer; Gheorghe Doros, Boston University School of Public Health; Mark Chang, AMAG Pharmaceuticals; Kerry Barker, Pfizer
- 5 **Evaluating the Performance of Simultaneous Stepwise Confidence Intervals for the Difference Between Two Poisson Rates**—◆ Brianna Bright, University of Nebraska-Lincoln; Julia Soulakova, University of Nebraska-Lincoln
- 6 **A Bayesian Adaptive Design with Time-to-Event Data for Claiming Noninferiority for Therapeutic Cardiovascular Medical Device**—◆ Baohui Zhang, Johnson & Johnson; Hui Wang, Consultant
- 7 **Bayesian Analysis for Crossover Trials with Repeated Measurements in Soft Contact Lens Trials**—◆ Quan Zhang, University of Minnesota; Youssef Toubouti, Johnson & Johnson; Bradley P. Carlin, University of Minnesota
- 8 **Sample Size Reestimation for Ordinal Data Based on Conditional Power**—◆ Emelita de Leon-Wong, PPDI; Liwei Wang, PPDI
- 9 **Retrospective Look at Adaptive Design by Applying Potvin’s Method**—◆ Juhui Jiao, Janssen; Sudhakar Rao, Janssen
- 10 **Screening Predictors for Logistic Regression Using the Information Value Statistic**—◆ Bruce Lund, Marketing Associates
- 11 **Group Structured Integrative Clustering for Feature Discovery and Coherent Samples Identification in Inter-Related Multiple Genomic Data Sets**—◆ SungHwan Kim;

- 12 **Optimal Fingerprinting in Detecting Changes in Climate Extremes**—◆ Jun Yan, University of Connecticut; Xuebin Zhang, Environment Canada; Zhuo Wang, University of Connecticut
- 13 **Performance of Classifiers Under Unbalanced Case and Control Sample Sizes: Advantages and Disadvantages**—◆ Deanna Greenstein, NIMH/NIH; Abhijit Dasgupta, NIAMS/NIH
- 14 **A Quantile-Based Convergence Diagnostic for MCMC**—◆ Michael Lerch, Montana State University
- 15 **LogitROC: An R Package for Making Inferences on ROC Curves and Surfaces Using Nonparametric and Semiparametric Approaches**—◆ Dong Zhang, Bloomsburg University
- 16 **A New Goodness-of-Fit Test for Time Series Models Based on Correlation Between the Sample Autocorrelation and Partial Autocorrelation Sequences**—◆ James Faulkner, University of Washington; Donald B. Percival, University of Washington
- 17 **Type I and Type II Error Properties for White’s Robust Covariance Matrix Estimator in Longitudinal Designs**—◆ Keith Williams, University of Arkansas for Medical Sciences
- 18 **Interactive Web Application with Shiny**—◆ Bharat Bahadur
- 19 **The Power of Fragmentation: Enabling Effective Audience Targeting on Television**—◆ McCall McIntyre, Simulmedia; Alexandra Schorr, Simulmedia
- 20 **Interactive Career Explorer**—◆ James Joseph, INC Research

246 **Contributed Oral Poster Presentations: Business and Economic Statistics Section—Contributed**

CC-Exhibit Hall B2

Business and Economic Statistics Section

Chair(s): Daniel S. Cooley, Colorado State University

- 1 **Predicting the Default Characteristics of Microfinance Borrowers in Turkey: A Probit Analysis**—◆ Eyub Yegen, SUNY Oswego
- 2 **Simulation Optimization Methods Using Direct Gradients**—◆ Michael Fu, Smith School of Business
- 3 **A Comparative Study of Time-Series Forecasting Using a Large Number of Predictors**—◆ Vu Le, Williams College; Qing Wang, Williams College
- 4 **The Effect of Forecasting on X-11 Adjustment Filters**—

Monday

- ◆ Brian Monsell, U.S. Census Bureau
- 5 **Hierarchical Duration Model**—◆ Mingyu Tang,
- 6 **A Waiting Time Approach for a Disability Model**—
◆ Hejiao Hu, University of Georgia; Lynne Billard,
University of Georgia
- 7 **Parameter Estimation for Elliptical Time-Dependent
Hysteresis**—◆ Fan Yang, University of Nebraska-Lincoln;
Anne Parkhurst, University of Nebraska-Lincoln
- 8 **A Model for Characterizing Tender Behavior**—◆ Sollie
Millard, University of Pretoria; Frans H.J. Kanfer,
University of Pretoria; Andriette Bekker, University of
Pretoria; Mohammad Arashi, Shahrood University
- 9 **On Modeling and Forecasting the Volatility of the
Market Risk of Nigerian Stock Exchange Index**—◆ Dallah
Hamadu, University of Lagos
- 10 **Bootstrap-Based Unit Root Tests for Higher-Order
Autoregressive Models with Garch (1, 1) Errors**—◆ Xiao
Zhong; V. A. Samaranyake, Missouri University of
Science & Technology
- 11 **A Multi-Step Approach to Modeling the 24-Hour Daily
Profiles of Electricity Load Using Time-Varying Splines**—
◆ Abdelmonaem Jornaz, Missouri University of Science &
Technology; V. A. Samaranyake, Missouri University of
Science & Technology
- 12 **Kernel Method for Realized Volatility Estimation Using
High-Frequency Non-Equally Spaced Price Data**—
◆ Xiaoguang Wang, Purdue University; Michael Levine,
Purdue University; Jian Zou, Indiana University-Purdue
University Indianapolis
- 13 **Robust VIF Regression: A SAS Application to Feature
Selection in Large Data Sets**—◆ Ruiwen Zhang, SAS
Institute
- 14 **Zero-Inflated Transformation Hazard Modeling for
Corporate Bankruptcy Prediction**—◆ Shaonan Tian,
San Jose State University; Adam Ding, Northeastern
University; Yan Yu, University of Cincinnati
- 15 **A Generalized Ordered Response Model**—◆ Carla
Johnston, Brigham Young University; James McDonald,
Brigham Young University

247 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Quality and Productivity Section— Contributed

Quality and Productivity Section

Chair(s): Daniel S. Cooley, Colorado State University

- 16 **Acceptance Procedure Based on Runs with Inspection
Errors and Quality Gradations**—◆ William Griffith;
Michelle L. Smith, Eastern Kentucky University
- 17 **Robust GLR Charts for Monitoring the Process Mean**—
◆ Shuyu Chu, Virginia Tech; Yiming Peng, Virginia Tech;
Marion R. Reynolds, Virginia Tech
- 18 **Determination of Variables Affecting Multivariate
Process Variability in Phase I**—◆ Youn-Min Chou,

University of Texas at San Antonio; Robert Mason,
Southwest Research Institute

- 19 **The National Ecological Observatory Network's
Atmospheric and Terrestrial Instrumentation: Initial
Data Quality Assurance/Control Results**—◆ Sarah
Streett,
- 20 **Robust Nonparametric Profile Monitoring**—◆ Jingshen
Wang

248 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Statistical Computing— Contributed

Section on Statistical Computing

Chair(s): Daniel S. Cooley, Colorado State University

- 21 **DTR: An R Package for Estimation and Comparison of
Dynamic Treatment Regimes**—◆ Xinyu Tang, University
of Arkansas for Medical Sciences; Maria Melguizo,
University of Arkansas for Medical Sciences
- 22 **Designing a Computer Program for Matrix Operations**—
◆ Luis Frank, University of Buenos Aires; Guillermo
Frank, University of Buenos Aires
- 23 **Parameter Constraints for Finitized Distributions:
Conjectures and Empirical Results**—◆ Martin Levy,
University of Cincinnati; James J. Cochran, Louisiana
Tech University
- 24 **A Monte Carlo-Adjusted Goodness-of-Fit Test for
Parametric Models Describing Spatial Point Patterns**—
◆ Ngoc Anh Dao, Texas A&M; Marc G. Genton, King
Abdullah University of Science and Technology
- 25 **Combining Strategies for Parallel MCMC Algorithm of
Big Data**—◆ Fang-Yu Lin
- 26 **Local Dependence in Bivariate Copula Models with
Beta Marginals**—◆ Eirini Koutoumanou, University
College London Institute of Child Health; Angela Wade,
University College London Institute of Child Health;
Mario Cortina-Borja, University College London Institute
of Child Health
- 27 **Comparison of Tests for the ANOVA with Unequal
Variance**—◆ Evren Ozkip, Anadolu University; Berna
Yaz?c?, Anadolu University; Ahmet Sezer, Anadolu
University
- 28 **Robust Variable Selection for Functional Regression
Models**—◆ Jasdeep Pannu, Auburn University; Nedret
Billor, Auburn University
- 29 **A Unified Approach to Shrinkage Estimation in Linear
Regression Models**—◆ Enayetur Raheem, University of
Northern Colorado; Syed Ejaz Ahmed, Brock University
- 30 **A New Parametric Approach to the Analysis of a
Bivariate Structural Relationship**—◆ Fassil Nebebe,
Concordia University
- 31 **Classification of Clinical Outcomes Using High-
Throughput Informatics**—◆ Alexander Cambon,
University of Louisville; Shesh N. Rai, University of
Louisville

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 32 **methylSig: A Whole-Genome DNA Methylation Analysis Pipeline**—◆Yong Seok Park, University of Pittsburgh; Maureen A. Sartor, University of Michigan; Maria E. Figueroa, University of Michigan; Laura S. Rosek, University of Michigan
- 33 **Distribution and Simulation of Random Correlation Matrices: Hyperspherical Parameterization of the Cholesky Factor**—◆Xiao Wang, Texas A&M; Mohsen Pourahmadi, Texas A&M
- 34 **Sentweetmental: Real-Time Sentiment Analysis of Tweets**—◆Yue Zeng, Twitter; Tianhong He, Twitter
- 35 **Comparison of Forecasting Approaches Using Proc Reg and Proc Arima vs. SAS Time Series Forecasting System**—◆Martin Selzer, Chatham Decision Sciences
- 36 **Effect of Multiple Imputations in Estimating Adverse Outcome Incidence Rate with Partial Status: Application to a Phase IV Cancer Trial**—◆Jianmin Pan, University of Louisville JG Brown Cancer Center; Shesh N. Rai, University of Louisville; Xiaoyong Wu, University of Louisville; Pradeep Singh, Southeast Missouri State University; Melissa M. Hudson, St. Jude Children's Research Hospital; Deo K. Srivastava, St. Jude Children's Research Hospital

249 CC-Exhibit Hall B2
Contributed Oral Poster Presentations:
Section on Statistical Consulting—
Contributed

Section on Statistical Consulting

Chair(s): Daniel S. Cooley, Colorado State University

- 37 **A Case Study of Analysis Related to Spread and Glyphosate Resistance of Palmer Populations in Arkansas**—◆Andy Mauromoustakos, University of Arkansas; Nilda Roma Burgos, University of Arkansas
- 38 **Identifying the Perceived Value of Statistical Consulting in a University Setting**—◆Patrick Gerard, Clemson University; James Wrenn, Clemson University; Julia L. Sharp, Clemson University
- 39 **Rate Data Modeling: Using the Organ Procurement and Transplantation Network/United Network for Organ Sharing Database**—◆Meng-Ru Cheng, Mayo Clinic; Amylou Dueck, Mayo Clinic; Evan P. Kransdorf, Mayo Clinic; Octavio E. Pajaro, Mayo Clinic; Yu-Hui Chang, Mayo Clinic
- 40 **Development of a Scoring Algorithm and Classification Procedure for a Computerized Cognitive Assessment Tool**—◆Laurel Chiappetta, Data Development Integration Verification Analysis; Gretchen Brauch, Psychology Software Tools; Lisa Morrow, University of

Pittsburgh Medical Center; Graham Ratcliffe, Clinical Neuropsychology Services; Anthony Zuccolotto, Psychology Software Tools; Amy Eschman, Psychology Software Tools; Judith Saxton, Clinical Neuropsychology Services

- 41 **Application of Elastic Net Logistic Regression for Propensity Score Prediction**—◆Natalya Makarova, Cleveland Clinic; Alparslan Turan, Cleveland Clinic; Jarrod E. Dalton, Cleveland Clinic

250 CC-Exhibit Hall B2
Contributed Oral Poster Presentations:
Section on Statistical Graphics—
Contributed

Section on Statistical Graphics

Chair(s): Daniel S. Cooley, Colorado State University

- 42 **GLMLE Graph-Limit Enabled Fast Computation for Fitting Exponential Random Graph Models to Large Social Networks**—◆Ran He, Columbia University; Tian Zheng, Columbia University
- 43 **Visual Inference for Linear Mixed-Effects Models**—◆Adam Loy, Lawrence University; Heike Hofmann, Iowa State University
- 44 **300 Years of History: A Graphical Analysis of the Trans-Atlantic Slave Trade**—◆Lindsey Jackson, Iowa State University

251 CC-Exhibit Hall B2
Contributed Oral Poster Presentations:
Section on Statistical Learning and
Data Mining—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Daniel S. Cooley, Colorado State University

- 45 **Webcrawling, Data Mining, Quantitative Content Analysis, and Cluster Analysis, Oh My! Understanding Supernatural Horror Fandom**—◆Brenda Osuna, University of Southern California; Reagan Rose, University of Southern California; Cynthia Vinney, Fielding Graduate University
- 46 **Detection of Heterogeneous Structures on the Gaussian Copula Model Using Projective Power Entropy**—◆Yoshinori Kawasaki, Institute of Statistical

Monday



- Mathematics; Akifumi Notsu, Graduate University for Advanced Studies; Shinto Eguchi, Institute of Statistical Mathematics
- 47 **An Enhanced Projection Pursuit Method to Aid Pattern Recognition for Longitudinal Data**—Hua Fang, University of Massachusetts Medical School; ◆ZhaoYang Zhang, University of Massachusetts Medical School/Dartmouth; Honggang Wang, University of Massachusetts/Dartmouth
- 48 **Training a Classifier for Optimal Classification Error**—◆Frans H.J. Kanfer, University of Pretoria; Ryno Potgieter, University of Pretoria; Sollie Millard, University of Pretoria
- 49 **Finding Cost-Effective Solutions to Health Care Problems**—◆Christian Lemieux; Billie Anderson, Bryant University
- 50 **Sparse Structural Factor Equation Models and Its Applications to Gene Regulatory Network Inference**—◆Yan Zhou, University of Michigan; Peter Song, University of Michigan; Xiaoquan Wen, University of Michigan
- 51 **Sparse Bayesian Learning (Empirical Bayes): High-Dimensional Regression and Hyperspectral Applications**—◆Chia Chye Yee; Yves Atchade, University of Michigan
- 52 **Nonparametric Multivariate Mixture Model with Conditional Independence Assumption**—◆Xiaotian Zhu, Penn State
- 53 **Smooth Positive-Definite L1-Penalized Estimation of Large Cross-Spectrum Matrices**—◆Yuan Qu, Texas A&M
- 54 **Functional Data Analysis in Computer Vision**—◆Italo Raony Costa Lima, Auburn University; Nedret Billor, Auburn University
- 55 **Concave Penalized Estimation of Sparse Bayesian Networks**—◆Nikhyl Aragam, University of California, Los Angeles; Qing Zhou, University of California, Los Angeles
- 56 **An Investigation into the Effect of Selection Bias on Multiple Biomarker Models: A Simulation Study**—◆Tristan Grogan, University of California, Los Angeles; David Elashoff, University of California, Los Angeles
- 57 **Variable Selection and Estimation in Generalized Linear Models with the Seamless L0 Penalty**—◆Zilin Li, Harvard; Sijian Wang, University of Wisconsin; Xihong Lin, Harvard School of Public Health
- 58 **A Medoid-Based Bi-Clustering Method**—◆Jing Li, Iowa State University; Stephen Vardeman, Iowa State University
- 67 **Test for Stationarity for Spatial Point Processes in Arbitrary Regions**—◆Bingrou Zhou; Tonglin Zhang, Purdue University

- 68 **A Study of Grassland Bird Nest Success Rates on Small Family Farm Hayfields**—◆Ivan Ramler, St. Lawrence University; Susan Willson, St. Lawrence University; Caitlin Ward, St. Lawrence University
- 69 **If a Tree Falls into a River, Where Will It End Up? A Simulation Study on Identifying the Origin of Driftwood**—◆Jessica Chapman, St. Lawrence University
- 70 **Bayesian Hierarchical Modeling for Assessment of Regional Climate Change in the U.S. in Response to Large-Scale Drivers of Climate**—◆Zachary Thomas, Ohio State University; Mark Berliner, Ohio State University
- 71 **Adaptive Full-Scale Approximation Approach for Modeling Large Spatio-Temporal Data Sets**—◆Bohai Zhang, Texas A&M; Huiyan Sang, Texas A&M; Jianhua Z. Huang, Texas A&M

252 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Statistics in Defense and National Security—Contributed

Section on Statistics in Defense and National Security

Chair(s): Daniel S. Cooley, Colorado State University

- 59 **The Science of Cybersecurity: Classification and Estimation with Human Actors and Adversaries**—◆Bronwyn Woods, CMU/SEI/CERT
- 60 **Computational Aspects of Forensic Evidence Interpretation**—Christopher Saunders, MITRE/South Dakota State University; ◆Danica Ommen, South Dakota State University; Cedric Neumann, South Dakota State University

253 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Risk Analysis—Contributed

Section on Risk Analysis

Chair(s): Daniel S. Cooley, Colorado State University

- 61 **Quantifying Extreme Hurricane Risk in the United States Gulf Coast**—◆Kumer Pial Das, Lamar University; Asim Dey, Lamar University
- 62 **Spatial Models for Estimating Agricultural Probability of Loss: Implications for Risk Analysis in Agriculture**—◆Ying Zhu, North Carolina State University

254 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Statistics and the Environment—Contributed

Section on Statistics and the Environment

Chair(s): Daniel S. Cooley, Colorado State University

- 63 **Covariance Estimation for Natural Spatio-Temporal**



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Monday

Processes—◆Michael Horrell, University of Chicago

- 64 **Maximum Likelihood Estimation of K Distribution: Application to the Environmental Data**—◆Koji Kanefuji, Institute of Statistical Mathematics
- 65 **Bayesian Factor Analysis as an Approach to Combining Climate Model Ensembles**—◆Eleanor Tass, Brigham Young University
- 66 **Analysis of Elk and Hunter Movement Data from the Starkey Experimental Forest and Range**—◆Suzette Puente, University of California, Berkeley; Michael J. Wisdom, Pacific Northwest Research Station, USDA Forest Service; Scott L. Findholt, Oregon Department of Fish and Wildlife

Invited Sessions 4:00 p.m.–5:50 p.m.

255 CC-Ballroom East **ASA President’s Invited Address— Invited**

ASA, ENAR, IMS, International Chinese Statistical Association, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society, SSC, WNAR, Statistics Without Borders, Conference on Statistical Practice Steering Committee, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials

Organizer(s): Nathaniel Schenker, ASA President

- 4:05 p.m. **The Seven Pillars of Statistical Wisdom**—Stephen M. Stigler, University of Chicago
- 5:45 p.m. **Floor Discussion**

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TUESDAY, AUGUST 5

JSM Hours

7:00 a.m.–6:00 p.m. CC-256
Speaker Management Room

7:30 a.m.–4:30 p.m. CC-Southeast Lobby B2, Level 1
ASA Membership/Help Desk/Press Desk

7:30 a.m.–4:30 p.m. CC-Southeast Lobby B2, Level 1
JSM Main Registration

7:30 a.m.–10:00 p.m. CC-Southeast Lobby B2, Level 1
Cyber Center, Sponsored by IBM

8:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
Career Placement Service

8:00 a.m.–6:00 p.m. CC-Exhibit Hall B2
Exhibitor Lounge

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
American Statistical Association Booth #201

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
ASA Marketplace

9:00 a.m.–5:30 p.m. CC-Exhibit Hall B2
EXPO 2014

9:00 a.m.–6:00 p.m. CC-North Lobby
Boston Visitor Services Desk

Committee/Business Meetings & Other Activities

7:00 a.m.–8:30 a.m. S-Seaport Ballroom C
Committee on Professional Ethics Business Meeting (Closed)
Chair(s): Howard Hogan, U.S. Census Bureau

7:00 a.m.–8:30 a.m. W-Grand Ballroom E
ASA Development Committee Meeting
Chair(s): Justin Landwehr, RTI International

7:00 a.m.–8:30 a.m. S-Liberty A
Mental Health Statistics Section Executive Committee Meeting (Closed)

7:00 a.m.–8:30 a.m. S-Ballroom B

HPSS/ICHPS Planning Committee Meeting (Closed)

7:00 a.m.–8:30 a.m. W-Hale
ASA-MAA Joint Committee on Statistics Education Business Meeting
Chair(s): Shonda Kuiper, Grinnell College

7:00 a.m.–8:30 a.m. W-Executive Board Room
Section on Statistical Education Executive Committee Meeting
Chair(s): Jim Albert, Bowling Green State University

7:00 a.m.–8:30 a.m. W-Bulfinch
Government Statistics Section Executive Committee Meeting
Chair(s): Jill Montaquila, Westat

7:00 a.m.–8:30 a.m. CC-259B
Brigham Young University Friends and Alumni Open House
Organizer(s): H. Dennis Tolley, Brigham Young University

7:00 a.m.–8:30 a.m. W-Faneuil
Technometrics Editorial Board Meeting
Chair(s): Peihua Qiu, University of Florida

7:00 a.m.–8:30 a.m. W-Alcott
CSP Steering Committee Business Meeting (Closed)
Chair(s): Sylvia Dohrmann, Westat

7:00 a.m.–8:30 a.m. W-Adams
CHANCE Editor Meeting
Chair(s): Scott R. Evans, Harvard School of Public Health

7:00 a.m.–9:00 a.m. W-Commonwealth Ballroom A
Committee on ASA Archives and Historical Materials Business Meeting
Chair(s): John D. McKenzie Jr., Babson College

7:00 a.m.–10:00 a.m. W-Grand Ballroom C
Council of Chapters Business Meeting and Breakfast
Chair(s): John Stevens, Utah State University

7:30 a.m.–8:30 a.m. W-Frost Boardroom
ASA Finance Committee Business Meeting
Chair(s): Ming-Xiu Hu, Takeda

7:30 a.m.–9:00 a.m. W-Grand Ballroom D
OSU Statistics/Biostatistics Alumni and Friends



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Organizer(s): Elizabeth Stasny, Ohio State University

8:00 a.m.–9:30 a.m. S-Seaport Ballroom A

JASA Editors Meeting

Chair(s): Joseph Ibrahim, University of North Carolina

8:00 a.m.–4:00 p.m. W-Webster

Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Grades 9-12 Strand

Chair(s): Katherine Halvorsen, Smith College

8:00 a.m.–4:00 p.m. W-Hancock

Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Grades 5-8 Strand

Chair(s): Katherine Halvorsen, Smith College

8:30 a.m.–10:30 a.m. W-Douglass

Diversity Mentoring Program (Closed)

Chair(s): Sydeaka Watson, University of Chicago

8:30 a.m.–12:00 p.m. W-Common Wealth Ballroom C

COPSS Business Meeting

Organizer(s): Maura Stokes, SAS Institute

9:00 a.m.–10:30 a.m. W-Common Wealth Ballroom B

Mu Sigma Rho Annual Meeting

Organizer(s): Phyllis Curtiss, Grand Valley State University

12:00 p.m.–1:30 p.m. W-Hale

JABES Editorial Board Meeting

Chair(s): Montserrat Fuentes, North Carolina State University

12:00 p.m.–1:30 p.m. W-Alcott

Interface Business Meeting

Organizer(s): Edward Wegman, George Mason University

12:00 p.m.–1:30 p.m. S-Liberty B

STAT Editorial Board Meeting (Closed)

12:30 p.m.–1:30 p.m. W-Grand Ballroom E

Informational Meeting on ASA Accreditation

Chair(s): Theresa Utlaut, Intel Corporation

12:30 p.m.–1:30 p.m. W-Executive Board Room

Statistics and Public Policy Editorial Meeting




JSM Dance Party & Lounge

Tuesday, August 5

9:30 p.m. – Midnight

Boston Convention & Exhibition Center

Room CC-Ballroom West



MONSANTO

A special thanks to Monsanto for its support of this event

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Chair(s): David Banks, Duke University

12:30 p.m.–2:00 p.m. W-Bulfinch

Biostatistics Journal Editorial Board Meeting

Organizer(s): Anastasios Tsiatis, North Carolina State University

12:30 p.m.–2:00 p.m. W-Adams

Deming Committee Luncheon

Chair(s): Dennis Boos, North Carolina State University; Katherine Monti, Rho; Marilyn Seastrom, NCES/U.S. Department of Education; Pam Craven, ASA; Ron Wasserstein, ASA

12:30 p.m.–2:00 p.m. W-Grand Ballroom D

JASA Associate Editor Luncheon (Closed)

Chair(s): Jamie Hutchens, JBES

12:30 p.m.–2:30 p.m. W-Common Wealth Ballroom A

The American Statistician Editors Lunch

Chair(s): Ronald Christensen, University of New Mexico

12:30 p.m.–4:30 p.m. W-Faneuil

ENAR RAB/RECOM Luncheon Meeting

Organizer(s): DuBois Bowman, ENAR; Jose Pinheiro, ENAR

1:00 p.m.–2:00 p.m. S-Liberty A

CFAR (Center for Aids Research) Statisticians

Organizer(s): Susan S. Ellenberg, University of Pennsylvania

2:00 p.m.–3:00 p.m. CC-Hall B2

Popcorn Break

Sponsored by Liberty Mutual

2:00 p.m.–3:30 p.m. W-Frost Boardroom

Council of Chapters Traveling Course Committee Meeting

Chair(s): Julia L. Sharp, Clemson University

3:00 p.m.–4:30 p.m. W-Douglass

Joint Social Mixer of Committee on Applied Statisticians and Committee on Career Development

Chair(s): Amarjot Kaur, Merck

4:00 p.m.–5:30 p.m. CC-157B

Funding Opportunities for Statistics

Chair(s): Stephan R. Sain, NCAR

4:00 p.m.–5:30 p.m. W-Grand Ballroom E

ASA Interest Group on Statistics in Business Schools Business Meeting

Chair(s): John D. McKenzie Jr., Babson College

4:00 p.m.–6:00 p.m. W-Hale

DIA Bayesian Scientific Working Group

Organizer(s): Karen Lynn Price, Eli Lilly and Company

4:00 p.m.–6:00 p.m. W-Grand Ballroom D

Statistics Without Borders Business Meeting

Chair(s): Justin Fisher, U.S. Government Accountability Office

4:00 p.m.–6:00 p.m. W-Grand Ballroom C

Council of Chapters Officer Appreciation Reception and Workshop

Chair(s): Linda J. Young, USDA/NASS

4:30 p.m.–6:00 p.m. S-Seaport Ballroom A

Biometrics Editorial Board Meeting

Organizer(s): Marie Davidian, North Carolina State University

4:30 p.m.–6:30 p.m. S-Plaza Ballroom B

North Carolina State University Reception for Department and Friends

Organizer(s): Montserrat Fuentes, North Carolina State University

5:00 p.m.–6:00 p.m. S-Liberty A

Section on Statistics in Imaging Business Meeting

Chair(s): Timothy Duane Johnson, University of Michigan

5:00 p.m.–6:00 p.m. S-Flagship B

Section on Statistics in Marketing Business Meeting

Chair(s): Marianna Dizik, Google

5:00 p.m.–6:30 p.m. CC-157A

Business and Economic Statistics Section Meeting

Chair(s): Carol Corrado, The Conference Board

5:00 p.m.–6:30 p.m. S-Constitution

SSPA Business Meeting and Mixer

Chair(s): Vipin Arora, Eli Lilly and Company

5:00 p.m.–6:30 p.m. W-Harbor Ballroom III

HSPH Department of Biostatistics Alumni Reception

5:00 p.m.–6:30 p.m. W-Harbor Ballroom II

Section on Bayesian Statistical Science Business Meeting and Mixer

Chair(s): Bradley P. Carlin, University of Minnesota

5:00 p.m.–6:30 p.m. S-Plaza Ballroom A

Mental Health Statistics Section Business Meeting

Chair(s): Xiao-Hua Andrew Zhou, University of Washington

5:30 p.m.–6:30 p.m. CC-156C

2016 JSM Program Committee Meeting

Chair(s): Jeffrey S. Morris, MD Anderson Cancer Center

5:30 p.m.–6:30 p.m. S-Lighthouse II

Section on Statistical Learning and Data Mining Business Meeting

Chair(s): Xiaotong Shen, University of Minnesota

5:30 p.m.–6:30 p.m. S-Seaport Ballroom C

Section on Nonparametric Statistics Business Meeting

Tuesday



Chair(s): David Ruppert, Cornell University

5:30 p.m.–7:00 p.m. W-Alcott
Government Statistics Section Business Meeting

Chair(s): Jill Montaquila, Westat

5:30 p.m.–7:00 p.m. S-Plaza Ballroom C
Biopharmaceutical Section Business Meeting

Chair(s): Maria Matilde Sanchez-Kam, Arena Pharmaceuticals

5:30 p.m.–7:00 p.m. W-Adams
Committee on Gay and Lesbian Concerns in Statistics

5:30 p.m.–7:30 p.m. W-Common Wealth Ballroom A
Penn State Faculty, Students, Alumni, and Friends Reception

Organizer(s): David Hunter, Penn State

5:30 p.m.–7:30 p.m. W-Common Wealth Ballroom B
Section on Statistical Consulting Business Meeting and Mixer

Chair(s): Walter Ambrosius, Wake Forest School of Medicine

6:00 p.m.–7:30 p.m. S-Flagship A
Statistics in Marketing Mixer

Chair(s): Lynd Bacon, Loma Buena Assoc.

6:00 p.m.–7:30 p.m. W-Douglass
Committee on Minorities in Statistics Reception

Chair(s): Sydeaka Watson, University of Chicago

6:00 p.m.–8:00 p.m. W-Common Wealth Ballroom C
Wisconsin Welcome Reception

Organizer(s): Brian Yandell, University of Wisconsin-Madison

6:30 p.m.–8:00 p.m. W-Bulfinch
Annual Meeting of the Statistical Society of Ethiopians in North America

Organizer(s): Solomon Harrar, University of Kentucky

6:30 p.m.–8:30 p.m. W-Harbor Ballroom I
Google Faculty Reception

Organizer(s): Tim Hesterberg, Google

6:30 p.m.–8:30 p.m. S-Seaport Ballroom B
Caucus for Women in Statistics Reception and Business Meeting

Organizer(s): Nancy Flournoy, University of Missouri

7:00 p.m.–9:00 p.m. W-Hancock
SMU Alumni Social

Organizer(s): Sheila Crain, Southern Methodist University

8:00 p.m.–9:30 p.m. CC-Ballroom
ASA 175th Anniversary Celebration

9:30 p.m.–12:00 a.m. CC-Ballroom West
JSM Dance Party and Lounge

Sponsored by Monsanto

Professional Development (Fee Events)

CE_19C
Regression Modeling with Many Correlated Predictors: Big Data in Practice

8:00 a.m.–12:00 p.m. CC-159
 ASA

Instructor(s): Jay Magidson, Statistical Innovations; Tony Babinec, AB Analytics

CE_20C
Cure Models and Their Applications

8:00 a.m.–12:00 p.m. CC-160A
 ASA, Biometrics Section

Instructor(s): Jeremy Taylor, University of Michigan; Yingwei Peng, Queen's University

CE_42P
Learning and Improving Skills to Become a More Effective Statistical Collaborator (Part 2)

8:00 a.m.–12:00 p.m. CC-158
 ASA

Instructor(s): Eric Vance, LISA-Virginia Tech; Heather Smith, Cal Poly, San Luis Obispo; Doug Zahn, Florida State University

CE_21C
Modern Design of Factorial Experiments

8:30 a.m.–5:00 p.m. CC-160C
 ASA, Section on Physical and Engineering Sciences

Instructor(s): Peter Goos, University of Antwerp; Bradley Jones, SAS Institute

CE_22C
Genomic Clinical Trials and Predictive Medicine

8:30 a.m.–5:00 p.m. CC-162AB
 ASA, Biopharmaceutical Section

Instructor(s): Richard Simon, National Cancer Institute

CE_23C
Bayesian Inference

8:30 a.m.–5:00 p.m. CC-161
 ASA, Section on Bayesian Statistical Science

Instructor(s): Bruno Sanso, University of California, Santa Cruz

CE_24C

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Causal Mediation Analysis

8:30 a.m.–5:00 p.m.

CC-160B

ASA, Section on Statistics in Epidemiology

Instructor(s): Tyler VanderWeele, Harvard

CE_25C

Interval-Censored Time-to-Event Data: Methods and Applications

1:00 p.m.–5:00 p.m.

CC-159

ASA

Instructor(s): Tony Sun, University of Missouri; Din Chen, University of Rochester

CE_26C

Techniques for Simulating Data in SAS

1:00 p.m.–5:00 p.m.

CC-160A

ASA, Statistical Programmers and Analysts

CE_46P

From Idea to Publication: How to Get That Book Written

2:00 p.m.–4:00 p.m.

CC-158

ASA

Instructor(s): James Ramsay, McGill University; Maura Stokes, SAS Institute

Roundtables with Coffee 7:00 a.m.–8:15 a.m.

256 CC-Ballroom West Mental Health Statistics Section A.M. Roundtable Discussion (Fee Event)

Mental Health Statistics Section

Organizer(s): Nicholas J. Horton, Amherst College

TL01 The Importance of a Mentoring Plan in the Career of a Research (Bio)Statistician—

◆ Constantine Daskalakis, Thomas Jefferson University

257 CC-Ballroom West Section on Bayesian Statistical Science A.M. Roundtable Discussion (Fee Event)

Section on Bayesian Statistical Science

Organizer(s): Kate Calder, Ohio State University

TL02 Current Controversies in Bayesian Clinical Trials—

◆ Lindsay Renfro, Mayo Clinic

258 CC-Ballroom West

Section on Physical and Engineering Sciences A.M. Roundtable Discussion (Fee Event)

Section on Physical and Engineering Sciences

Organizer(s): William Li, University of Minnesota

TL03 Big Data Analysis: Concepts, Methods, and Computation—◆ Sijian Wang, University of Wisconsin

259 CC-Ballroom West Section on Statistical Consulting A.M. Roundtable Discussion (Fee Event)

Section on Statistical Consulting

Organizer(s): Kim Love-Myers, University of Georgia

TL04 What's the Difference Between Data Science and Statistics?—◆ Charles Kincaid, Experis

260 CC-Ballroom West Section on Statistical Education A.M. Roundtable Discussion (Fee Event)

Section on Statistical Education

Organizer(s): Erin Blankenship, University of Nebraska-Lincoln

TL05 Data Science and Statistics: How Should They Fit into Our Curriculum?—◆ Johanna Hardin, Pomona College

TL06 Teaching Integrity in Empirical Research—◆ Richard Ball, Haverford College

TL07 Teaching K–12 Teachers to Teach Probability and Statistics Common Core—◆ Dalene Stangl, Duke University

261 CC-Ballroom West Section on Statistics in Epidemiology A.M. Roundtable Discussion (Fee Event)

Section on Statistics in Epidemiology

Organizer(s): Haitao Chu, University of Minnesota

TL08 Causal Inference in Statistics and Epidemiology—◆ James Robins, Harvard School of Public Health

262 CC-Ballroom West Section on Teaching of Statistics in the Health Sciences A.M. Roundtable Discussion (Fee Event)



Section on Teaching of Statistics in the Health Sciences

Organizer(s): Jeff Szychowski, University of Alabama

TL09 Technology in the Classroom: New Levels of Teaching and Learning Statistics—◆ Michael Swartz, University of Texas Health Science Center at Houston; Jose-Miguel Yamal, University of Texas Health Science Center at Houston

Special Presentation 8:30 a.m.–10:20 a.m.

263 CC-258A Introductory Overview Lecture: Modern Perspectives on Estimation for Surveys—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, Statistics Without Borders, Conference on Statistical Practice Steering Committee

Organizer(s): Jay Breidt, Colorado State University

Chair(s): Sarah Nusser, Iowa State University

- 8:35 a.m. **Introductory Overview Lecture on Methods of Estimation for Complex Surveys, Part I**—Jay Breidt, Colorado State University
- 9:20 a.m. **Introductory Overview Lecture on Methods of Estimation for Complex Surveys, Part II**—◆ David Haziza, Université de Montréal
- 10:05 a.m. **Floor Discussion**

Invited Sessions 8:30 a.m.–10:20 a.m.

264 CC-211 ■ ● Annals of Applied Statistics Special Presentation—Invited

IMS

Organizer(s): Susan Paddock, RAND Corporation

Chair(s): Susan Paddock, RAND Corporation

- 8:35 a.m. **Annals of Applied Statistics Discussion Paper: Spatial Accessibility of Pediatric Primary Health Care—Measurement and Inference**—◆ Nicoleta Serban, Georgia Institute of Technology; Mallory Nobles, Georgia Institute of Technology; Julie Swann, Georgia Institute of Technology
- 9:20 a.m. **Disc:** Lance Waller, Emory University
- 9:30 a.m. **Disc:** Amelia M. Haviland, Carnegie Mellon
- 9:40 a.m. **Disc:** Laura Hatfield, Harvard Medical School
- 9:50 a.m. **Floor Discussion**

265 CC-254A ■ Mental Health Statistics: Showcase of Challenges and Advances—Invited

Mental Health Statistics Section, Health Policy Statistics Section

Organizer(s): Patrick E. Shrout, New York University

Chair(s): Patrick E. Shrout, New York University

- 8:35 a.m. **The Impact of ‘Statistical’ in the Diagnostic and Statistical Manual of Mental Disorders (DSM)**—◆ Helena Chmura Kraemer, University of Pittsburgh
- 8:55 a.m. **Estimation of Accuracy of Diagnostic Tests Without a Gold Standard Using Latent Class Models**—◆ Xiao-Hua Andrew Zhou, University of Washington; Zheyu Wang, Johns Hopkins University
- 9:15 a.m. **The Future of Mental Health Measurement**—◆ Robert Gibbons, University of Chicago
- 9:35 a.m. **Novel Methods for Improving Power in Psychiatric Genetics**—◆ Wesley Kurt Thompson, University of California, San Diego
- 9:55 a.m. **On the Comparison of Adaptive Interventions Using Data Arising from a SMART, with Application to Autism Research**—◆ Daniel Almirall, University of Michigan; Xi Lu, University of Michigan; Inbal Nahum-Shani, University of Michigan; Connie Kasari, University of California, Los Angeles; Susan Murphy, University of Michigan
- 10:15 a.m. **Floor Discussion**

266 CC-152 ■ ● Statistics in Disease Mapping and Spatial Epidemiology: New Insights and New Frontiers—Invited

Section on Statistics in Epidemiology, Statistics Without Borders

Organizer(s): Ying C. MacNab, University of British Columbia

Chair(s): Jungsoon Choi, Hanyang University

- 8:35 a.m. **Looking into Spatio-Temporal Models in Disease Mapping**—◆ Lola Ugarte, Public University of Navarre; Miguel Angel Martinez-Beneito, Generalitat Valenciana; Aritz Adin, Public University of Navarre; Paloma Botella-Rocamora,

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Universidad CEU-Cardenal Herrera; Tom-s Goicoa, Public University of Navarre; Ana F. Militino, Public University of Navarre
- 9:00 a.m. **A Multivariate Spatial Mixture Model for Areal Data: Examining Regional Differences in Standardized Test Scores**—◆ Brian Neelon, Duke University; Alan Gelfand, Duke University
- 9:25 a.m. **A Shared Neighbor Conditional Autoregressive Model for Small Area Spatial Data**—◆ Andrew B. Lawson, Medical University of South Carolina; Chawarat Rotejanaprasert, Medical University of South Carolina; Paula Moraga-Serrano, Lancaster University; Jungsoon Choi, Hanyang University
- 9:50 a.m. Disc: Ying C. MacNab, University of British Columbia
- 10:15 a.m. **Floor Discussion**

267 **CC-104B**
Statistics and the Media—Invited

Committee on Excellence in Statistical Reporting, Scientific and Public Affairs Advisory Committee

Organizer(s): Morteza Marzjarani,
 Chair(s): Morteza Marzjarani,

- 8:35 a.m. **Anti-Excellence: Some Statistical Bloopers and How to Use Them in a Business Statistics Class**—◆ Erol Pekoz, Boston University
- 8:55 a.m. **Cheating**—◆ Howard Wainer, National Board of Medical Examiners
- 9:15 a.m. **Economic Statistics and the Media**—◆ Michael Levi, Bureau of Labor Statistics
- 9:35 a.m. **Numbers Turned Narrative: Reporting at the New York Times**—◆ Alan Schwarz, New York Times
- 9:55 a.m. **How and Why the Media Gets It Wrong**—◆ Donald Berry, MD Anderson Cancer Center
- 10:15 a.m. **Floor Discussion**

268 **CC-252B**
Spatiotemporal Modeling and Control of Infectious Diseases and Invasive Species—Invited

Section on Statistics and the Environment, Statistics Without Borders

Organizer(s): Brian Reich, North Carolina State University
 Chair(s): Brian Reich, North Carolina State University

- 8:35 a.m. **Bayesian Models for Infectious Disease Surveillance Data**—Ana Corber-n-Vallet, University of Valencia; Andrew B. Lawson, Medical University of South Carolina; ◆ Georgiana Onicescu, Medical University of South Carolina
- 9:00 a.m. **An Adaptive Treatment Strategy for the**

Management of White-Nose Syndrome—◆ Nick Meyer, North Carolina State University; Eric B. Laber, North Carolina State University; Krishna Pacifici, North Carolina State University; Brian Reich, North Carolina State University; John Drake, University of Georgia

- 9:25 a.m. **Evaluating Epidemic and Invasive Species Response to Forcing from Multivariate Spatio-Temporal Response Operators**—◆ Christopher K. Wikle, University of Missouri
- 9:50 a.m. **Optimal Control Strategies for Emerging Epidemics on Heterogeneous Networks**—◆ Krishna Pacifici, North Carolina State University; Nick Meyer, North Carolina State University; Eric B. Laber, North Carolina State University; Brian Reich, North Carolina State University; John Drake, University of Georgia
- 10:15 a.m. **Floor Discussion**

269 **CC-151A**
Statisticians' Contributions to Public Health Achievements of the 20th Century—Invited

Biopharmaceutical Section, Scientific and Public Affairs Advisory Committee, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials

Organizer(s): Christy Chuang-Stein, Pfizer
 Chair(s): Christy Chuang-Stein, Pfizer

- 8:35 a.m. **Statistical Innovations in Vaccine Development**—◆ Ivan S.F. Chan, Merck; Joseph Heyse, Merck
- 9:00 a.m. **The Statistical Landscape of Infectious Disease: Past, Present, and Future**—◆ Martha Nason, NIAID/NIH
- 9:25 a.m. **Biostatistics at NIH: The Early Years—Reduction in Mortality from Coronary Heart Disease and Stroke**—◆ David DeMets, University of Wisconsin-Madison
- 9:50 a.m. Disc: Robert O'Neill, FDA
- 10:10 a.m. **Floor Discussion**

270 **CC-204A**
Bayesian Time Series and Dynamic Models—Invited

Business and Economic Statistics Section, International Society for Bayesian Analysis (ISBA)

Organizer(s): Scott Holan, University of Missouri
 Chair(s): William Nicholson, Cornell University

- 8:35 a.m. **Hierarchical Dynamic Modeling of Count Time Series with Latent Durations**—◆ Nalini Ravishanker, University of Connecticut; Jonathan R.M. Hosking, IBM Research; Hongxia Yang, IBM Research

Tuesday



9:00 a.m. **A Spatio-Temporal Mixture Model for Point Processes with Application to Ambulance Demand**—◆David Scott Matteson, Cornell University

9:25 a.m. **An Approach for Identifying and Predicting Economic Recessions in Real-Time Using Time-Frequency Functional Models**—◆Scott Holan, University of Missouri; Wen-Hsi Yang, CSIRO Computational Informatics; David Scott Matteson, Cornell University; Christopher K. Wikle, University of Missouri

9:50 a.m. **Dynamic Models for Multivariate Time Series of Count Data**—◆Ruey S. Tsay, ASA/IMS/ICSA

10:15 a.m. **Floor Discussion**

271 CC-209 **■ ● Big Data in Smart Health: Models, Algorithms, and Networks—Invited**

IMS, Section on Statistical Computing, Statistics Without Borders

Organizer(s): Hua Fang, University of Massachusetts Medical School

Chair(s): Hua Fang, University of Massachusetts Medical School

8:35 a.m. **Analyzing Data at Scale with the Berkeley Data Analytics Stack**—◆Michael Franklin, University of California, Berkeley

9:00 a.m. **Knowledge Mining Biomedical Big Data with Scalable Machine Learning**—◆Una-May O'Reilly, MIT

9:25 a.m. **Big Data from Biostatisticians'/Bioinformaticians' Perspective: From Epigenomics to Data Integration**—◆Guo-Cheng Yuan, Harvard School of Public Health

9:50 a.m. **Bringing Big Data to Personalized Health Care: A Patient-Centered Framework**—◆Nitesh Chawla, University of Notre Dame

10:15 a.m. **Floor Discussion**

272 CC-258B **Journal of Business and Economic Statistics Invited Session—Invited**

JBES—Journal of Business & Economic Statistics

Organizer(s): Rong Chen, Rutgers University

Chair(s): Rong Chen, Rutgers University

8:35 a.m. **Semiparametric Conditional Quantile Estimation Through Copula-Based Multivariate Models**—◆Anouar El Ghouch, Université Catholique de Louvain; Ingrid Van Keilegom, Université Catholique de Louvain; Hohsuk Noh, Sookmyung Women's University

9:05 a.m. **On the Estimation of Integrated Volatility with Jumps and Microstructure Noises**—◆Bing-Yi Jing,

HKUST

9:35 a.m. **Floor Discussion**

Invited Panels 8:30 a.m.—10:20 a.m.

273 CC-102A **■ ● Implementation of Statistical Algorithms in Big Data Platforms—Invited**

International Chinese Statistical Association, International Indian Statistical Association, Conference on Statistical Practice Steering Committee

Organizer(s): Henry Horng-Shing Lu, National Chiao Tung University

Chair(s): Wing Hung Wong, Stanford University

Panelists: ◆Hui Jiang, University of Michigan

◆Steven L. Scott, Google

◆Xiaoming Huo, NSF

◆Jing Shyr, IBM

10:15 a.m. **Floor Discussion**

274 CC-153B **■ ● Global Impact of Statistics in Biological Sciences—Invited**

Section for Statistical Programmers and Analysts, Statistics Without Borders

Organizer(s): Erik Garrison, Boston College

Chair(s): Erik Garrison, Boston College

Panelists: ◆Eimear Kenny, Mount Sinai

◆Ryan Poplin, Broad Institute

◆Joseph Pickrell, Harvard Medical School

◆Karim Chine, Cloud Era

10:15 a.m. **Floor Discussion**

Topic-Contributed Sessions 8:30 a.m.—10:20 a.m.

275 CC-105 **■ ● Recent Advances in High-Dimensional Statistical Inference—Topic-Contributed**

Section on Statistical Learning and Data Mining, Interface Foundation of North America

Organizer(s): Lingzhou Xue, Penn State

Chair(s): Lingzhou Xue, Penn State

8:35 a.m. **Convex Banding of the Covariance Matrix**—◆Jacob Bien, Cornell University; Florentina Bunea, Cornell

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 8:55 a.m. University; Luo Xiao, Johns Hopkins University
Group-Regularized Estimation Under Strong Hierarchy—◆ He Jiang, Florida State University; Yiyuan She, Florida State University
- 9:15 a.m. **Gemini: Graph Estimation with Matrix Variate Normal Instances**—◆ Shuheng Zhou, University of Michigan
- 9:35 a.m. **Adaptive Sparse Reduced-Rank Regression**—◆ Tingni Sun, University of Pennsylvania; Zongming Ma, Wharton School
- 9:55 a.m. **Tensor Regression, Regularization, and Imaging Analysis**—◆ Lexin Li, North Carolina State University; Hua Zhou, North Carolina State University; Hongtu Zhu, University of North Carolina at Chapel Hill
- 10:15 a.m. **Floor Discussion**

- Toxicity**—◆ Peter Thall, MD Anderson Cancer Center; Hoang Q. Nguyen, MD Anderson Cancer Center; Tom Braun, University of Michigan; Muzaffar Qazilbash, MD Anderson Cancer Center
- 8:55 a.m. **Challenges in Designing Clinical Trials for Rare Diseases**—◆ Christopher Coffey, University of Iowa
- 9:15 a.m. **A One-To-Two Arm Design for a Rare Disease**—◆ Todd Graves, Berry Consultants
- 9:35 a.m. **Extension of Population Pharmacokinetic Models and Optimal Sparse Sampling Designs to Bioequivalence Study Designs**—◆ Junshan Qiu, FDA; Marilyn Martinez, FDA/CVM
- 9:55 a.m. Disc: Gregory Campbell, FDA
- 10:15 a.m. **Floor Discussion**

276 CC-102B ■ ● **New Statistical Methods in Phylogenetics—Topic-Contributed**

International Indian Statistical Association
 Organizer(s): Arindam Roy Choudhury, Columbia University
 Chair(s): Arindam Roy Choudhury, Columbia University

- 8:35 a.m. **Tests for Two Trees Using Likelihood Methods**—◆ Edward Susko, Dalhousie University
- 8:55 a.m. **A Probabilistic Model for Gene Family Evolution**—◆ Liang Liu, University of Georgia
- 9:15 a.m. **Integration of Trees in Microbiome Data Analyses**—◆ Susan Holmes, Stanford University
- 9:35 a.m. **Species Tree Inference from Clades and Splits on Gene Trees**—◆ John Rhodes, University of Alaska Fairbanks; Elizabeth Allman, University of Alaska Fairbanks; James Degnan, University of New Mexico
- 9:55 a.m. **Species Tree Estimation from SNP Data Under the Coalescent**—◆ Laura Kubatko, Ohio State University; Julia Chifman, Wake Forest University
- 10:15 a.m. **Floor Discussion**

277 CC-153A ■ ● **Designs and Analyses of Studies with Small Sample Sizes—Topic-Contributed**

Biopharmaceutical Section
 Organizer(s): Junshan Qiu, FDA
 Chair(s): Anna B. Nevius, FDA

- 8:35 a.m. **Utility-Based Optimization of Schedule-Dose Regimes Based on the Times to Response and**

278 CC-208 ■ ● **Paper Highlights from Bayesian Analysis—Topic-Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)
 Organizer(s): Marina Vannucci, Rice University
 Chair(s): Ming-Hui Chen, University of Connecticut

- 8:35 a.m. **Bayesian Nonparametric Roc Regression Modeling**—◆ Vanda Inacio, Pontificia Universidad Católica de Chile; Alejandro Jara, Pontificia Universidad Católica de Chile; Timothy Hanson, University of South Carolina; Miguel de Carvalho, Pontificia Universidad Católica de Chile
- 8:55 a.m. **Bayesian Nonparametric Inference – Why and How**—◆ Peter Mueller, University of Texas at Austin; Riten Mitra, University of Louisville
- 9:15 a.m. **On the Prior and Posterior Distributions Used in Graphical Modeling**—◆ Marco Scutari, University College London
- 9:35 a.m. **A Vine-Copula-Based Adaptive MCMC Sampler for Efficient Inference of Dynamical Systems**—◆ Claudia Czado, Munich University of Technology
- 9:55 a.m. Disc: Marina Vannucci, Rice University
- 10:15 a.m. **Floor Discussion**

279 CC-251 ■ ● **Regularization Methods and Their Application to Various Statistical Problems—Topic-Contributed**

Korean International Statistical Society
 Organizer(s): Mikyoung Jun, Texas A&M
 Chair(s): Mikyoung Jun, Texas A&M

- 8:35 a.m. **Lag Selection for Single-Index Time Series Models—**

Tuesday



- ◆ Guannan Wang, University of Georgia; Li Wang, UGA
- 8:55 a.m. **Localization Methods for a Multivariate Ensemble Kalman Filter**—◆ Soojin Roh, Texas A&M; Miyoung Jun, Texas A&M; Istvan Szunyogh, Texas A&M; Marc G. Genton, King Abdullah University of Science and Technology
- 9:15 a.m. **Stable Dimension Reduction**—◆ Wenbo Wu, University of Georgia; Xiangrong Yin, University of Georgia
- 9:35 a.m. **Autocovariance Function Estimation via Penalized Regression**—◆ Lina Liao, University of Georgia; Cheolwoo Park, University of Georgia; Jan Hannig, University of North Carolina at Chapel Hill; Kee-Hoon Kang, Hankuk University of Foreign Studies
- 9:55 a.m. **Sparse Robust Graphical Models**—◆ Myung Hee Lee, Colorado State University; Hyonho Chun, Purdue University; James Fleet, Purdue University
- 10:15 a.m. **Floor Discussion**

280 CC-153C **Learning to Use and Love Analysis Data Standards—Topic-Contributed**

Biopharmaceutical Section, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): *Stephen E. Wilson, FDA/CDER*
 Chair(s): *Vipin Arora, Eli Lilly and Company*

- 8:35 a.m. **Using ADaM Standard Analysis Data: Challenges and Progress**—◆ Stephen E. Wilson, FDA/CDER
- 8:55 a.m. **Leveraging the Adam Standard for Therapeutic Area Standards**—◆ Susan Kenny,

- 9:15 a.m. **Statistical Analyses Using Standardized Data: Anti-Viral Experience**—◆ Wen Zeng, FDA/CDER
- 9:35 a.m. Disc: Benjamin Vali, FDA/CDER/OTS/OB/DBIII
- 9:55 a.m. Disc: TBD TBD,
- 10:15 a.m. **Floor Discussion**

281 CC-206A **Recent Advances in the Analysis of Ranking Data—Topic-Contributed**

Section on Nonparametric Statistics

Organizer(s): *Michael G. Schimek, Medical University of Graz*
 Chair(s): *Shili Lin, Ohio State University*

- 8:35 a.m. **Bayesian Ranks, Histograms, and Triple-Goal Estimates**—◆ Thomas Louis, U.S. Census Bureau/ Johns Hopkins University
- 8:55 a.m. **Recent Development of Distance-Based Models for Ranking Data**—◆ Philip Yu, University of Hong Kong; Paul H. Lee, Hong Kong Polytechnic University; Fang Qi, University of Hong Kong
- 9:15 a.m. **Inference and Modeling Aspects of Multiple Ranked Lists**—◆ Michael G. Schimek, Medical University of Graz; Peter Hall, University of Melbourne; Vendula Svendova, Medical University of Graz
- 9:35 a.m. **Nonparametric Testing for Nonhomogeneous Correlation**—◆ Joseph S. Verducci, Ohio State University; Stephen Bamattre, Google; Rex Hu, Ohio State University
- 9:55 a.m. **Algebraic Stability for Ranked Lists in Computational Biology**—◆ Giuseppe Jurman, Bruno Kessler Foundation
- 10:15 a.m. **Floor Discussion**

282 CC-156A **Challenges in Analyzing and Interpreting Multiple (Possibly Censored) Outcomes in Chronic Disease Trials—Topic-Contributed**

Biometrics Section

Organizer(s): *Dianne M. Finkelstein, Massachusetts General Hospital/Harvard University*

Chair(s): *Brian Healy, Massachusetts General Hospital*

- 8:35 a.m. **Challenges in Analyzing and Interpreting Multiple (Possibly Censored) Outcomes in Chronic Disease Trials**—◆ Marc Buyse, IDDI
- 8:55 a.m. **Challenges in Analyzing and Interpreting Multiple (Possibly Censored) Outcomes in Chronic Disease Trials**—◆ Dianne M. Finkelstein, Massachusetts

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● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 9:15 a.m. General Hospital/Harvard University
A Generalized Global Rank Test for Multiple, Possibly Censored, Outcomes—◆ Ritesh Ramchandani, Harvard; Dianne M. Finkelstein, Massachusetts General Hospital/Harvard University; David Alan Schoenfeld, Massachusetts General Hospital
- 9:35 a.m. **Case Study on Interpretation of Progression-Free Survival and Overall Survival in a Trial with Treatment Crossover: Tivozanib in Renal Cancer**—◆ Andrew Strahs, Alnylam Pharmaceuticals
- 9:55 a.m. Disc: David Alan Schoenfeld, Massachusetts General Hospital
- 10:15 a.m. **Floor Discussion**

- 8:55 a.m. **Application of Clustering Regression Time Series in Dendrochronology**—◆ Semhar Michael, University of Alabama; Volodymyr Melnykov, University of Alabama
- 9:15 a.m. **On the Semi-Supervised Joint-Trained Elastic Net**—◆ Mark Culp, West Virginia University; Kenneth J. Ryan, West Virginia University
- 9:35 a.m. **Functional Model-Based Clustering**—◆ Alejandro Murua, University of Montreal; Folly Adjogou, Université de Montreal; Wolfgang Raffelsberger, Université de Strasbourg
- 9:55 a.m. **Clustering Approaches to Activation Detection in fMRI**—◆ Ranjan Maitra, Iowa State University; Wei-Chen Chen, University of Tennessee
- 10:15 a.m. **Floor Discussion**

283 **CC-257A**

■ ● Recent Advances in Multiple Imputation—Topic-Contributed

Survey Research Methods Section

Organizer(s): Florian Meinfelder, University of Bamberg

Chair(s): Stef van Buuren, Netherlands Organisation for Applied Scientific Research

- 8:35 a.m. **Combining Information from Multiple Sources in Bayesian Modeling**—◆ Tracy Schifeling, Duke University; Jerome P. Reiter, Duke University
- 8:55 a.m. **Multiple Imputation for Poverty Rate Estimation from Rounded Income Data**—◆ Hans Kiesl, Regensburg University of Applied Sciences; Jörg Drechsler, Institute of Employment Research
- 9:15 a.m. **Nearest-Neighbor-Based Approaches for Multiple Imputation of Unordered Categorical Variables**—◆ Florian Meinfelder, University of Bamberg
- 9:35 a.m. **Synthetic Longitudinal Business Databases for International Comparisons**—◆ Jörg Drechsler, Institute of Employment Research; Lars Vilhuber, Cornell University
- 9:55 a.m. **A New Way to Multiply Impute Nonignorable Missing Outcomes**—◆ Shahab Jolani, Utrecht University; Stef Van Buuren, Utrecht University
- 10:15 a.m. **Floor Discussion**

284 **CC-104C**

■ Finite Mixture Modeling with Applications—Topic-Contributed

Section on Statistical Computing, Interface Foundation of North America

Organizer(s): Volodymyr Melnykov, University of Alabama

Chair(s): Michael D. Porter, University of Alabama

- 8:35 a.m. **Assessment of the Number of Components in Gaussian Mixture Models in the Presence of Multiple Likelihood Local Maximizers**—◆ Daeyoung Kim,

Topic-Contributed Panels 8:30 a.m.–10:20 a.m.

285 **CC-204B**

■ ● Communicating Statistical Findings to Consulting Clients Operating in a Decisionmaking Climate: Best and Worst Practices—Topic-Contributed

Section on Statistical Consulting, Section on Teaching of Statistics in the Health Sciences, Statistics Without Borders, Conference on Statistical Practice Steering Committee

Organizer(s): Isabella R. Ghement, Ghement Statistical Consulting Company

Chair(s): Isabella R. Ghement, Ghement Statistical Consulting Company

- Panelists:**
- ◆ Michael Greene,
 - ◆ John H. Schuenemeyer, Southwest Statistical Consulting
 - ◆ Ralph M. Turner, HealthCore
 - ◆ David R. Bristol, Statistical Consulting Services
 - ◆ MaryJo O. Smith, Ypsilon Associates

Tuesday



10:15 a.m. Floor Discussion

286 **CC-260**
■ ● Evaluating Teacher Effectiveness: The State of Value Added/Growth Modeling and the Impact on Teacher Evaluation—Topic-Contributed

Section on Statistical Education

Organizer(s): Jennifer E. Broatch, Arizona State University

Chair(s): Erin Blankenship, University of Nebraska-Lincoln

- Panelists:** ◆ Jennifer E. Broatch, Arizona State University
 ◆ Jennifer L. Green, Montana State University
 ◆ Leslie Lukin, Lincoln Public Schools
 ◆ Eric Parsons, University of Missouri
 ◆ Pamela Fellers, University of Nebraska-Lincoln

10:15 a.m. Floor Discussion

287 **CC-212**
Nontraditional Data Collection Methods: Success and Challenges—Topic-Contributed

Government Statistics Section, Transportation Statistics Interest Group, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Li Leung, USDOT/RITA/BTS

Chair(s): Li Leung, USDOT/RITA/BTS

- Panelists:** ◆ Kam Chin, U.S. DOT Volpe National Transportation Systems Center
 ◆ Gary Baker, U.S. DOT Volpe National Transportation Systems Center
 ◆ Gareth Colville, MITRE Corporation
 ◆ Alan F. Karr, NISS
 ◆ Kevin Hathaway, RSG

10:15 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.–10:20 a.m.

288 **CC-255**
Speed Session #4: Topics in Epidemiology and Survey Research Methods, Part 1—Contributed

Section on Statistics in Epidemiology, Survey Research Methods Section,

Government Statistics Section

Chair(s): Owen Devine, CDC

- 8:35 a.m. **Monte Carlo Simulation to Examine the Uncertainty in Autism Spectrum Disorder Prevalence Estimates Derived from Postcensal Population Estimates—**
 ◆ Lin Tian, CDC; Owen Devine, CDC
- 8:40 a.m. **Modeling Population Psychometric Characteristics of a Speech-in-Noise Task: Using a Large Cross-Sectional Study to Explore Associations Between Cognition and Listening—**
 ◆ Mark Edmondson-Jones, NIHR
- 8:45 a.m. **Using Contact Networks and Mortality Patterns to Estimate Epidemiological Process Parameters—**
 ◆ Kezia Manlove, Penn State
- 8:50 a.m. **Sampling Strategies Based on Existing Information in Nested Case Control Study—**
 ◆ Yi Luo, University of Southern California
- 8:55 a.m. **Follow-Up Survey Response Rates in Women at Risk for Breast Cancer—**
 ◆ Jeannette Lee, University of Arkansas for Medical Sciences; Ishwori Dhakal, University of Arkansas for Medical Sciences; Susan Kadlubar, University of Arkansas for Medical Sciences
- 9:00 a.m. **Clustering of Dietary Patterns in Pregnant Women and Children Living in the Seychelles—**
 ◆ Tanzy Love, University of Rochester; Maria S. Mulhern, University of Ulster; Alison Yeates, University of Ulster; Sean Strain, University of Ulster; Emeir McSorley, University of Ulster; Conrad Shamlaye, Republic of Seychelles; Juliette Henderson, Republic of Seychelles; Sally Thurston, University of Rochester; Gene E. Watson, University of Rochester; Philip W. Davidson, University of Rochester; Edwin van Wijngaarden, University of Rochester; Gary Myers, University of Rochester
- 9:05 a.m. **Using Bayesian Statistical Inference to Improve the Measurement of Adequacy of Mental Health Care Utilization in a Nationally Representative Sample—**
 ◆ Chih-Nan Chen, National Taipei University; Benjamin Cook, Center for Multicultural Mental Health Research; Margarita Alegria, Center for Multicultural Mental Health Research
- 9:15 a.m. **Releasing Synthetic Microdata for Magnitude Tabular Data—**
 ◆ Lan Wei, Duke University; Jerome P. Reiter, Duke University
- 9:20 a.m. **Comparison of Estimates for Lifetime Depression Using the National Survey on Drug Use and Health (NSDUH) and Behavioral Risk Factor**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 9:25 a.m. **Surveillance System (BRFSS)**—◆ Kimberly Ault, RTI International; Greta Kilmer, RTI International
- 9:30 a.m. **Big Data and Advanced Analytics in Radiology Precision and Pre-Emptive Patient Care**—Nasser Fard, Northeastern University; ◆ Jean Hosseini, Inteltek; Scott Cameron, Medical Clinic
- 9:35 a.m. **Automated Survey Coding for German Occupations**—◆ Malte Schierholz,
- 9:40 a.m. **Weight Smoothing Using Laplace Priors**—◆ Michael Elliott, University of Michigan; Xi Xia, University of Michigan
- 9:45 a.m. **Implementation and Results of an Experiment Using Mahalanobis Distance in Responsive Design to Reduce Nonresponse Bias**—◆ Jennifer Cooney, RTI International; Peter Siegel, RTI International; Melissa Cominole, RTI International; Bryan Shepherd, RTI International
- 9:50 a.m. **Understanding Egypt's Telephone Using Population Using RDD and Face-to-Face Surveys**—◆ Timothy Van Blarcom, D3 Systems; David Rae, D3 Systems; David Peng, D3 Systems
- 9:55 a.m. **Modeling Clustering Design Effects When Cluster Sizes Vary**—◆ James Chromy, RTI International
- 10:00 a.m. **Computer-Based Training for NCES Complex Survey Micro-Data Sets: 2014 Update**—◆ Andrew White, NCES/IES
- 10:05 a.m. **Opening the Doors to U.S. Department of Education Data: Program, Grant, and Statistical Data**—◆ Marilyn M. Seastrom, NCES/U.S. Department of Education
- 10:10 a.m. **Protecting Survey Design Information in Public Use Files by Constructing Combined Strata Accounting for the Realized Sample Selection**—◆ Vladislav Beresovsky, NCHS
- 10:10 a.m. **Project Talent: Weighting Adjustments Comparison for Nonresponse and Tracking Loss in a Follow-Up Survey 50 Years Later**—◆ Danielle Battle, American Institutes for Research

Contributed Sessions 8:30 a.m.–10:20 a.m.

289 CC-156B Recent Developments in the Analysis of Genetic and Genomic Data—Contributed

ENAR, WNAR

Chair(s): Ananda Sen, University of Michigan

- 8:35 a.m. **Gateaux Differential-Based Boosting for High-Dimensional Grouped Variables with Application of**

- 8:50 a.m. **Gene-Gene Interaction**—◆ Kevin He, University of Michigan; Yi Li, University of Michigan; Ji Zhu, University of Michigan
- 9:05 a.m. **Pleiotropy Informed Genetic Risk Prediction via Logistic Multi-Task Learning**—◆ Cong Li, Yale; Can Yang, Yale; Hongyu Zhao, Yale
- 9:20 a.m. **Probabilistic Error Correction Using Markov Inference in Errored Reads**—◆ Karin Dorman, Iowa State University; Xin Yin, Iowa State University; Vahid Noroozi, Iowa State University; Aditya Ramamoorthy, Iowa State University
- 9:35 a.m. **Pleiotropy Analysis of Quantitative Traits at Gene Level by Multivariate Functional Linear Models**—◆ Yifan Wang, NICHD; Ruzong Fan, NICHD; James L. Mills, NIH/NICHD; Alexander F. Wilson, NIH/NHGRI; Joan E. Bailey-Wilson, NIH/NHGRI; Momiao Xiong, University of Texas Health Science Center at Houston
- 9:50 a.m. **A Robust Association Test for SNPs on the X Chromosome in Case Control GWAS**—◆ Zhongxue Chen, Indiana University, Bloomington
- 10:05 a.m. **Differential Network Analysis in Genomics**—◆ Min Jin Ha; Veera Baladandayuthapani, MD Anderson Cancer Center; Kim-Ahn Do, MD Anderson Cancer Center
- 10:05 a.m. **Floor Discussion**

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CC-207

● Testing—Contributed

IMS

Chair(s): Christopher Hans, Ohio State University

- 8:35 a.m. **Null Hypothesis Significance Testing, Signal Detection Theory, and $P < 0.05$** —◆ Ming Ji,
- 8:50 a.m. **A Nonparametric Likelihood Ratio Test for Detecting Sparse Normal Mixtures**—◆ Wenhua Jiang; Cun-Hui Zhang, Rutgers University
- 9:05 a.m. **Controlling the False Discovery Rate in Ordered Settings**—◆ Maxwell Grazier G'Sell, Stanford University; Robert Tibshirani, Stanford University; Alexandra Chouldechova, Stanford University; Stefan Wager, Stanford University
- 9:20 a.m. **Rate Optimal Multiple Testing Procedure in High-**



- 9:35 a.m. **Dimensional Regression**—◆Zhigen Zhao, Temple University; Pengsheng Ji, University of Georgia
- 9:50 a.m. **Single-Index Modulated Multiple Testing**—◆Lilun Du, University of Wisconsin-Madison; Chunming Zhang, University of Wisconsin-Madison
- 10:05 a.m. **A Sequential Design to Test Incremental Response Rates**—◆Lin Fei, Cincinnati Children's Hospital Medical Center; Eileen C. King, Cincinnati Children's Hospital Medical Center
- 10:05 a.m. **Multiple Testing for Sparse Covariance Matrices**—◆Jing He, Peking University; Song Xi Chen, Iowa State University/Peking University

291 CC-101 Statistical Consulting in Developing Nations: Challenges, Opportunities, and Lessons Learned—Contributed

Statistics Without Borders, Section on Statistical Consulting

Chair(s): Jean Opsomer, Colorado State University

- 8:35 a.m. **Pro Bono (SWB) Statistical Analysis of a Randomized Double Blind Clinical Trial, or 'Is Our Project Done Yet?'**—◆Chris Barker, InVentiv Health Clinical
- 8:50 a.m. **Innovative Statistical Approaches in Clinical Microbiology Research**—◆Jayawant Mandrekar, Mayo Clinic
- 9:05 a.m. **Psychosocial Predictors of Consistent Condom Use Among Women at Risk of Sexually Transmitted Disease: Comparing Rasch and Classical Methods for Item Selection**—◆Resmi Gupta, Cincinnati Children's Hospital Medical Center; Richard Ittenbach, Cincinnati Children's Hospital Medical Center; Maurizio Macaluso, Cincinnati Children's Hospital Medical Center
- 9:20 a.m. **How Many Ways Can We Spell Gini Index?**—◆Sudheesh Kumar Kattumannil, Michigan State University
- 9:35 a.m. **LISA 2020: A Vision Toward Research Development in Nigeria**—◆Olushina Olawale Awe, Obafemi

- Awolowo University; Eric Vance, LISA-Virginia Tech
- 9:50 a.m. **Impacting Agricultural Productivity in Tanzania Through the Wheels of Statistics**—◆Emanuel Msemo, Virginia Tech
- 10:05 a.m. **Floor Discussion**

292 CC-157A Competing Risks—Contributed

Biometrics Section

Chair(s): Terry Therneau, Mayo Clinic

- 8:35 a.m. **The Proportional Subdistribution Hazards Model for Interval-Censored Competing Risks Data**—◆Chenxi Li, Michigan State University
- 8:50 a.m. **Use of Zero-Inflated Models in Analyzing Duration Data Involving Competing Events**—◆Alok Dwivedi, Texas Tech University Health Sciences Center; Jiayang Liu, Texas Tech University; Patrick Tarwater, Texas Tech University Health Sciences Center; Juan B. Figueroa-Casas, Texas Tech University Health Sciences Center; Sada Nand Dwivedi, All India Institute of Medical Sciences; Rakesh Shukla, University of Cincinnati
- 9:05 a.m. **Proportional Subdistribution Hazard Regression with Interval-Censored Competing Risks Data**—◆Yi Ren, University of Pittsburgh; Ruosha Li, University of Pittsburgh; Chung-Chou Chang, University of Pittsburgh
- 9:20 a.m. **Competing Risks Regression with the Logit Link**—◆Thomas Scheike, University of Copenhagen
- 9:35 a.m. **Extending Fine and Gray Model: New Approach for Competing Risks Analysis**—◆Anna Bellach, University of Copenhagen; Jason Fine, University of North Carolina at Chapel Hill; Ludger Rüschendorf, Albert Ludwigs University; Michael Kosorok, University of North Carolina at Chapel Hill
- 9:50 a.m. **Impact of Ascertainment on the Risk Estimation of Second Cancers in Family Studies**—◆Yun-hee Choi, University of Western Ontario; Laurent Briollais, Lunenfeld-Tanenbaum Research Institute; Karen Kopciuk, Alberta Health Services/University of Calgary
- 10:05 a.m. **Modeling Cumulative Incidence Functions in Competing Risks Data**—◆Qi Jiang, Northern Illinois University; Sanjib Basu, Northern Illinois University

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

293 **CC-151B**
■ Dose Finding, Dose Range, and Oncology Trials—Contributed

Biopharmaceutical Section
Chair(s): Jiang Qian, AbbVie

- 8:35 a.m. **A Bayesian Oncology Dose-Ranging Study Design**—◆ Bo Ma, GlaxoSmithKline; Ohad Amit, GlaxoSmithKline; Yuehui Wu, GlaxoSmithKline
- 8:50 a.m. **Resampling-Based Approach for Assessing Clinical Utility of Tumor Measurement-Based Metrics Using the RECIST 1.1 Data Warehouse**—◆ Ming-Wen An, Vassar College; Sumithra Mandrekar, Mayo Clinic; Yu Han, University of Rochester; Daniel Sargent, Mayo Clinic
- 9:05 a.m. **A Simulation-Based Comparison of Two Adaptive Designs in Phase I Dose Finding Oncology Trial**—◆ Xiaoling Wu, Celgene Corporation; Shaoyi Li, Celgene Corporation
- 9:20 a.m. **A Semiparametric Estimation Approach for Dealing with Treatment Switching in Randomized Oncology Trials**—◆ Jin Zhang, Merck; Cong Chen, Merck
- 9:35 a.m. **Dose Finding for Drug Combination in Early Cancer Phase I Trials Using Conditional Escalation with Overdose Control**—◆ Mourad Tighiouart, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center; Steven Piantadosi, Cedars-Sinai Medical Center
- 9:50 a.m. **Finding Optimal Treatment Dose Using Outcome-Weighted Learning**—◆ Guanhua Chen, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill; Donglin Zeng, University of North Carolina at Chapel Hill
- 10:05 a.m. **Dose-Finding Designs for Phase I Clinical Trials in Oncology and Use of Selective Phenotyping to Increase Power of Genetic Association Studies**—◆ Yunfei Wang, Children's National Medical Center; Ethan M. Lange, University of North Carolina

294 **CC-206B**
■ Bayesian Biostatistics—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)
Chair(s): Michael Swartz, University of Texas Health Science Center at Houston

- 8:35 a.m. **A Bayesian Hierarchical Model for Mixed Treatment Comparison Meta-Analysis Accommodating**

Missingness—◆ Yulun Liu, University of Texas Health Science Center at Houston; Stacia M. DeSantis, University of Texas Health Science Center at Houston; Yong Chen, University of Texas School of Public Health

- 8:50 a.m. **Joint Modeling of Stochastic and Variability Orders in ROC Curves Using a Bayesian Semiparametric Approach**—◆ Beomseuk Hwang, NIH/NICHHD; Zhen Chen, NIH/NICHHD
- 9:05 a.m. **Practical Semiparametric Bayes Analysis of Heteroscedastic and Skewed Response**—◆ Yuanyuan Tang, AbbVie; Debdeep Pati, Florida State University; Debajyoti Sinha, Florida State University
- 9:20 a.m. **Random Effects Binary Model with Misclassified Response**—◆ Leonardo Bastos, Oswaldo Cruz Foundation
- 9:35 a.m. **Meta-Analysis Without Guessing: Bridging the Divide Between Ideal and Real Extracted Data**—◆ Shemra Rizzo, University of California, Los Angeles; Robert E. Weiss, University of California, Los Angeles
- 9:50 a.m. **Benefit-Risk Assessment Using Bayesian Joint Models of Safety and Efficacy**—◆ Jo A. Wick, University of Kansas Medical Center
- 10:05 a.m. **A Bayesian Hierarchical Model with Novel Prior Specifications for Estimating HIV Testing Rates**—◆ Qian An; Jian Kang, Emory University; Ruiguang Song, CDC; Irene Hall, CDC

295 **CC-252A**
■ Novel Applications of Statistics to Health Policy—Contributed

Health Policy Statistics Section, Statistics Without Borders
Chair(s): Feifei Wei, University of Arkansas for Medical Sciences

- 8:35 a.m. **Who Missed the Fourth Dose of DTaP Among U.S. Children?**—◆ Zhen Zhao, CDC; Philip J. Smith, CDC
- 8:50 a.m. **Temporal Association Between Airborne Pollen and Suicide Attempts: Dallas County 2000–2003 Data**—◆ Haekyung Jeon-Slaughter, University of Texas Southwestern Medical Center; Cindy Claassen, University of North Texas Health Science Center; David Kahn, University of Texas Southwestern Medical Center; Perry Mihalakos, University of Texas Southwestern Medical Center; Kevin Lee, Palo Alto HCS Veteran Affairs - Menlo Park Division; Sherwood Brown, University of Texas Southwestern Medical Center
- 9:05 a.m. **Risk Factors of Hospital Readmission: Flu Vaccination of Health Care Workers, Comorbid Illness, and**

Tuesday



Socioeconomic Status—◆Maria Suprun, Icahn School of Medicine at Mount Sinai; Shunsuke Ito, HHC; Raymond Gregory, HHC; Van Dunn, HHC; Ronald B. Low, HHC

- 9:20 a.m. **Recognizing 'Trust' and 'Understanding' as Twin Pillars of Statistical Ethics**—◆Thomas Belin, University of California, Los Angeles
- 9:35 a.m. **Comparison of Logistic Regression Model and CART Model: An Application in Studying Poly tobacco Users in a Tri-Ethnic Sample**—◆Yang Lei, KU Medical Center; Nikki Nollen, Kansas University Medical Center; Qing Yu, Kansas University Medical Center; Jianghua He, Kansas University Medical Center; Matthew S. Mayo, Kansas University Medical Center
- 9:50 a.m. **Model-Based Strategies for Oversampling Populations in Transition**—◆Steven Cohen, AHRQ
- 10:05 a.m. **Multidimensional Health Disparity: Measurement and Inference**—◆Makram Talih, NCHS

296 **Methods in Nonparametrics—Contributed**

CC-213

Section on Nonparametric Statistics

Chair(s): Jarrett Barber, Arizona State University

- 8:35 a.m. **A Nonparametric Test for Interaction Effects in Regression Model for Right-Censored Survival Data**—◆MinJae Lee, University of Texas Health Science Center at Houston; Mohammad Hossein Rahbar, University of Texas Health Science Center at Houston
- 8:50 a.m. **Structure Selection and Estimation for the Cox's Model in the Partially Linear Model Framework**—◆Chen-Yen Lin, Eli Lilly and Company; Hao (Helen) Zhang, University of Arizona
- 9:05 a.m. **Nonparametric Maximum Likelihood Estimation of a Log-Concave Density Based on Censored Data**—◆Dominic Schuhmacher, University of Goettingen; Lutz Duembgen, University of Bern; Kaspar Rufibach, Roche Biostatistics Oncology
- 9:20 a.m. **Maximum Likelihood Estimation in Semiparametric Transformation Models for the Cumulative Incidence of Competing Risks**—◆Lu Mao, University of North Carolina at Chapel Hill; Danyu Lin, University of North Carolina
- 9:35 a.m. **A Random Walk Test for Functional Time Series**—◆Juan Romo, Universidad Carlos III de Madrid; Rosa Lillo, Universidad Carlos III de Madrid; Nicola Mingotti, Universidad Carlos III de Madrid
- 9:50 a.m. **A Novel Nonparametric Two-Sample Hypothesis Test Using Geometric Formulations**—◆Zhengwu Zhang, FSU; Anuj Srivastava, Florida State University;

Eric Klassen, Florida State University

10:05 a.m. **Floor Discussion**

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CC-157B

■ **Design and Analysis of Therapeutic Medical Device Trials—Contributed**

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences

Chair(s): Roseann White, Abbott

- 8:35 a.m. **A Score Test for Detecting Heterogeneous Within-Cluster Variances in Linear Mixed Models**—◆Chul Ahn, FDA-CDRH; Nelson Lu, FDA/CDRH
- 8:50 a.m. **Practical Issues with Designing and Executing Bayesian Adaptive Medical Device Trials**—◆Rajesh Nair; Nelson Lu, FDA/CDRH; Xiting Yang, FDA
- 9:05 a.m. **Incorporation of Prior Information in a Clinical Trial**—◆Manuela Buzoianu, FDA
- 9:20 a.m. **Dichotomizing Non-Normal Continuous Data While Retaining Statistical Precision for Informing a Commensurate Prior**—◆Byron Gajewski, University of Kansas Medical Center; C. Shane Reese, Brigham Young University; John A. Colombo, University of Kansas; Susan E. Carlson, University of Kansas Medical Center
- 9:35 a.m. **Practical Issues on the Observational Comparative Study Design Using Propensity Score Methodology in Pre-Market Medical Device from the Regulatory Perspectives**—◆Nelson Lu, FDA/CDRH; Lilly Yue, FDA/CDRH; Yunling Xu, FDA/CDRH
- 9:50 a.m. **Sensitivity Analysis for Clinical Trials with Missing Outcome Data: a Bayesian Tipping Point Analysis**—◆Ying Yang, FDA/CDRH; Yu Zhao, FDA; Meichun Ding, GlaxoSmithKline
- 10:05 a.m. **Simulation Exercise in Days Alive and Out of Hospital (DAOH) Endpoint**—◆Peter Lam, Boston Scientific; Songtao Jiang, Boston Scientific; Jian Huang, Medtronic

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CC-203

■ ● **Experimental Design and Statistical Engineering: Estimation with Constraints—Contributed**

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Lee McDaniel, University of Wisconsin-Madison

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

8:35 a.m. **Mixture Experiment Design When the Upper Bound of a Component Is Constrained by a Nonlinear Function of the Relative Proportions of the Other Components**—◆ Greg Piepel, Pacific Northwest National Laboratory; Scott Cooley, Pacific Northwest National Laboratory; John Vienna, Pacific Northwest National Laboratory

8:50 a.m. **An Example of Application of a Mixture Design with Constraints to Screen a Large Number of Variables**—◆ Vaneeta Grover, DuPont

9:05 a.m. **Optimal Design for a Weighted Set of Estimable Functions**—◆ Jonathan W. Stallings, North Carolina State University; John P. Morgan, Virginia Tech

9:20 a.m. **Yates' Method for Computing Sums of Squares for Nonreplicated Experiments**—◆ Mary Marion,

9:35 a.m. **Identifying the Best 16-Run Regular or Non-Regular Screening Design for 6 to 8 Factors Using Multiple Objectives**—◆ Christine Anderson-Cook, Los Alamos National Laboratory; Lu Lu, University of South Florida; Mark E. Johnson, University of Central Florida

9:50 a.m. **Dimensional Analysis and Statistics**—◆ Weijie Shen, Penn State; Dennis K.J. Lin, Penn State

10:05 a.m. **Empirical Estimation of Collapse Capacity of Post-Mainshock Buildings by Generalized Linear Model**—Ruiqiang Song, Michigan Technological University; ◆ Shurong Fang; Yue Li, Michigan Technological University

299 **Nonlinear Models and Other Optimization Problems—Contributed** CC-104A

Section on Statistical Computing

Chair(s): Ajay Singh, Western State Colorado University

8:35 a.m. **On Quantile Regression for Extremes**—◆ Mei Ling Huang, Brock University; Yin Xu, Brock University; Wai Kong Yuen, Brock University

8:50 a.m. **Adaptive Design for Global Fit of Nonstationary Surfaces**—◆ Marian Frazier, Gustavus Adolphus College; William I. Notz, Ohio State University

9:05 a.m. **Computational Challenges in Nonlinear Estimation**—◆ Leonid Khinkis, Canisius College

9:20 a.m. **Robust Regression by Self-Updating Process**—◆ Ting-Li Chen, Academia Sinica

9:35 a.m. **Removing Bias in Whittle Estimators**—◆ Adam Sykulski; Sofia Olhede, University College London;

Jonathan Lilly, NorthWest Research Associates; Jeffrey Early, NorthWest Research Associates

9:50 a.m. **Example of a Renewal Process with No-Mean Inter-Arrival Times**—◆ Percy Brill, University of Windsor; Mei Ling Huang, Brock University

10:15 a.m. **Floor Discussion**

300 **Models: Assumptions and Novel Applications—Contributed** CC-254B

Section on Statistical Education

Chair(s): Diane Evans, Rose-Hulman Institute of Technology

8:35 a.m. **Comparing the Performance of Approaches for Testing the Homogeneity of Variance Assumption in One-Factor ANOVA Models**—Aarti P. Bellara, University of South Florida ; Thanh Pham, University of South Florida; Diep Thi Nguyen, University of South Florida; Patricia Rodriguez de Gil, University of South Florida; Yi-Hsin Chen Chen, University of South Florida; Harold Holmes, University of South Florida ; ◆ Yan Wang, University of South Florida; Tyler Hicks, University of South Florida ; Isaac Li, University of South Florida ; Eun Sook Kim, University of South Florida; Jeanine Romano, University of South Florida; Jeffrey D. Kromrey, University of South Florida

8:50 a.m. **Confidence Intervals and F-Test for Intraclass Correction Coefficients Based on Three-Way Mixed Effect Models**—◆ Hong Zhou, Arkansas State University; Paige Muellerleile, Marshall University; Debra Ingram, Arkansas State University; Seok Wong, University of Memphis

9:05 a.m. **A New Transformed Test for Analysis of Variance for Skewed Distributions**—◆ Khairul Islam, Eastern Michigan University; Tanweer Shapla, Eastern Michigan University

9:20 a.m. **Inference for Linear Regression with Autocorrelated Errors: Why Cochran Orcutt Procedure Should Not Be Recommended**—◆ Tharanga Wickramarachchi, Georgia Southern University; Colin Gallagher, Clemson University; Jeremy Brown, American Credit Acceptance

9:35 a.m. **Repeater Analysis for Combining Information from Different Assessments**—◆ Lili Yao, Educational Testing Service; Shelby Haberman, ETS



- 9:50 a.m. **Facilitating the Calculation of the Efficient Score Using Symbolic Computing**—◆ Alexander Sibley, Duke Cancer Institute; Zhiguo Li, Duke University; Yu Jiang, Duke University; Cliburn Chan, Duke University; Andrew Allen, Duke University; Kouros Owzar, Duke University
- 10:05 a.m. **Floor Discussion**

301 CC-103 Large Data Discriminant, Classification, and Detection—Contributed

Section on Statistical Learning and Data Mining, Section on Physical and Engineering Sciences

Chair(s): Peter H. Chen, University of Mary Hardin-Baylor

- 8:35 a.m. **A New Approach to the Parallel Coordinates Method for Large Data Set**—◆ Norman Matloff, University of California, Davis; Yingkang Xie, University of California, Davis
- 8:50 a.m. **Interpreting Big, Dense, Scary Linear Models Along Predictor Groups for Studying Visual Area V4**—◆ Yuval Benjamini, Stanford University; Julien Mairal, INRIA; Bin Yu, University of California, Berkeley
- 9:05 a.m. **Interpreting Regularized Discriminant Analysis**—◆ John Ramey
- 9:20 a.m. **How Has Scientific Literature Evolved Over Time? A Novel Statistical Approach Using Tracking Verbal-Based Methods**—Daria Hernández, Centro Mexicano de Estudios Económicos y Sociales; Mónica Bécue-Bertaut, Universitat Politècnica de Catalunya; ◆ Igor Barahona, Technical University of Catalonia
- 9:35 a.m. **Real-Time Novelty Effect Detection for A/B Testing**—◆ Tianhong He, Twitter; Yi Liu, Twitter; Luo Lu, Twitter
- 9:50 a.m. **Error Rate Bounds in Crowdsourcing Models**—◆ Hongwei Li, University of California, Berkeley; Bin Yu, University of California, Berkeley; Dengyong Zhou, Microsoft
- 10:05 a.m. **Classification with Known Class Probabilities**—◆ Joshua Magarick, University of Pennsylvania

302 CC-257B Models for Education Data and Other Applications—Contributed

Social Statistics Section

Chair(s): Nicholas K. Beyer, Mathematica Policy Research

- 8:35 a.m. **Using Multidimensional Latent Regression to Link Between Large-Scale Educational Survey Assessments**—◆ Yue Jia, Educational Testing Service; Xueli Xu, Educational Testing Service

- 8:50 a.m. **Early College Performance, Gender, and Other Factors Influencing Continuation in STEM Fields**—◆ Ian Mouzon, Iowa State University of Science and Technology; Ulrike Genschel, Iowa State University; Alicia Carriquiry, Iowa State University; Xuan Hien Nguyen, Iowa State University of Science and Technology; Andrea Kaplan, Iowa State University; Elgin Johnston, Iowa State University; Wolfgang Kliemann, Iowa State University of Science and Technology; Kenneth Koehler, Iowa State University of Science and Technology
- 9:05 a.m. **Using Bootstrapping to Measure the Effectiveness of Implementing an Immersion Method of Inquiry-Based Elementary Science Instruction: A Cluster-Randomized Trial**—◆ Mack Shelley, Iowa State University; Christopher Gonwa-Reeves, Iowa State University; Marcia Laugerman, University of Iowa; Luke Fostvedt, Iowa State University; Brian Hand, University of Iowa; William Therrien, University of Iowa
- 9:20 a.m. **Mixed Membership Modeling of Student Strategies from Sequences of Actions**—◆ April Galyardt, University of Georgia
- 9:35 a.m. **Heredity, Regularization, and Model Selection for Multilevel Data**—◆ Elizabeth Stone, Temple University; Alan Izenman, Temple University
- 9:50 a.m. **Scoring and Then Analyzing or Analyzing While Scoring: An Application of GLMM to an Education Instrument Development and Analysis**—◆ Mark Greenwood, Montana State University; Dan Jesse, RMC Research Corporation
- 10:05 a.m. **Standard Errors of Equipercentile Equating Using Polytomous IRT Models**—◆ Bjoern Andersson, Uppsala University

303 CC-258C Data Collection Strategies—Contributed

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders, Committee on Gay and Lesbian Concerns in Statistics

Chair(s): Brad Edwards, Westat

- 8:35 a.m. **Balancing Timeliness, Data Quality, and Cost by Optimizing Data-Collection Strategies**—◆ Wan-Ying Chang, NSF; Lynn Milan, NSF/NCSES; Steven Proudfoot, NSF/NCSES
- 8:50 a.m. **Seeking to Reduce Motivated Underreporting to the Health and Retirement Study Screening Interview**—◆ Frost Hubbard, Institute for Social Research, University of Michigan; Daniel Tomlin, University of Michigan; Theresa Camelo, Institute for Social Research, University of Michigan
- 9:05 a.m. **What Paradata Can Tell Us About the Annual Survey**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- of Jails—◆ Suzanne Dorinski, U.S. Census Bureau; Heather C. West, U.S. Census Bureau
- 9:20 a.m. **Stop Chasing Your Tail: Reining in Hard-to-Reach Respondents**—◆ Paul Guerino, Centers for Medicare and Medicaid Services; Ryan Hubbard, Westat
- 9:35 a.m. **Assessing Two Nonresponse Follow-Up Strategies: Shortened Questionnaire and Administrative Data Collection**—◆ Joseph Sakshaug, Institute for Employment Research; Stephanie Eckman, Institute for Employment Research; Frauke Kreuter, University of Maryland
- 9:50 a.m. **Reduction of Survey Nonobservation Errors Through Adaptive Sampling Design**—◆ Shin-Jung Lee, University of Michigan
- 10:05 a.m. **Case Reassignment: When Making Contact Is a Two-Person Job**—◆ Rachael Walsh, U.S. Census Bureau; Julia Coombs, U.S. Census Bureau

304 CC-259A **Sample Design - 1—Contributed**

Survey Research Methods Section, Government Statistics Section, Committee on Gay and Lesbian Concerns in Statistics

Chair(s): Gerald Arnold, American Board of Internal Medicine

- 8:35 a.m. **Considerations for Selecting Reserve Samples for In-Person Surveys**—◆ Lin Li, Westat; Leyla Mohadjer, Westat; Thomas Krenzke, Westat
- 8:50 a.m. **The Sample Overlap Problem for Systematic Sampling**—◆ Robert Fay, Westat
- 9:05 a.m. **Evaluation of Sample Designs Using Results from the Programme for the International Assessment of Adult Competencies**—◆ Valerie Hsu, Westat; Thomas Krenzke, Westat; Leyla Mohadjer, Westat; Sixia Chen, Westat
- 9:20 a.m. **Designing the National Immunization Survey to Account for Geographic Misclassification of the Cell Phone Sample**—◆ Xian Tao, NORC at the University of Chicago; Nadarajasundaram Ganesh, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Laurie Elam-Evans, National Center for Immunization and Respiratory Diseases; Meena Khare, NCHS/CDC/DHHS; Jenny Jeyarajah, CDC; David Yankey, CDC
- 9:35 a.m. **Geographic Oversampling for Race/Ethnic Minorities Based on Data from the 2010 U.S. Population Census**—Graham Kalton, Westat; ◆Sixia Chen, Westat
- 9:50 a.m. **Non-Probability Samples from Populations That Are Identified Through Costly Screening**—◆ K. P.

- 10:05 a.m. Srinath, Abt SRBI; Charles DiSogra, Abt SRBI
Effects of Imperfect Unit Size Information on Complex Sample Designs and Estimators—◆ Randall Powers, Bureau of Labor Statistics; John Eltinge, Bureau of Labor Statistics

305 CC-156C **Statistical Issues in Drug Development and Labeling—Contributed**

Biopharmaceutical Section

Chair(s): Alvin VanOrden, FDA

- 8:35 a.m. **Bias and Incorrect Confidence Interval Coverage in Prescription Drug Labeling**—◆ Gregory Levin,
- 8:50 a.m. **Evaluation of Stability in Thresholds Based on ROC Analysis**—◆ Jingjing Gao, AbbVie; Yuanyuan Tang, AbbVie; Narinder Nangia, AbbVie
- 9:05 a.m. **Improving Early Decisionmaking for Alzheimer's Disease**—◆ Robin Mogg, Merck; Devan V. Mehrotra, Merck; Arthur Simen, Merck
- 9:20 a.m. **Assessing Placebo Response in Chronic Pain Trials by Latent Subgroup Analysis Models**—◆ Xiaopeng Miao, Biogen Idec; Yan Zhou, University of Michigan; Narinder Nangia, AbbVie
- 9:35 a.m. **Design and Modeling Considerations for Skin Permeation Studies**—◆ Areti Manola, Janssen; Juan Chen, Janssen; Jyh-Ming Shoung, Janssen; Stan Altan, Janssen
- 9:50 a.m. **Bayesian Quantile Regression for Recurrent Event Outcomes with an Application to Hypoglycemic Events Analysis**—◆ Huan Wang, Eli Lilly and Company; Haoda Fu, Eli Lilly and Company
- 10:05 a.m. **A Comparative Analysis of Holter Recordings from a Thorough QT (TQT) Study Using Highly Automated Systems vs. a Standard Semi-Automated Method**—◆ Li Fan, Merck; Patrick J. Larson, Merck ; Anis Khan, Merck; David Gutstein, Merck; Matt S. Anderson, Merck

306 CC-157C **Gene Expression Data Analysis—Contributed**

Biometrics Section

Tuesday



CAREERS FOR LIFE

Gilead was founded in 1987 in Foster City, California. In 25 years, Gilead has become a leading biopharmaceutical company with a rapidly expanding product portfolio, a growing pipeline of investigational drugs and approximately 6,400 employees in offices across four continents. Millions of people around the world are living healthier, more fulfilling lives because of innovative therapies developed by Gilead. Today, our research and development effort is the largest it has ever been, with more than 130 clinical studies evaluating compounds with the potential to become the next generation of innovative therapies for HIV/AIDS, liver diseases, serious respiratory and cardiovascular conditions, cancer and inflammation. Due to our continued growth, Gilead Sciences is seeking qualified candidates for the following positions. These roles are based in our corporate headquarters in Foster City, CA (San Francisco Bay Area) including our Seattle, WA site.

**Sr. Manager, Proj Manager - Biometrics
(Quest) - Req. #15472**

Sr. Manager - Early Phase - Req. #16021

Statistical Operations Manager - Req. #15473

Sr Biostatistician - Req. #14181

**Sr. Manager, Statistical Programming
Req. #13660**

**Manager, Statistical Programming
Req. #13693**

Senior Statistical Programmer - Req. #16056

Statistical Programming II - Req. #15057



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Chair(s): Hongmei Jiang, Northwestern University

- 8:35 a.m. **Meta-Analysis–Based Variable Selection for Gene Expression Data**—◆ Qiefeng Li, Princeton University; Sijian Wang, University of Wisconsin; Chiang-Ching Huang, University of Wisconsin-Milwaukee; Menggang Yu, University of Wisconsin-Madison; Jun Shao, University of Wisconsin-Madison
- 8:50 a.m. **The Most Informative Spacing Test Effectively Discovers Biologically Relevant Outliers or Multiple Modes in Expression**—◆ Iwona Pawlikowska, St. Jude Children’s Research Hospital; Gang Wu, St. Jude Children’s Research Hospital; Michael Edmonson, St. Jude Children’s Research Hospital; Zhifa Liu, St. Jude Children’s Research Hospital; Tanja Gruber, St. Jude Children’s Research Hospital; Jinghui Zhang, St. Jude Children’s Research Hospital; Stanley Pounds, St. Jude Children’s Research Hospital
- 9:05 a.m. **Comparison of Differential Gene Expression Methodologies for RNA-Sequencing Data**—◆ Darlene Olsen, Norwich University
- 9:20 a.m. **A Systematic Review and Meta-Analysis of Gene Expression Prognostic Signatures in Lung Cancer**—◆ Hao Tang, University of Texas Southwestern Medical Center; Guanghua Xiao, University of Texas Southwestern Medical Center; Joan Schiller, University of Texas Southwestern Medical Center; Vassiliki Papadimitrakopoulou, MD Anderson Cancer Center; John Minna, University of Texas Southwestern Medical Center; Ignacio Wistuba, MD Anderson Cancer Center; Yang Xie, University of Texas Southwestern Medical Center
- 9:35 a.m. **Assign: Context-Specific and Integrative Genomic Profiling of Heterogenous Biological Pathways**—◆ Ying Shen, Boston University; W. Evan Johnson, Boston University School of Medicine
- 9:50 a.m. **An Improved Method for Computing Q-Values When the Distribution of Effect Sizes Is Asymmetric**—◆ Megan Orr, North Dakota State University; Peng Liu, Iowa State University; Dan Nettleton, Iowa State University
- 10:05 a.m. **ROMER: Rank-Based Rotation Gene Set Enrichment Analysis**—◆ Di Wu, Harvard

Invited Sessions 10:30 a.m.–12:20 p.m.

307 **Statistical Design and Modeling for** CC-203

Experiments with Functional Data—Invited

Section on Physical and Engineering Sciences, Quality and Productivity Section, Conference on Statistical Practice Steering Committee

Organizer(s): David Woods, University of Southampton

Chair(s): David Woods, University of Southampton

- 10:35 a.m. **Optimal Designs for Discriminating Between Functional Linear Models**—◆ Verity Fisher, University of Southampton; David Woods, University of Southampton
- 10:55 a.m. **Bayesian Inference and Optimal Design for Differential Equation Models with Application to Chemical Kinetics**—◆ Antony Overstall, University of St. Andrews; David Woods, University of Southampton
- 11:15 a.m. **Analysis of Computer Experiments with Functional Response**—◆ Ying Hung, Rutgers University
- 11:35 a.m. **Fast Functional Response Estimation in Computer Experiments with Nonseparable Covariance Functions**—◆ Matthew Plumlee, Georgia Institute of Technology; V. Roshan Joesph, Georgia Institute of Technology
- 11:55 a.m. Disc: John Joseph Peterson, GlaxoSmithKline
- 12:15 p.m. **Floor Discussion**

308 **Bayesian Survey Sampling—Invited** CC-212

International Society for Bayesian Analysis (ISBA)

Organizer(s): Murray Aitkin, University of Melbourne

Chair(s): Siu-Ming Tam, Australian Bureau of Statistics

- 10:35 a.m. **Robust Bayesian Models for Surveys with Missing Data and Summary External Information**—◆ Roderick Little, University of Michigan; Sahar Zangeneh, Fred Hutchinson Cancer Research Center
- 11:05 a.m. **Bayesian Pseudo-Empirical-Likelihood and Scale-Load Inferences from Complex Survey Data**—J. N. K. Rao, Carleton University; ◆ Changbao Wu, University of Waterloo
- 11:35 a.m. **Objective Stepwise Bayes Weights in Survey Sampling**—◆ Glen Meeden, University of Minnesota
- 12:05 p.m. **Floor Discussion**

309 **Statistical Modeling for Climate Risk Assessment and Climate Change Adaptation—Invited** CC-258B

SSC, Statistics Without Borders

Organizer(s): Yulia R. Gel, University of Waterloo



Chair(s): Lilia Leticia Ramirez Ramirez, Instituto Tecnológico Autônomo de México

- 10:35 a.m. **Weather Derivatives and Climate Change**—◆ Robert J. Erhardt, Wake Forest University
- 11:10 a.m. **Assessing the Impact of Climate Change on Home Insurance**—Vyacheslav Lyubchich, University of Waterloo; Sylvia Esterby, University of British Columbia; ◆ Yulia R. Gel, University of Waterloo; Marwah Soliman, University of Texas at Dallas
- 11:45 a.m. **Climate Change and the Need to Forecast Phenological Events in Agroclimate Risk Management**—◆ James V. Zidek, University of British Columbia; Song Cai, University of British Columbia; Nathaniel Newlands, Agriculture and Agri-Food Canada; Denise Neilsen, Agriculture and Agri-Food Canada
- 12:15 p.m. **Floor Discussion**

310 CC-104B **■ ● Multiscale Modeling for Complex Massive Data—Invited**

Section on Statistical Learning and Data Mining, Section on Statistical Computing

Organizer(s): Marco A.R. Ferreira, University of Missouri

Chair(s): Subharup Guha, University of Missouri

- 10:35 a.m. **Scalable Multiscale Bayesian Models**—◆ David Dunson, Duke University
- 11:05 a.m. **Dynamic Multiscale Spatiotemporal Models for Poisson Data**—Marco A.R. Ferreira, University of Missouri; ◆ Thais Fonseca, Universidade Federal do Rio de Janeiro
- 11:35 a.m. **Estimation of Probability Measures in High Dimensions, with Optimal Transport and Fast Algorithms**—◆ Mauro Maggioni, Duke University
- 12:05 p.m. **Floor Discussion**

311 CC-157A **Biometrics Showcase—Invited**

ENAR, International Indian Statistical Association

Organizer(s): Marie Davidian, North Carolina State University

Chair(s): Marie Davidian, North Carolina State University

- 10:35 a.m. **Exact Goodness-of-Fit Tests for Markov Chains**—◆ Debashis Mondal, University of Chicago; Julian Besag, University of Washington
- 11:15 a.m. Disc: Michael Newton, University of Wisconsin
- 11:45 a.m. Disc: Peter Green, University of Bristol
- 12:15 p.m. **Floor Discussion**

312 CC-102B **■ ● Energize Our Future—Invited**

ASA 175th Anniversary Steering Committee, International Indian Statistical Association, International Chinese Statistical Association, Committee on ASA Archives and Historical Materials

Organizer(s): Christy Chuang-Stein, Pfizer

Chair(s): Dionne Price, FDA

- 10:35 a.m. **The Many Faces of Statistics Education: Past, Present, and Future**—◆ Jessica Utts, University of California, Irvine
- 11:05 a.m. **Who Will Celebrate Our 200th Anniversary? Growing the Next Generation of ASA Members**—◆ Robert N. Rodriguez, SAS Institute
- 11:35 a.m. **Effectively Communicating the Power and Impact of Our Profession**—◆ Ronald L. Wasserstein, ASA
- 12:05 p.m. **Floor Discussion**

313 CC-206A **■ ● Statistics: The Secret Weapon of Successful Web Giants—Invited**

Section on Statistics in Marketing

Organizer(s): Marianna Dizik, Google

Chair(s): Tim Hesterberg, Google

- 10:35 a.m. **Measuring the Effect of Brand Advertising on Search Behavior**—Colin McCulloch, Google; ◆ Madeleine Cule, Google; Wai Liu, Google; Sheng Ma, Google; Pezhman Firoozfam, Google; Yonathan Schwarzkopf, Google; Tim Hesterberg, Google
- 10:55 a.m. **Google Maps and Local Business: Estimating Listings' Lifetime Value**—◆ Shuohui (Andy) Chen, Google; Mark Huberty, Google
- 11:15 a.m. **Identifying Opportunities to Improve Advertiser Budget Management**—◆ Phillip Michael Yelland, Google
- 11:35 a.m. **Setting Reserve Prices in Online Ad Auctions**—Deepak Kumar, LinkedIn; ◆ Tingting Cui, LinkedIn; Onkar Dalal, LinkedIn
- 11:55 a.m. **What Did We Accomplish? Inferring the Causal Effect of a Market Intervention by Counterfactual Forecasting**—◆ Kay H. Brodersen, Google; Fabian Gallusser, Google; Jim Koehler, Google; Nicolas Remy, Google; Steven L. Scott, Google
- 12:15 p.m. **Floor Discussion**

314 **CC-259A**
■ Use of Vendor Data in Optimization of Address-Based Sampling Procedures—Invited

Survey Research Methods Section, Government Statistics Section, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Stanislav Kolenikov, Abt SRBI

Chair(s): Charles DiSogra, Abt SRBI

10:35 a.m. **From Flagging a Sample to Framing It: An Exploration of the Utility of Information That Can Be Appended to RDD and Address-Based Samples—**
 ◆ Trent D. Buskirk, Marketing Systems Group; David Malarek, Marketing Systems Group

10:55 a.m. **Adaptive Design Features for Using Address-Based Sampling in a National CATI Survey of Households with Children—**
 ◆ Stanislav Kolenikov, Abt SRBI; Heather Hammer, Abt SRBI; Charles DiSogra, Abt SRBI; Rachel Martonik, Abt SRBI; Heather Turner, University of New Hampshire; David Finkelhor, University of New Hampshire

11:15 a.m. **The Use of Targeted Lists to Enhance Sampling Efficiency in Address-Based Sample Designs: Age, Race, and Other Qualities—**
 ◆ Ned English, NORC at the University of Chicago; Ying Li, NORC at the University of Chicago; Andrea Mayfield, NORC at the University of Chicago; Alicia Frasier, NORC at the University of Chicago

11:35 a.m. **Evaluation of Combining Consumer Marketing Data Used for Address-Based Sampling—**
 ◆ Joseph P. McMichael, RTI International; Bonnie Shook-Sa, RTI International; Rachel Harter, RTI International; Jamie Ridenhour, RTI International

11:55 a.m. Disc: Jill Montaquila, Westat

12:15 p.m. Floor Discussion

315 **CC-104C**
■ ● Computational Issues in Analyzing Complex Data: Risk Estimation, Symbolic Variables, and Massive Data Streams—Invited

Section on Statistical Computing, Statistical Learning and Data Mining Section

Organizer(s): Karen Kafadar, Indiana University

Chair(s): Lorraine Denby, Avaya Labs Research

10:35 a.m. **Multivariate Analysis of Distributional Data—**
 ◆ Paula Brito, FEP & LIAAD INESC TEC - UNIV. PORTO

11:00 a.m. **Randomized Approximation of Principal Components Analysis for Large Data Sets—**
 ◆ Daniel J. McDonald, Indiana University; Darren Homrighausen, Colorado State University

11:25 a.m. **Mining Text Data in Networks of Documents—**
 ◆ David Banks, Duke University

11:50 a.m. **Data Summaries and Noise Reduction in High-Volume Particle Physics Data—**
 ◆ Karen Kafadar, Indiana University

12:15 p.m. Floor Discussion

Invited Panels 10:30 a.m.–12:20 p.m.

316 **CC-204B**
■ ● Strategies and Implications for Establishing Biostatistics Entities in Medical Centers—Invited

Section on Statistical Consulting, International Chinese Statistical Association, Statistics Without Borders, International Indian Statistical Association

Organizer(s): Manisha Desai, Stanford University

Chair(s): Douglas Morrison, Stanford University

Panelists: ◆ Richard Landis, University of Pennsylvania

◆ Manisha Desai, Stanford University

◆ Michael Parides, Mount Sinai

◆ Bradley Pollock, University of Texas Health Science Center at Houston

◆ Jack Lee, MD Anderson Cancer Center

12:15 p.m. Floor Discussion



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317 **CC-102A**
■ ● Challenges and Opportunities for Statistics in the Next 25 Years—Invited

Council of Chapters, Statistics Without Borders, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials, Accreditation Committee

Organizer(s): John D. McKenzie Jr., Babson College

Chair(s): Jon R. Kettenring, Drew University

- Panelists: ◆ Roger Hoerl, Union College
 ◆ Sallie Keller, Virginia Tech
 ◆ Xiao-Li Meng, Harvard
 ◆ Sally C. Morton, University of Pittsburgh

12:15 p.m. Floor Discussion

Topic-Contributed Sessions
10:30 a.m.–12:20 p.m.

318 **CC-153C**
● First-Hitting Time-Based Threshold Models for Time-to-Event Data—Topic-Contributed

ENAR, WNAR

Organizer(s): George Alex Whitmore, McGill University

Chair(s): Bo Lu, Ohio State University

10:35 a.m. **First-Hitting-Time Based Threshold Regressions for Lifetime Data: With Applications—◆**Mei-Ling Ting Lee, University of Maryland

10:55 a.m. **Bayesian Threshold Regression for Informatively Censored Current Status Data—◆**Michael Pennell, Ohio State University; Tao Xiao, University of Maryland/Ohio State University

11:15 a.m. **Efficiency of Longitudinal First-Hitting Time Models Versus Interval-Censored Survival Analysis with Application to Labor Duration Curves—◆**Alexander McLain, University of South Carolina; Caroline Mulatya, University of South Carolina

11:35 a.m. **A Semiparametric Threshold Regression Analysis with Flexible Covariate Effects—◆**Xin He, University of Maryland; Ran Ji, University of Maryland; Mei-Ling Ting Lee, University of Maryland

11:55 a.m. Disc: George Alex Whitmore, McGill University

12:15 p.m. Floor Discussion

319 **CC-156A**

■ Impact of Missing Data on Trial Success and Approval of Potentially Efficacious Therapies—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Abdul J. Sankoh, Vertex Pharmaceuticals

Chair(s): Abdul J. Sankoh, Vertex Pharmaceuticals

10:35 a.m. **Mitigating Missing Data: A Proactive Approach for Minimizing Occurrence in Clinical Trials—◆**Carol Robertson-Plouch, Eli Lilly and Company; Sarah Witt, Eli Lilly and Company; Tina Oakes, Eli Lilly and Company

10:55 a.m. **Considerations for Prevention and Handling of Missing Data in Clinical Trials—◆**Cynthia DeSouza, Vertex Pharmaceuticals; Abdul J. Sankoh, Vertex Pharmaceuticals

11:15 a.m. **A Taxonomy of Estimands for Regulatory Clinical Trials with Discontinuations—◆**Thomas Permutt, FDA

11:35 a.m. **Missing Data in Clinical Trials: Tryng to Select Reasonable Approaches and Sorting Out Their Effect on Analysis—◆**Ralph D'Agostino Sr., Boston University

11:55 a.m. Disc: Boguang Zhen, CBER/FDA

12:15 p.m. Floor Discussion

320 **CC-213**
■ ● Bayesian Approaches to Subgroup Analysis in Clinical Trials—Topic-Contributed

Section on Bayesian Statistical Science, Section on Medical Devices and Diagnostics, International Society for Bayesian Analysis (ISBA)

Organizer(s): Xiaojing Wang, University of Connecticut

Chair(s): James O. Berger, Duke University

10:35 a.m. **Bayesian Subgroup Analysis in Drug Development—◆**David Ohlssen, Novartis

10:55 a.m. **Diagnostic Assays to Identify a Subgroup Likely to Benefit from a Therapy: Bayesian Models to Bridge from the Clinical Trial Assay to a Me-Too Assay via External Concordance Data—◆**Gene Pennello, FDA; Jingjing Ye, FDA

11:15 a.m. **On Bayesian Subgroup Analysis Using a Decision-Theoretic Approach—◆**Siva Sivaganesan,

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- University of Cincinnati; Yang Xiao, University of Cincinnati; Purushottam Laud, Medical University of Wisconsin; Peter Mueller, University of Texas at Austin
- 11:35 a.m. **A Bayesian Approach to Subgroup Identification**—
◆ Xiaojing Wang, University of Connecticut; James O. Berger, Duke University; Lei Shen, Eli Lilly and Company
- 11:55 a.m. Disc: Lei Shen, Eli Lilly and Company
- 12:15 p.m. **Floor Discussion**

321 CC-101

■ Innovative Statistical Methods in Epidemiological Studies—Topic-Contributed

Committee on Applied Statisticians, Statistics Without Borders

Organizer(s): Jिंगgang Miao, Texas A&M

Chair(s): Michael Longnecker, Texas A&M

- 10:35 a.m. **Semiparametric Bayesian Analysis for Additive and Non-Additive Measurement Errors with an Application to the Nhanes III Study**—◆ Jिंगgang Miao, Texas A&M; Samiran Sinha, Texas A&M; Suojin Wang, Texas A&M
- 10:55 a.m. **Semiparametric Approach for Non-Monotone Missing Covariates in a Parametric Regression Model**—◆ Suojin Wang, Texas A&M; Samiran Sinha, Texas A&M; Krishna Saha, Central Connecticut State University
- 11:15 a.m. **Semiparametric Approach for Handling Partially Missing Covariates in the Linear Transformation Model**—◆ Samiran Sinha, Texas A&M
- 11:35 a.m. **Methods to Use Audit Data in Observational Studies**—◆ Bryan Shepherd, Vanderbilt University; Pamela Shaw, University of Pennsylvania
- 11:55 a.m. **Outcome Vector Dependent Sampling with Longitudinal Continuous Response Data**—
◆ Jonathan Schildcrout, Vanderbilt University
- 12:15 p.m. **Floor Discussion**

322 CC-208

● Distributional Inference—Topic-Contributed

IMS

Organizer(s): Jan Hannig, University of North Carolina at Chapel Hill

Chair(s): Jessi Cisewski, Carnegie Mellon

- 10:35 a.m. **Uncertainty Quantification for Massive Data Problems Using Generalized Fiducial Inference**—
◆ Thomas C.M. Lee, University of California, Davis; Jan Hannig, University of North Carolina

- at Chapel Hill; Randy C.S. Lai, University of California, Davis
- 10:55 a.m. **Prediction with Confidence: A Frequentist Predictive Distribution Function and a Unifying Framework**—
◆ Min-ge Xie, Rutgers University
- 11:15 a.m. **Inferential Models: A Framework for Valid Prior-Free Probabilistic Inference**—◆ Chuanhai Liu, Purdue University
- 11:35 a.m. **Optimal Prior-Free Probabilistic Variable Selection in Regression**—◆ Ryan Martin,
- 11:55 a.m. Disc: Jan Hannig, University of North Carolina at Chapel Hill
- 12:15 p.m. **Floor Discussion**

323 CC-157B

■ ● Analysis of Joint Functional and Survival Data—Topic-Contributed

Biometrics Section

Organizer(s): Alan H. Feiveson, NASA Johnson Space Center

Chair(s): James Fiedler, Universities Space Research Association

- 10:35 a.m. **Functional Regression Approach to Detect Clinically Meaningful Markers of Acute Events from an HER**—
◆ Benjamin Goldstein, Stanford University
- 10:55 a.m. **Censored Functional Data with Application to a Mortality Study in the ICU**—◆ Jonathan Gellar, Johns Hopkins Bloomberg School of Public Health; Elizabeth Colantuoni, Johns Hopkins Bloomberg School of Public Health; Dale M. Needham, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University
- 11:15 a.m. **Using Concurrent Cardiovascular Information to Augment Survival Time Data from Orthostatic Tilt Tests**—◆ Alan H. Feiveson, NASA Johnson Space Center; James Fiedler, Universities Space Research Association; Stuart Lee, Wyle; Christian Westby, Universities Space Research Association; Michael Stenger, NASA Johnson Space Center; Steven H. Platts, NASA
- 11:35 a.m. **Modeling Left-Truncated and Right-Censored Survival Data with Longitudinal Covariates**—◆ Yu-Ru Su, Fred Hutchinson Cancer Research Center; Jane Ling Wang, University of California, Davis
- 11:55 a.m. **Dynamic Prediction of Time-to-Disease Progression Using Longitudinal Biomarker Data**—◆ Xuelin Huang, MD Anderson Cancer Center; Sangbum Choi, University of Texas at Houston; Jing Ning, MD Anderson Cancer Center
- 12:15 p.m. **Floor Discussion**

324 CC-206B

■ Modeling and Seasonal Adjustment

Tuesday



of Economic Time Series—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Tucker Sprague McElroy, U.S. Census Bureau

Chair(s): Tucker Sprague McElroy, U.S. Census Bureau

- 10:35 a.m. **Comparing ARIMA Model-Based and Census X-11 Seasonal Adjustment**—◆ William R. Bell, U.S. Census Bureau
- 10:55 a.m. **Seasonal Adjustment and the Great Recession: Implications for Statistical Agencies**—◆ Richard Tiller, Bureau of Labor Statistics; Thomas Evans, Bureau of Labor Statistics
- 11:15 a.m. **Testing for Visual Significance in Seasonally Adjusted Time Series**—◆ Anindya Roy, University of Maryland Baltimore County; Tucker Sprague McElroy, U.S. Census Bureau
- 11:35 a.m. **Time Series Model Comparison Residual Diagnostics**—◆ James Livsey, U.S. Census Bureau
- 11:55 a.m. **A Stationary Parameterization of Var and Varma Models**—◆ Peter Linton, University of Maryland Baltimore County; Anindya Roy, University of Maryland Baltimore County; Tucker Sprague McElroy, U.S. Census Bureau
- 12:15 p.m. **Floor Discussion**

325 CC-153A Fresh Perspectives on Causal Inference, II—Topic-Contributed

Section on Statistics in Epidemiology

Organizer(s): Susan Gruber, Harvard School of Public Health

Chair(s): Susan Gruber, Harvard School of Public Health

- 10:35 a.m. **Infinite-Dimensional Causal Models**—◆ Edward Kennedy,
- 10:55 a.m. **Estimating Population Treatment Effects from a Survey Subsample**—◆ Kara Rudolph, Johns Hopkins Bloomberg School of Public Health; Ivan Diaz, Johns Hopkins Bloomberg School of Public Health; Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health; Elizabeth A.

Stuart, Johns Hopkins Bloomberg School of Public Health

- 11:15 a.m. **Model Averaging in Causal Inference**—◆ Matthew Cefalu, Harvard School of Public Health; Francesca Dominici, HSPH; Giovanni Parmigiani, Dana-Farber Cancer Institute
- 11:35 a.m. **Likelihood-Based Estimation of Logistic Structural Nested Mean Models with an Instrumental Variable**—◆ Roland A. Matsouaka, Harvard School of Public Health; Eric Tchetgen, Harvard School of Public Health
- 11:55 a.m. **Adaptive Pair-Matching in the Search Trial and Estimation of the Intervention Effect**—◆ Laura Balzer, University of California, Berkeley; Maya Petersen, University of California, Berkeley; Mark J. van der Laan, University of California, Berkeley
- 12:15 p.m. **Floor Discussion**

326 CC-156B Recent Advances in Regression Analysis of Longitudinal Data with Informative Observation Times—Topic-Contributed

Biometrics Section

Organizer(s): Jing Ning, MD Anderson Cancer Center

Chair(s): Weining Shen, MD Anderson Cancer Center

- 10:35 a.m. **Pseudo-Likelihood Estimation for Incomplete Data**—◆ Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven
- 10:55 a.m. **Analysis of Longitudinal Data in the Presence of Informative Observational Times, with Application to Medical Cost Data**—◆ Lei Liu, Northwestern University Feinberg School of Medicine; Xuelin Huang, MD Anderson Cancer Center; John O'Quigley, Université Pierre et Marie Curie - Paris VI, France
- 11:15 a.m. **Regression Analysis of Longitudinal Data with Irregular and Informative Observation Times**—◆ Yong Chen, University of Texas School of Public Health; Jing Ning, MD Anderson Cancer Center; Chunyan Cai, University of Texas Health Science Center at Houston
- 11:35 a.m. **Joint Analysis of Multivariate Longitudinal Ordinal Measurements and Survival Data: An Application to Parkinson's Disease**—◆ Sheng Luo, University of Texas Health Science Center at Houston; Xiao Su, University of Texas at Houston
- 11:55 a.m. **Simultaneous Variable Selection and Estimation for Analysis of Longitudinal Data Arising in Clusters Under Generalized Linear Mixed Pairwise Models**—◆ Haocheng Li, Texas A&M; Grace Yi, University of Waterloo
- 12:15 p.m. **Floor Discussion**

327 **CC-254A**

■ Using a Virtual Island Population to Teach Statistics, Epidemiology, Clinical Trials, and More—Topic-Contributed

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Ann M. Brearley, University of Minnesota
Chair(s): Patricia Humphrey, Georgia Southern University

- 10:35 a.m. **Simulating Epidemiological Study Designs Using the Island**—◆ Vittorio Addona, Macalester College
- 10:55 a.m. **Using a Virtual Island Population to Teach Statistics, Epidemiology, Clinical Trials and More**—◆ Aimee Schwab,
- 11:15 a.m. **Using the Island for Projects in an Introduction to Statistics 1 Course**—Sue Schou; ◆ Megan Mocko, University of Florida
- 11:35 a.m. **Engaging Students with Biostatistics by Conducting Clinical Trials on the Island**—◆ Ann M. Brearley, University of Minnesota; Susan Telke, University of Minnesota
- 11:55 a.m. **Exploring the Island in an Applied Statistics Course**—◆ Kathy Gray, California State University, Chico
- 12:15 p.m. **Floor Discussion**

328 **CC-252B**

■ ● Updating Provider Profiles: A Snapshot of the Statistical State of the Art in Health Care Quality Measurement—Topic-Contributed

Health Policy Statistics Section, Section on Medical Devices and Diagnostics, Statistics Without Borders

Organizer(s): Frank Yoon, Mathematica Policy Research
Chair(s): Amy Beyler, UnitedHealthcare

- 10:35 a.m. **Is 'Above Average' Provider Performance Better Than 'Average' Performance?**—◆ Susan Paddock, RAND Corporation; Fernando Hoces de la Guardia, Pardee RAND Graduate School; John L. Adams, Kaiser Permanente
- 10:55 a.m. **Using Estimated True Safety Event Rates vs. Flagged Safety Event Rates: Does It Change Hospital Profiling and Payment?**—◆ Amy Rosen, VA Boston

Healthcare System

- 11:15 a.m. **The Impact of Misspecified Prior Distributions in Hospital Profiling Under an Empirical Bayes Framework**—◆ Sheng Wang, Mathematica Policy Research; Alex Bohl, Mathematica Policy Research; Hali Hambridge, Mathematica Policy Research; Frank Yoon, Mathematica Policy Research; David Jones, Mathematica Policy Research
- 11:35 a.m. **Profiling Providers to Evaluate Health System Change**—◆ Frank Yoon, Mathematica Policy Research
- 11:55 a.m. **Disc: Pamela Owens, AHRQ**
- 12:15 p.m. **Floor Discussion**

329 **CC-252A**

● Model the Structural Zeros in Mental Health Research—Topic-Contributed

Mental Health Statistics Section

Organizer(s): Hua He, University of Rochester Medical Center
Chair(s): Hongqi Xue, University of Rochester Medical Center

- 10:35 a.m. **A Distribution-Free Approach to Longitudinal Mediation Analysis with Count Outcomes and Mediators**—◆ Douglas Gunzler, Case Western Reserve University
- 10:55 a.m. **Why Do We Need Zero-Inflated Model**—◆ Naiji Lu, University of Rochester
- 11:15 a.m. **On Causal Inference for Population Mixtures**—◆ Pan Wu,
- 11:35 a.m. **Offset Poisson Regression Model with Random Covariates**—◆ Jiangtao Luo, University of Nebraska Medical Center; Baojiang Chen, University of Nebraska Medical Center; Fang Yu, University of Nebraska Medical Center
- 11:55 a.m. **Disc: Din Chen, University of Rochester**
- 12:15 p.m. **Floor Discussion**

330 **CC-156C**

■ Advancing Oncology Drug Development Using Biomarker and Surrogate Endpoints—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Rong (Rachel) Chu, Agensys
Chair(s): Rong (Rachel) Chu, Agensys

- 10:35 a.m. **Pitfalls in the Use of Progression-Free Survival as a Surrogate for Overall Survival in Cancer Clinical Trials**—◆ Gregory Pond, McMaster University
- 10:55 a.m. **Practical Enhancements to the Adaptive Signature**



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Type of Design—◆Jonathan Denne, Eli Lilly and Company; Adarsh Joshi, Gilead; Lei Shen, Eli Lilly and Company; Peigang Li, Eli Lilly and Company; Hollins Showalter, Eli Lilly and Company; Eric Nantz, Eli Lilly and Company

- 11:15 a.m. **The Application of Group Sequential Stopping Boundaries to Evaluate the Treatment Effect of an Experimental Agent Across a Range of Marker Expression**—◆Eric Holmgren, Oncomed
- 11:35 a.m. **Designing Clinical Studies of Targeted Drugs Across Cancer Modalities**—◆William Barry, Dana-Farber Cancer Institute
- 11:55 a.m. Disc: Alan Hartford, Agensys
- 12:15 p.m. **Floor Discussion**

Pacific Northwest National Laboratory; Marian Rewers, University of Colorado; Qibin Zhang, Pacific Northwest National Laboratory; Katrina Waters, Pacific Northwest National Laboratory; Thomas Metz, Pacific Northwest National Laboratory

- 11:05 a.m. **The Utility of Extending Spectral Analysis Methods to Evaluate Group Differences in Circadian Rhythms from Longitudinal Pre-Clinical Studies That Exhibit Missingness by Design**—◆Kenneth Wilkins, NIH
- 11:15 a.m. **Using Thresholding Difference-Based Estimators for Variable Selection**—◆June Luo, Clemson University; Patrick Gerard, Clemson University
- 11:20 a.m. **Bandwidth Selection and Bias Correction for the Conditional Survival Estimator with Censored Survival Data**—◆Chin-Tsang Chiang, National Taiwan University

Contributed Sessions 10:30 a.m.–12:20 p.m.

331 CC-255 **Speed Session #5: Topics in Nonparametric and Biopharmaceutical Statistics, Part 1—Contributed**

Biopharmaceutical Section, Section on Nonparametric Statistics

Chair(s): Qi Jiang, Amgen

- 10:35 a.m. **Inconsistency for Arm-Based Models in Network Meta-Analysis**—◆Hong Zhao, University of Minnesota; James S. Hodges, University of Minnesota; Haijun Ma, Amgen; Qi Jiang, Amgen; Bradley P. Carlin, University of Minnesota
- 10:40 a.m. **Valid Inference with Dependent Samples**—◆Suzanne Swann, GlaxoSmithKline
- 10:45 a.m. **Integrated Analysis of lncRNAs and MRNAs via mdSEM: A Two-Stage Modified SEM Approach**—◆Hui Xie, Florida Hospital; Lauren Sparks, TRI-FH; Steven Smith, Florida Hospital; Adeline Divoux, Florida Hospital; Subramaniam Govindara, Sanford-Burnham Medical Research Institute; Natalie Stephens, Florida Hospital
- 10:50 a.m. **Modeling Nuclease Digestion Coupled High-Throughput Sequencing for Genome-Wide Characterization of RNA Structure**—◆Chenchen Zou, JAX LAB for Genomic Medicine; Zhengqing Ouyang, JAX LAB for Genomic Medicine
- 10:55 a.m. **Statistical Interaction Term to Assess Treatment Effect in Biomarker Analysis**—◆Dung-Tsa Chen, Moffitt Cancer Center & Research Institute; James J. Chen, NCTR/FDA; Ying-Lin Hsu, National Chung Hsing University, Taiwan; Po-Yu Huang, National Chung Hsing University, Taiwan
- 11:00 a.m. **Ensemble-Based Feature Selection for Bayesian Integration Models to Improve Biomarker Panel Identification**—◆Bobbie-Jo Webb-Robertson,

- 11:25 a.m. **Determination of Structural Dimension and Estimation of Central Subspace with Censored Survival Data**—◆Chih-Heng Chiu, National Taiwan University
- 11:30 a.m. **Comparison of Power for GEE and Permutation Tests with Calculated Power Using the Design-Effect Method for a Group-Randomized Trial**—◆Ping Xu, Axio Research; Brian Leroux, University of Washington
- 11:35 a.m. **A Masking Index for Quantifying Hidden Glitches**—◆Ji Meng Loh, New Jersey Institute of Technology; Tamraparni Dasu, AT&T Labs Research; Laure Berti-Equille, Qatar Computing Research Institute
- 11:40 a.m. **Multiple Comparison Tests Applied to the Jonckheere-Terpstra Statistic for AUC Regression**—◆Amy Buros, Baylor University; Jack D. Tubbs, Baylor University
- 11:45 a.m. **Noise Estimation in High-Dimensional PCA**—◆Didier Chetelat, Cornell University
- 11:50 a.m. **Detecting Interactions in Supervised Ensemble Learning Algorithms**—◆Lucas Mentch, Cornell University; Giles Hooker, Cornell University
- 11:55 a.m. **A Nonparametric Approach for Detecting Differential Alternative Splicing in RNA-Seq Data**—



◆ Yang Shi, University of Michigan; Hui Jiang, University of Michigan

12:00 p.m. **Flexible Large Margin Classifiers: SVM, DWD, and Beyond**—◆ Xingye Qiao, SUNY Binghamton University; Lingsong Zhang, Purdue University

12:05 p.m. **Novel Methods to Identify and Estimate Interactions via Random Forest**—◆ Arturo Valdivia,

12:10 p.m. **Test Linearity Assumption in Generalized Linear Mixed-Effects Models Versus the Smooth Alternative**—◆ Changming Xia, University of Rochester; Hua Liang, George Washington University

Contributed Sessions 10:30 a.m.–12:20 p.m.

332 CC-207
● Dimension Reduction—Contributed

IMS
 Chair(s): Neville Weber, University of Sydney

10:35 a.m. **High-Dimensional Multiple Testing of Dependent, Discrete, and Heterogeneous Data**—◆ Joshua Habiger, Oklahoma State University

10:50 a.m. **High-Dimension, Low Sample Size Asymptotics of Robust PCA**—◆ Yihui Zhou, North Carolina State University; J. S. Marron, University of North Carolina

11:05 a.m. **Regularized Supervised Principal Component Analysis**—◆ Gen Li; Haipeng Shen, University of North Carolina at Chapel Hill; Jianhua Z. Huang, Texas A&M

11:20 a.m. **Two-Sample Thresholding Tests for High-Dimensional Means**—◆ Jun Li, Kent State University; Song Xi Chen, Iowa State University/Peking University; Ping-Shou Zhong, Michigan State University

11:35 a.m. **Two-Sample Thresholding Test for High-Dimensional Covariance Matrix**—◆ Bin Guo, Peking University; Song Xi Chen, Iowa State University/Peking University; Jun Li, Kent State University

11:50 a.m. **Homogeneity Pursuit**—◆ Tracy Ke, Princeton University; Jianqing Fan, Princeton University; Yichao Wu, North Carolina State University

12:05 p.m. **Sparse Hotelling's T^2 Test for Data from Two Samples**—◆ Subhajit Dutta, Spatio-Temporal Statistics and Data Analysis; Line H. Clemmensen, Technical University of Denmark; Marc G. Genton, King Abdullah University of Science and Technology

333 CC-151B
Survival Methods for Risk Estimation/Prediction—Contributed

Biometrics Section
 Chair(s): Vanda Lourenco, NOVA University of Lisbon

10:35 a.m. **Estimating Prostate Cancer Net Survival and Cancer-Specific Death**—◆ Christopher Morrell, Loyola University Maryland; Michael W. Kattan, Cleveland Clinic; Roy Mackintosh, VA Sierra Nevada Health Care System; Stephen Van Den Eeden, Kaiser Permanente; Thomas B. Neville, Soar BioDynamics

10:50 a.m. **An Ensemble Survival Model for Estimating Relative Residual Longevity Following Stroke: Application to Mortality Data in the Chronic Dialysis Population**—◆ Milind Phadnis, University of Kansas Medical Center; James B. Wetmore, Hennepin County Medical Center; Theresa I. Shireman, University of Kansas Medical Center; Edward F. Ellerbeck, University of Kansas Medical Center; Jonathan D. Mahnken, University of Kansas Medical Center

11:05 a.m. **Influence of the Risk Factors in the Survival Expectation of Nonmetastatic Breast Cancer Patients**—◆ Luis Cid-Serrano, UBB; Marcela Valdes, Universidad del Desarrollo; Chyntia Fuentes, Universidad de Concepcion

11:20 a.m. **Describing the Time-Varying Predictive Performance of Survival Models**—◆ Chao-Kang Jason Liang, University of Washington

11:35 a.m. **Survival Bump Hunting for Identification and Characterization of Informative Prognostic Subgroups**—◆ Jean-Eudes Dazard, Case Western Reserve University; Michael Choe, Case Western Reserve University; Michael LeBlanc, Fred Hutchinson Cancer Research Center; J. Sunil Rao, University of Miami

11:50 a.m. **Implications of Heterogeneous Risk on Estimation of Mark-Specific Vaccine Efficacy for Leaky Vaccines**—◆ Paul T. Edlefsen, Fred Hutchinson Cancer Research Center

12:05 p.m. **An Additive-Multiplicative Restricted Mean Residual Life Model**—◆ Zahra Mansourvar, University of Copenhagen; Torben Martinussen,

334 CC-151A
Semiparametric and Parametric Modeling—Contributed

Biometrics Section
 Chair(s): Feifei Wei, University of Arkansas for Medical Sciences

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 10:35 a.m. **Locally Optimal Designs for Generalized Linear Models with a Single-Variable Quadratic Polynomial in the Vertex Form as the Predictor**—◆ Hsin-Ping Wu, University of Georgia; John Stufken, University of Georgia
- 10:50 a.m. **A Ratio-Based Method for Estimating an Unknown Number of Classes**—◆ Amy Willis, Cornell University; John Bunge, Cornell University
- 11:05 a.m. **Two-Sample Location-Scale Estimation from Semiparametric Random Censorship Models**—◆ Rianka Bhattacharya, New Jersey Institute of Technology; Sundarraman Subramanian, New Jersey Institute of Technology
- 11:20 a.m. **A Novel Pairwise Conditional Likelihood Ratio Test in a Semiparametric Model for VQTL Mapping**—◆ Chuan Hong, University of Texas School of Public Health; Yong Chen, University of Texas School of Public Health; Yang Ning, University of Waterloo; Peng Wei, University of Texas School of Public Health
- 11:35 a.m. **Unsupervised Dimension Reduction via Maximization of a Non-Gaussian Likelihood**—◆ Benjamin Risk; David Scott Matteson, Cornell University; David Ruppert, Cornell University
- 11:50 a.m. **Robust Analysis of Semiparametric Renewal Process Models**—◆ Feng-Chang Lin, University of North Carolina at Chapel Hill; Young K. Truong, University of North Carolina at Chapel Hill; Jason Fine, University of North Carolina at Chapel Hill
- 12:05 p.m. **Identifying Risk Factors of Pathogens Based on Etiology Study of Infectious Diseases**—◆ Nong Shang, CDC

335 **Assessing Biosimilar and Equivalence—Contributed** CC-153B

Biopharmaceutical Section
Chair(s): John Scott, FDA/CBER/OBE

- 10:35 a.m. **Recent Regulatory/Industry Experience in Biosimilar Trial Designs**—◆ Yulan Li, Novartis; Lisa Hendricks, Novartis
- 10:50 a.m. **Assessing Biosimilarity of a Follow-On Biologics**—◆ Hsiao-Hui Tsou, National Health Research Institutes; Chinfu Hsiao, National Health Research Institutes; Chi-Tian Chen, National Health Research Institutes; Yi-Hsuan Lai, Delta Electronics
- 11:05 a.m. **Testing Hypotheses of Nonzero Differences in Means: From Westlake to Wellek, and Future Research Prospects**—◆ Kallappa Koti,

- 11:20 a.m. **Inference of Equivalence for the Ratio of Two Normal Means with Unspecified Variances**—◆ Siyan Xu; Steven Y. Hua, Pfizer; Ronald Menton, Novartis; Kerry Barker, Pfizer; Sandeep Menon, Pfizer; Ralph D'Agostino Sr., Boston University
- 11:35 a.m. **The STEPP Approach to Assessing Treatment-Effect Heterogeneity for Relative and Absolute Endpoints**—◆ Ann Lazar, University of California, San Francisco; Marco Bonetti, Bocconi University; Bernard F. Cole, University of Vermont; Wai-ki Yip, Harvard School of Public Health; Richard D. Gelber, Harvard School of Public Health/Dana-Farber Cancer Institute
- 11:50 a.m. **Control of FWER Using Close Testing for 3-Arm PK Similarity Trials**—◆ Steven Y. Hua, Pfizer; Ray Li, Pfizer; Kerry Barker, Pfizer; Siyan Xu; Christy Chuang-Stein, Pfizer; Shan Mei Liao, Pfizer
- 12:05 p.m. **Floor Discussion**

336 **Modeling in Longitudinal Analysis—Contributed** CC-157C

Biopharmaceutical Section
Chair(s): Le Kang, Virginia Commonwealth University

- 10:35 a.m. **Modeling Longitudinal Data to Assess Clinical Efficacy Equivalence in Clinical Trials**—◆ Bo Jin, Pfizer
- 10:50 a.m. **Copula-Based Semiparametric Multivariate Frailty Models for the Multi-Type Recurrent Event Data: Applications on Skin Cancer Data**—◆ Khaled Bedair, Virginia Tech; Yili Hong, Virginia Tech
- 11:05 a.m. **Similarity and Distinction Between Preclinical and Clinical Longitudinal Studies in Statistical Modeling**—◆ Shubing Wang, Merck
- 11:20 a.m. **A Random Effects Nonlinear Model for Repeated Measurements in a Phase I Trial for Skin Diffusion**—◆ Jihao Zhou, Allergan; Barbara Scholz, Allergan; Thomas Lin, Allergan
- 11:35 a.m. **On Model Selections for the Power Analysis of Repeated Measurement Data in Clinical Studies**—◆ Baiming Zou, University of Florida
- 11:50 a.m. **Sequential Neutral Zone Classification**—◆ Hyunkyung Kim, UCR; Daniel Jeske, University of California, Riverside
- 12:05 p.m. **Analysis of Repeated Measures in the Presence of**

Tuesday



Missing Observations—◆Jing Jerry Li, Merck

337 **Financial Data Modeling and Portfolio Analysis—Contributed** CC-204A

Business and Economic Statistics Section

Chair(s): Fangfang Wang, University of Illinois at Chicago

- 10:35 a.m. **Influential Analyst Recommendations: Are They Hidden Gems?**—◆Jose Faias, Catolica Lisbon SBE; Pedro Mascarenhas, Catolica Lisbon SBE
- 10:50 a.m. **Asymptotic Comparison of Different Spread Estimators**—◆Yang Gao; Mingjin Wang, Peking University
- 11:05 a.m. **On High-Frequency Estimation of the Frictionless Price: The Use of Observed Liquidity Variables**—◆Selma Chaker,
- 11:20 a.m. **Dynamic Dependence Networks: Multiregression Dynamic Models for Financial Time Series and Portfolio Decisions**—◆Zoey Yi Zhao, Duke University; Mike West, Duke University
- 11:35 a.m. **Higher-Order Asymptotics for Expected Return of an Optimal Portfolio**—◆Yongli Han, University of Hong Kong
- 11:50 a.m. **In Search of Models for Stock Return Forecast**—◆Shaobo Li,
- 12:05 p.m. **On High-Dimensional Markowitz Mean-Variance Optimized Portfolio**—◆Saswata Sahoo, North Carolina State University; Soumendra Lahiri, North Carolina State University

338 **Bayesian Modeling in Biomedical Applications—Contributed** CC-209

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Feng Liu, University of North Carolina

- 10:35 a.m. **HmmSeq: A Hidden Markov Model for Detecting Differentially Expressed Genes from RNA-Seq Data**—◆Shiqi Cui, University of Missouri-Columbia; Subharup Guha, University of Missouri; Marco A.R. Ferreira, University of Missouri; Allison Tegge, University of Missouri-Columbia
- 10:50 a.m. **A Bayesian Approach to Estimating Red Blood Cell Folate Concentration for Optimal Reduction of Neural Tube Defect Risk When Precise Folate Concentration Measures Are Not Available**—◆Owen Devine, CDC; Krista Crider, CDC
- 11:05 a.m. **A Bayesian Method for Partitioning Biological Pathways Based on Evolutionary History**—◆Yang Li, Harvard; Jun Liu, Harvard; Sarah E. Calvo, Broad Institute; Roe Gutman, Brown University;

Vamsi K. Mootha, Harvard

- 11:20 a.m. **A Semiparametric Bayesian Framework for Identifying Up or Down Regulated Genes in Subjects with Neurocysticercosis (NCC) Associated Epilepsy**—◆Michael Anderson, University of Oklahoma; Cheuk H. Leung, OUHSC; Suzanne R. Dubnicka, Kansas State University; Douglas A. Drevets, OUHSC; Vedantam Rajshekhar, Christian Medical College; Anna Oommen, Christian Medical College; Prabhakaran Vasudevan, Christian Medical College; Josephin Justin Babu, Christian Medical College; Ramajayam Govindan, Christian Medical College; Helene Carabin, University of Oklahoma Health Sciences Center
- 11:35 a.m. **Clustering fMRI Metadata to Identify Significant Regions of Brain Activation**—◆Meredith Ray, University of South Carolina; Hongmei Zhang, University of Memphis; Jian Kang, Emory University
- 11:50 a.m. **Finding Clocks in Genes: a Bayesian Approach to Estimate Periodicity**—◆Yan Ren; Christian Hong, University of Cincinnati; Sookkyung Lim, University of Cincinnati; Seongho Song, University of Cincinnati
- 12:05 p.m. **Predictive Classification for Correlated Objects with Application to CT Perfusion Images of Liver Metastases**—◆Yuan Wang, MD Anderson Cancer Center; Brian P. Hobbs, MD Anderson Cancer Center; Jianhua Hu, MD Anderson Cancer Center; Kim-Ahn Do, MD Anderson Cancer Center

339 **Data Quality and Nonresponse—Contributed** CC-258C

Government Statistics Section, Section on Statistics in Marketing, Statistics Without Borders

Chair(s): Kevin Cecco, Internal Revenue Service

- 10:35 a.m. **Using Record Linkage to Create Big Data? How Good Is It?**—◆K. Bradley Paxton, ADI
- 10:50 a.m. **The Effect of Interview Length on Data Quality in the Consumer Expenditure Interview Survey**—◆Brian Nix, Bureau of Labor Statistics
- 11:05 a.m. **Examining the Effects of Data Quality and State-Level Variability on National Driver's Licensing Data**—◆Marc Paladini, U.S. Department of Transportation
- 11:20 a.m. **An Evaluation of Nonresponse Bias in the Business R&D and Innovation Survey**—◆Richard Hough, U.S. Census Bureau; Brandon Shackelford, Twin Ravens Consulting
- 11:35 a.m. **Assessing the Impact of a New Imputation Methodology for the Agricultural Resource Management Survey**—◆Darcy Miller, NASS; Wendy Barboza, USDA/NASS; Nathan Cruze,

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

NASS

- 11:50 a.m. **Nonresponse in Rotating Panel Surveys: Analysis on Argentina's Labor Force Survey**—◆ Augusto Hoszowski, INDEC; Claudio Comari, INDEC
- 12:05 p.m. **Comparison of National Data on Ambulatory Surgery from CDC's National Hospital Ambulatory Medical Care Survey, Medicare, the American Hospital Association, and SDI**—◆ Margaret Hall, NCHS/CDC

340 **Big Data Methods for Medical Applications—Contributed**

CC-211

Section on Nonparametric Statistics

Chair(s): Edward L. Boone, Virginia Commonwealth University

- 10:35 a.m. **Wavelet Estimation: Minimax Theory and Application**—◆ Ekaterina Smirnova; Sam Efromovich, University of Texas at Dallas
- 10:50 a.m. **A Robust Statistical Framework to Whole-Genome Outlier Identification for Characterizing Structural Variants**—◆ Kylie Ainslie; Jeanne Kowalski, Emory University
- 11:05 a.m. **A Generalized Filter Statistic for Integrated, Whole-Genome Analyses of Multiple Platforms to Characterize Several Groups of Similar Phenotype**—◆ Jeffrey Switchenko, Emory University; Jeanne Kowalski, Emory University
- 11:20 a.m. **A New Scale-Invariant Nonparametric Test for Two-Sample Bivariate Location Problem**—◆ Sunil Mathur, University of Memphis; Sujay Datta, University of Akron
- 11:35 a.m. **An Ordinary Differential Equation Model for Gene Regulation with RNA-Seq Data**—◆ Lerong Li, University of Texas at Houston; Momiao Xiong, University of Texas Health Science Center at Houston
- 11:50 a.m. **An Application of Endpoint Detection to Bivariate Data in Tau-Path Order**—◆ Srinath Sampath, Ohio State University; Joseph S. Verducci, Ohio State University
- 12:05 p.m. **Empirical Null Distribution for Gamma Statistics with Application to Multiple Testing in RNA-Seq Experiments**—◆ Xing Ren; Jeffrey Miecznikowski, University at Buffalo; Jianmin Wang, Roswell Park Cancer Institute; Song Liu, Roswell Park Cancer Institute

341 **Risk Analysis for Financial Applications—Contributed**

CC-104A

Section on Risk Analysis

Chair(s): Shaonan Tian, San Jose State University

- 10:35 a.m. **Robust Portfolio Optimization Under High-Dimensional Heavy-Tailed Time Series**—◆ Huitong Qiu, Johns Hopkins University; Fang Han, Johns Hopkins University; Brian Scott Caffo, Johns Hopkins University; Han Liu, Princeton University
- 10:50 a.m. **Predictor-Dependent Modeling for Bivariate Extremes**—◆ Daniela A. Castro, Pontificia Universidad Católica de Chile; Miguel de Carvalho, Pontificia Universidad Católica de Chile; Jennifer L. Wadsworth, University of Cambridge
- 11:05 a.m. **High-Dimensional Covariance Matrix Estimation via the Barra Model**—◆ Yiwei Zhang, University of Michigan; Ji Zhu, University of Michigan
- 11:20 a.m. **Bayesian Modeling of Hedge Fund Return Characteristics**—◆ Weiren Chang, JP Morgan
- 11:35 a.m. **Estimating Operational Risk Capital with Greater Accuracy, Precision, and Robustness**—◆ John Opdyke, GE Capital
- 11:50 a.m. **Behavioral Technology Credit Scoring Model with Time-Dependent Covariates for Stress Test**—◆ Yonghan Ju, Yonsei University; So Young Sohn, Yonsei University; Song Yi Jeon, Yonsei University
- 12:05 p.m. **Exploration of Play Against the Random Past Strategy in Non-Symmetric Sequential Predictions**—◆ Mingfei Li, Bentley University

342 **Classroom Activities and Capstone Projects—Contributed**

CC-260

Section on Statistical Education, Statistics in Business Schools Interest Group

Chair(s): Miles Ott, Carleton College

- 10:35 a.m. **Tools for Teaching R and Statistics Using Games**—◆ Brad Luen, Indiana University; Michael Higgins,
- 10:50 a.m. **Name-Brand vs. Off-Brand: A Twist on Taste Testing for a Mathematical Statistics Course**—◆ Eric Reyes,
- 11:05 a.m. **Time Series Analysis for Device Usage in Electronic Classrooms**—◆ Yong Xu, Radford University; Joshua Williams, Radford University
- 11:20 a.m. **Analyzing Real Data Demands Database Skills**—◆ Robert Carver, Stonehill College
- 11:35 a.m. **The Use of Consulting Projects in Undergraduate Statistics Education**—◆ Laurence Robinson, Ohio Northern University; Ryan Rahrig, Ohio Northern University

Tuesday



11:50 a.m. **A Template for a Capstone Statistics Project Based on Bradley-Terry Models**—◆Robin Lock, St. Lawrence University

12:05 p.m. **Choose-Your-Own Capstone Adventure: Providing Flexible Paths for Undergraduate Majors**—◆Rebecca Nugent, Carnegie Mellon

343 CC-105 Classification and Regression Trees—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Sam Behseta, California State University, Fullerton

10:35 a.m. **Random KNN Classification and Regression**—◆E. James Harner, West Virginia University; Shengqiao Li, UPMC Health Plan; Donald Adjeroh, West Virginia University

10:50 a.m. **Robust Classification for (Dis)Similarity Matrices**—◆Cencheng Shen, Johns Hopkins University; Li Chen, Johns Hopkins University; Carey Priebe, Johns Hopkins University

11:05 a.m. **Unbiased Regression Trees for Longitudinal Data**—◆Wei Fu, New York University; Jeffrey Simonoff, New York University

11:20 a.m. **The Effect of Heteroscedasticity on Regression Trees**—◆Thomas Loughin, Simon Fraser University; William Ruth, Simon Fraser University

11:35 a.m. **On the Margins Distribution in Boosting and Ensemble Performance**—◆Waldyn Martinez, Miami University; J. Brian Gray, University of Alabama

11:50 a.m. Floor Discussion

344 CC-251 Spatial Statistics and the Environment—Contributed

Section on Statistics and the Environment

Chair(s): Ephraim Hanks, Penn State

10:35 a.m. **Incorporating Volunteered Geographic Information into Land Cover Monitoring**—◆John Lombardi, SUNY ESF; Stephen Stehman, SUNY ESF

10:50 a.m. **Spatial Estimation Using Universal Kriging with Training Images**—◆Jef Caers, Stanford University; Lewis Li, Stanford University; Thomas Romary, MINES ParisTech

11:05 a.m. **Matrix-Free Conditional Simulations of Gaussian**

Markov Random Fields—◆Somak Dutta, University of Chicago; Debashis Mondal, University of Chicago

11:20 a.m. **Spatial Prediction of Poisson Response Variable with Covariate**—◆Lynette M. Smith, University of Nebraska Medical Center; David B. Marx, University of Nebraska

11:35 a.m. **Prediction Intervals for Integrals of Random Fields**—◆Victor De Oliveira, University of Texas at San Antonio; Bazoumana Kone, University of Texas at San Antonio

11:50 a.m. **Interpreting Regression Coefficients Through a Spatial Scale Lens**—◆Garritt Page, Pontificia Universidad Católica de Chile; Brian Reich, North Carolina State University

12:05 p.m. **Covariance Regularization in Nonstationary Spatial Models**—◆Ryan Parker, North Carolina State University; Brian Reich, North Carolina State University; Jo Eidsvik, Norwegian University of Science and Technology

345 CC-257A Survey Inference and Sample Size Estimation—Contributed

Social Statistics Section, Survey Research Methods Section

Chair(s): Michael Sinclair, Mathematica Policy Research

10:35 a.m. **Black Magic Using Randomized Response Techniques**—◆Cheon Sig Lee, Coastal Bend College; Stephen Andrew Sedory, Texas A&M; Sarjinder Singh, Texas A&M

10:50 a.m. **A New Quasi-Empirical Bayes Estimate in Randomized Response Technique**—◆Augustus Jayaraj, Cornell University; Oluseun Odumade, Best Buy; Sarjinder Singh, Texas A&M

11:05 a.m. **Medicaid Undercount in the American Community Survey**—◆Joanna Turner, SHADAC/University of Minnesota; Kathleen Thiede Call, SHADAC/University of Minnesota; Michel Boudreaux, SHADAC/University of Minnesota; Brett Fried, SHADAC/University of Minnesota; Brett O'Hara, U.S. Census Bureau

11:20 a.m. **Power and Sample Size Formulas for Detection of Differential Item Functioning by the SIBTEST Procedure**—◆Zhushan Li, Boston College

11:35 a.m. **A General Framework for Research Design: Monte Carlo Simulation Methods for Sample Size Planning**—◆Ken Kelley, University of Notre Dame

11:50 a.m. **Improving the Socioeconomic Ranking of Small Areas Using the Estimates from the American Community Survey**—◆Mandi Yu, National Cancer Institute; Jun Luo, Information Management

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Services; Li Zhu, National Cancer Institute

12:05 p.m. Floor Discussion

346 CC-257B Disclosure, Confidentiality, Privacy— Contributed

Survey Research Methods Section, Government Statistics Section

Chair(s): Brenda Cox, Social & Scientific Systems

- 10:35 a.m. **An Evaluation of the Impact of Missing Data on Disclosure Risk**—◆ Thomas Krenzke, Westat; Jianzhu Li, Westat; Lin Li, Westat
- 10:50 a.m. **Measuring Impact of Top-Coding on the Utility of Consumer Expenditure Microdata**—◆ Daniel Yang; Daniell Toth, Bureau of Labor Statistics
- 11:05 a.m. **New Technologies for Full Privacy Protection in Data Collection and Analysis**—◆ Samuel Wu, University of Florida; Shigang Chen, University of Florida; Deborah Burr, University of Florida; Long Zhang, University of Florida
- 11:20 a.m. **Nested Dirichlet Process Model for Household Data Set Synthesis**—◆ Jingchen Hu, Duke University; Jerome P. Reiter, Duke University
- 11:35 a.m. **Measuring Risk in Tables Where the Study Variable May Be Negative**—◆ Ann-Marie Flygare, Statistics Sweden; Ingegerd Jansson, Statistics Sweden; Tiina Orusild, Statistics Sweden
- 11:50 a.m. **Random Data Swapping as an Approach for Statistical Disclosure Limitation and Its Effects on Utility of Data**—Edward Grant, University of Maryland; ◆ Joe Fred Gonzalez Jr., NCHS; Guangyu Zhang, NCHS/CDC; Alena Maze, NCHS
- 12:05 p.m. **A Domain-Based Estimation Framework for Measuring Risk and Utility for Both Input and Output De-Identified Data**—Avinash Singh, NORC at the University of Chicago; ◆ Joshua Borton, NORC at the University of Chicago; Yongheng Lin, NORC at the University of Chicago

347 CC-254B New Approaches Toward Understanding Brain Connectivity— Contributed

Section on Statistics in Imaging

Chair(s): Bruno Jedynak, Johns Hopkins University

- 10:35 a.m. **Dynamic Directional Model for Effective Brain Connectivity Using Electrocorticographic (ECoG) Time Series**—◆ Jingwei Wu, University of Virginia; Tingting Zhang, University of Virginia; Fan Li, Duke University; Dana Boatman, Johns Hopkins University; Brian Scott Caffo, Johns Hopkins University
- 10:50 a.m. **Using Dynamic Causal Modeling to Investigate the Reduction of Balance Dysfunction Following Electrical Stimulation of the Tongue**—◆ Barbara Wendelberger, University of Wisconsin; M. Beth Meyerand, University of Wisconsin
- 11:05 a.m. **Improving the Accuracy of fMRI and fcMRI Analysis by Accounting for Spatiotemporal Processing Induced Correlations**—◆ M. Muge Karaman, Marquette University; Daniel Rowe, Marquette University; Andrew S. Nencka, Medical College of Wisconsin
- 11:20 a.m. **Shrinkage Approach for Imaging Connectivity Analysis**—◆ Haochang Shou, Johns Hopkins Bloomberg School of Public Health; Ani Eloyan, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University
- 11:35 a.m. **Reconstructing an Increased Number of Simultaneously Excited fMRI Slices**—◆ Iain Bruce, Marquette University; Daniel Rowe, Marquette University
- 11:50 a.m. **Spatially Weighted Reduced-Rank Framework for Group Analysis of Functional Neuroimaging Data**—◆ Mihye Ahn, University of North Carolina at Chapel Hill; Chao Huang, University of North Carolina at Chapel Hill; Haipeng Shen, University of North Carolina at Chapel Hill; Hongtu Zhu, University of North Carolina at Chapel Hill
- 12:05 p.m. **Bayesian State Space Modeling of Brain Effective Connectivity and Activation for fMRI Data**—◆ Zhe Yu; Hernando Ombao, University of California, Irvine; Raquel Prado, University of California, Santa Cruz

348 CC-152 Novel Application and Investigation of Markov Multistate, Hierarchical, and Marginal Structural Modeling— Contributed

Section on Statistics in Epidemiology

Chair(s): Holly Shulman, CDC

- 10:35 a.m. **Novel Application and Investigation of Oaxaca-Blinder Type Decompositions**—◆ Angela Wade, University College London Institute of Child Health; Vassiliki Bountziouka, University College London Institute of Child Health; Sooky Lum,



- University College London Institute of Child Health
- 10:50 a.m. **Imprinting and Maternal Effect Detection Using Partial Likelihood Based on Discordant Sibship Data**—◆ Fangyuan Zhang; Shili Lin, Ohio State University
- 11:05 a.m. **A Marginal Structural Model to Compare the Causal Effect of Two Possibly Misclassified Treatments on the Survival Outcome**—◆ Ming Geng; Andrew C. Thomas, Carnegie Mellon; Chung-Chou Chang, University of Pittsburgh
- 11:20 a.m. **Standardization of Rates Using Logistic Versus Hierarchical Modeling**—◆ Jun Zhang, CDC; Patricia Dietz, CDC; Michelle Van Handel, CDC; Samah Hayek, CDC
- 11:35 a.m. **A Markov Multistate Analysis of the Relationship Between Performance Status and Death Among a Population of Cancer Patients**—◆ Rinku Sutradhar, University of Toronto; Lisa Barbera, University of Toronto
- 11:50 a.m. **Two-Stage Approach for Identifying Tumor Subtypes Associated with an Exposure**—◆ Aya Kuchiba, National Cancer Center; Molin Wang, Harvard School of Public Health; Donna Spiegelman, Harvard School of Public Health
- 12:05 p.m. **An Investigation into the Use of the Relative Standard Error as a Measure of Rate Stability**—◆ John Keighley, Kansas University Medical Center; Sue Min Lai, University of Kansas
- Peterson, Fox Chase Cancer Center
- 3 **The Control of Type I Error and Power in Statistics for Spearman's Rho and Kendall's Tau Correlation Coefficients by Monte Carlo Method**—◆ Chittanun Sithisan, University of Northern Colorado
- 4 **A Statistical Model for Event Sequence Data**—◆ Kevin Heins, University of California, Irvine; Hal S. Stern, University of California, Irvine
- 5 **How to Calculate Substitution, Insertion, and Deletion Probabilities for Fixed Sequences**—◆ Jason Wilson, Biola University
- 6 **Breast Cancer Disparities: A Social Network Analysis Prospective**—◆ Shun Zhang, National Center for Primary Care
- 7 **Mixed Effects Modeling in Conjoint Analysis with Multivariate Normal Responses**—◆ Tanita Cronje, University of Pretoria; Frans H.J. Kanfer, University of Pretoria; Sollie Millard, University of Pretoria; Mohammad Arashi, Shahrood University
- 8 **Implications of a New Response Option for Questions About Driving in the Youth Risk Behavior Survey**—◆ Emily Olsen, CDC; Ruth A. Shults, CDC
- 9 **Use of Treemapping Software for Visualizing Big, Hierarchical Data with Applications to the Federal Budget**—◆ Daniel Habtemariam,
- 10 **A Class of Regression Models for Parallel and Series Systems with a Random Number of Components**—◆ Silvia L.P. Ferrari, University of São Paulo; Alice L. Morais, University of São Paulo
- 11 **The Status of Women Faculty in Departments of Statistics and Biostatistics**—◆ Marcia Gumpertz, North Carolina State University; Jacqueline Hughes-Oliver, North Carolina State University
- 12 **Illustrating Split-Plot Designs with 3-D Models**—◆ James Alloway, E.M.S.Q. Associates
- 13 **Forecast Model Comparisons of ISO New England Electricity Demand**—◆ Timothy Fletcher, Northwestern University
- 14 **The Effect of Shot Selection Trends on Offensive Efficiency**—Justin Post, North Carolina State University; ◆ Michael Dickey, North Carolina State University
- 15 **Using NFL Draft Metrics to Predict Player Success**—◆ Nicholas Kapur, North Carolina State University; Justin Post, North Carolina State University; James Gilman, North Carolina State University
- 16 **Efficiency of Scoring Baserunners in MLB**—◆ William Knapp; Jason Osborne, North Carolina State University
- 17 **The Perfect Bracket: Machine Learning in NCAA Basketball**—◆ Sara Stoudt, Smith College; Loren

Speed Poster Presentations

10:30 a.m.–11:15 a.m.

349 **Speed Session #3: Topics in Survey Research Methods and Applications, Part 2—Contributed**

CC-Exhibit Hall B2

Survey Research Methods Section

Chair(s): Ben S. Baumer, Smith College

- 1 **Using Multilevel Modeling to Analyze Student Responses to a Sexual Health Curriculum Perceptions Survey**—◆ Tammy Tom, University of Hawaii; Kelly Roberts, University of Hawaii
- 2 **A Model-Based Approach for Assessing Reproducibility and Outlier Detection in High-Throughput Biological Data**—◆ Karthik Devarajan, Fox Chase Cancer Center; Xiaowei Chen, Fox Chase Cancer Center; Jeffrey

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- Santana, Smith College; Ben S. Baumer, Smith College
- 18 **Video Tracking of Hockey Players**—Brian Macdonald, United States Military Academy; ◆Fred Ulrich, United States Military Academy; Timothy Nosco, United States Military Academy; Michael Martin, United States Military Academy; Nicholas Howard, United States Military Academy; Frank Wattenberg, United States Military Academy
- 19 **The Importance of Scoring the First Goal in the NHL: Game Winner or Superstition?**—◆Samantha Key; Michael Rutter, Penn State
- 20 **Applying Meta-Pathway Analyses Across Multiple Phosphoproteomics Data Sets to Identify Common Adaptive Responses to Tyrosine Kinase Inhibitors in Cancer Cells**—◆Yian Chen, Moffitt Cancer Center & Research Institute; Kate Fisher, Moffitt Cancer Center & Research Institute

350 **Contributed Oral Poster Presentations: Biopharmaceutical Section—Contributed**

CC-Exhibit Hall B2

Biopharmaceutical Section

Chair(s): Daniel S. Cooley, Colorado State University

- 1 **Clinical Trial Enrollment Modeling with Random Staggered Site Start-Up Times**—◆Steven Southwick, Quintiles; Bradley Ferguson, Quintiles; Valerii Fedorov, Quintiles; Vladimir Anisimov, Quintiles
- 2 **A Simple Approach for Sample Size Calculation for Comparing Two Concordance Correlation Coefficients Estimated on the Same Subjects**—◆Hung-Mo Lin, Mount Sinai School of Medicine; John Michael Williamson, CDC
- 3 **Sensitivity Analysis of Missing Longitudinal Patient-Reported Outcomes in Asthma**—◆Tulin Shekar, Merck
- 4 **Decision-Making Considerations for Biomarker Investment Given a Negative Study**—◆Tianle Hu, Eli Lilly and Company; Peipei Shi, Eli Lilly and Company; Lei Shen, Eli Lilly and Company; Ji Lin, Eli Lilly and Company
- 5 **Some Considerations on Adaptive Design with a Long-Term Assessment of Primary Efficacy Endpoint**—◆Junliang Chen, Grifols Therapeutics; Chunqin Deng, Grifols Therapeutics; Jaume Ayguasanosa, Instituto Grifols S.A.; Sandra Camprubi, Instituto Grifols S.A.
- 6 **Fisher-Yates Normalization for Questionnaire Data**—◆Birol Emir, Pfizer; Javier Cabrera, Rutgers University
- 7 **Point-to-Consider of Design Considerations on Consistency of Treatment Effect Across Regions in Multiregional Clinical Trials (MRCT)**—◆Huei Wang, Amgen; Kefei Zhou, Amgen; Jenny Song, Amgen
- 8 **Logistic Regression Likelihood Ratio Test Analysis with Harnessing Graphics to Explore Safety Data in the Vaccine Adverse Event Report System (VAERS)**—◆Kijoeng Nam, FDA; Estelle Russek-Cohen, FDA/CBER
- 9 **How to Increase Randomized Control Trials (RCTs) Sensitivity: Using Marginal Mean vs. Cutpoints Derived from Intra-Individual Distributions**—◆Hiroko Dodge, Oregon Health & Science University; Jian Zhu, University of Michigan; Nora Mattek, Oregon Health & Science University; Judith Kornfeld, Oregon Health & Science University; Jeffrey Kaye, Oregon Health & Science University
- 10 **Curtailed Two-Stage Design for Comparing Two Binomial Proportions in Phase II Clinical Trials**—◆Chia-Min Chen, Nanhua University
- 11 **Sensitivity Analysis for Stochastic Networks with a High-Dimensional Parameter Space**—◆Weilong Hu, University of Massachusetts, Amherst; Yannis Pantazis, University of Massachusetts, Amherst; Markos Katsoulakis, University of Massachusetts, Amherst; Dionisios Vlachos, University of Delaware
- 12 **Defining Geographic Regions with a Data Mining Approach**—◆Ziliang Li, Merck
- 13 **Exposure Adjusted Continual Reassessment Method (EACRM) for Phase I Oncology Dose-Finding Studies**—◆Xin Qi, Michigan State University; Wijith Munasinghe, AbbVie; Balakrishna Hosmane, AbbVie; Yi-Lin Chiu, AbbVie; Kyle Holen, AbbVie
- 14 **Graphical and Numerical Methods Using Concentration-Response Profiles in Drug Discovery**—◆Patrick Edmonds, University of Kansas Medical Center; Jo A. Wick, University of Kansas Medical Center; G. Sitta Sittampalam, NIH/NCATS; Ajit Jadhav, NIH/NCATS
- 15 **A Flexible and Super-Fast Quantile Regression Solver**—◆Youlan Rao, Parexel; Yonggang Yao, SAS Institute
- 16 **Efficacy Analyses with an Application in Vaccine Studies with Stratified Design**—◆Shu-Chih Su, Merck; Frank Liu, Merck
- 17 **A Prospective Evaluation of Regional Effects in a Randomized Double-Blind Phase III Trial**—◆Xin Huang, Amgen; Lynn Navale, Amgen
- 18 **Comparison of a Simple Bayesian Decision-Theoretic Design for Dose-Finding Trials with Traditional 3-Plus-3 Method**—◆Lynn Eudey, California State University, East Bay; Shenghua Kelly Fan, California State University, East Bay; Tianyao Lu, California State University, East Bay
- 19 **Accounting for Pre-Treatment Dropout Using Inverse Probability Weighting: Application to a Phase III Clinical**

Tuesday



- Trial in Multiple Sclerosis**—◆ Stephen Lake, Genzyme; Amy Cinar, Genzyme; Jeff Palmer, Genzyme; David Margolin, Genzyme; Michael Panzara, Genzyme
- 20 Biosimilar Data Analysis Based on Time-Course of the Clinical Outcomes**—◆ Song Wang, PPD
- 21 Methods to Minimize Power Loss at Interim Futility Analyses and Final Analyses Due to Violations of Sample Size Assumptions in Clinical Trials with Survival Endpoints**—◆ Joseph Adair, PPD
- 22 A Bayesian Adaptive Design for Cancer Phase I Trials Using a Flexible Range of Doses**—◆ Galen Cook-Wiens, Cedars-Sinai Medical Center; Mourad Tighiouart, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center
- 23 Using a Pattern of Response Outcome for a Pilot Off-on-Off Crossover Design**—◆ Jonathan D. Mahnken, University of Kansas Medical Center; Russell H. Swerdlow, University of Kansas Medical Center
- 24 Modified Toxicity Probability Interval (TPI) Design for Phase I Oncology Trials: A Case Study**—◆ Tony Jiang, Amgen
- 25 Recommendations for the Methodology and Visualization Techniques to Be Used in the Assessment of Benefit and Risk of Medicines: Findings from IMI Protect Consortium**—◆ Gerald Downey, Amgen; Diana Hughes, Pfizer
- 26 Sample Size and Data Monitoring for Clinical Trials with Extremely Low Incidence Rate**—◆ Shih-Ting Chiu, Duke University; Shein-Chung Chow, Duke University School of Medicine
- 27 Metrics for Safety Assessment in Clinical Trials**—◆ Ying Zhou, Amgen; Qi Jiang, Amgen; Chunlei Ke, Amgen; Seta Shahin, Amgen; Steven Snapinn, Amgen

351 **Contributed Oral Poster Presentations: Mental Health Statistics Section—Contributed**

Mental Health Statistics Section

Chair(s): Daniel S. Cooley, Colorado State University

- 28 Learning Logic Rules Using an Iterative Algorithm, with an Application to Developing Criteria Sets for the Diagnostic and Statistical Manual of Mental Disorders (DSM)**—◆ Christine Mauro, Columbia University; Donglin Zeng, University of North Carolina at Chapel Hill; Katherine Shear, Columbia University; Yuanjia Wang, Columbia University
- 29 General Structural Equation Modeling and Replication Method for Factor Analysis on a Coping Strategies Questionnaire**—◆ Chris M. Manuel, University of Texas School of Public Health; Jason Robinson, MD Anderson Cancer Center; Paul Cinciripini, MD Anderson Cancer

- Center
- 30 Informing Intervention Strategies for Bipolar Disorder Using Dynamic Treatment Regimes**—◆ Fan Wu, North Carolina State University; Eric B. Laber, North Carolina State University; Ilya Lipkovich, Quintiles; Emanuel Severus, University Hospital Carl Gustav Carus Dresden
- 31 Robust Statistical Methodology in Detecting Irregular Firing Pattern in Dopaminergic Neurons**—◆ Sudip Roy, University of Texas at San Antonio; Daijin Ko, University of Texas at San Antonio
- 32 A Test of Intervention Effect in a Study with Multiple Correlated Outcomes: Counting Significant Treatment-Control Differences**—◆ Jessica Harwood; Robert E. Weiss, University of California, Los Angeles; Warren Comulada, University of California, Los Angeles Center for Community Health

352 **Contributed Oral Poster Presentations: Section on Medical Devices and Diagnostics—Contributed**

Section on Medical Devices and Diagnostics

Chair(s): Daniel S. Cooley, Colorado State University

- 33 Metabolomics-Based Discovery of Diagnostic Biomarkers for Dengue**—◆ Carolyn Cotterman; Natalia Voge, Colorado State University; Rushika Perera, Colorado State University; Lionel Gresh, Sustainable Sciences Institute; Carol Blair, Colorado State University; Hope Biswas, University of California, Berkeley; Angel Balmaseda, Ministry of Health, Nicaragua; Eva Harris, University of California, Berkeley; Barry Beatty, Colorado State University

353 **Contributed Oral Poster Presentations: Section on Statistics in Epidemiology—Contributed**

Section on Statistics in Epidemiology

Chair(s): Daniel S. Cooley, Colorado State University

- 34 Asymmetry in Family History Implicates Nonstandard Genetic Mechanisms: Application to the Genetics of Breast Cancer**—◆ Min Shi, National Institute of Environmental Health Sciences; Clarice Weinberg, NIEHS; David M. Umbach, NIEHS
- 35 A Simulation Study of Using Composite Outcomes from HPV Genotyping Assay Results to Monitor Human Papillomavirus Infections**—◆ Carol Lin, CDC



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- 36 **Bayesian Estimation of Chlamydia Prevalence in 6 Industrialized Countries**—◆Alula Hadgu, CDC
- 37 **Optimal Number of Strata in Propensity Score Stratification**—Kepher Makambi, Georgetown University; ◆Yuan Guo, Georgetown University; Wenxin Lu, University of Maryland Baltimore County
- 38 **Multi-State Models for Interval-Censored Transient Cognitive States with Competing Risk**—◆Lijie Wan,
- 39 **A Multi-State Model for Dementia with Backward Transitions and Missing Covariates**—◆Wenjie Lou,
- 40 **An Attraction-Repulsion Point Process Model for Respiratory Syncytial Virus Infections**—◆Joshua Goldstein, Penn State
- 41 **A Parent-Informed Test for the X-Chromosome Using Case-Parent Triads**—◆Alison Wise, NIEHS/University of North Carolina at Chapel Hill; Clarice Weinberg, NIEHS; Min Shi, National Institute of Environmental Health Sciences
- 42 **Estimation of Prevalence of Prophylaxis Use Among U.S.Hemophilia Treatment Centers**—◆Qing Zhang, CDC/DBD; Megan Ullman, University of Texas; Althea Grant, CDC
- 43 **Detection of Dynamic Effects of Rare Haplotypes and Their Interaction with Environmental Factor on Complex Disease**—◆Shuang Xia, Ohio State University; Shili Lin, Ohio State University
- 44 **Disease Mapping and Regression with Count Data in the Presence of Overdispersion and Spatial Autocorrelation**—◆Mohammad Reza Mohebbi, Deakin University
- 45 **An Investigation of the Association Between Hospital Characteristics and Acute Kidney Injury After Cardiac Surgery**—◆Masoumeh Sanagou, Monash University; Kevan Polkinghorne, Monash University; Christopher Michael Reid, Monash University; David Pilcher, Monash University; Rory Wolfe, Monash University
- 46 **Race Disparity of Demographic and Lifestyles Associated with Sexually Transmitted Disease in 2008 Worldwide Military Survey**—◆Tzu-Cheg Kao, USUHS; Grace Macalino, IDCRP/USUHS; Brian Agan, IDCRP/USUHS
- 47 **Trends in Drug-Involved Driver Fatalities in the United States, 2005–2012**—◆M. Fe Caces, Executive Office of the President/ONDCP; Eric Sevigny, University of South Carolina; Kwang Hyun Ra, University of South Carolina; Terry Zobeck, ONDCP; Karen Rank, Executive Office of the President/ONDCP
- 48 **Systematically Integrating and Analyzing High-Dimensional Data**—◆Xiang Liu, University of South Florida; David Hadley, University of South Florida; Hye-Seung Lee, University of South Florida; Jeffrey Krischer, University of South Florida; TEDDY Study Group The, TEDDY Study Group
- 49 **Modeling the Probability of Breast Cancer and Competing Risks Mortality Using the Hazard Function of the Cumulative Incidence Function (CIF)**—◆Yuanyuan Liu, Beth Israel Deaconess Medical Center; Ellen McCarthy, Beth Israel Deaconess Medical Center; Long H. Ngo, Harvard Medical School
- 50 **Targeted Maximum Likelihood Estimation (TMLE) of Causal Effects of Single Time Point Interventions in Non-IID Data: A Simulation Study**—◆Oleg Sofrygin; Mark J. van der Laan, University of California, Berkeley
- 51 **Disentangling Pooled Triad Genotypes for Association Studies**—◆David M. Umbach, NIEHS; Min Shi, National Institute of Environmental Health Sciences; Clarice Weinberg, NIEHS
- 52 **Evaluation of MI and MI Missing Data Methods in Health Care Setting**—◆Jean Chantra, Kaiser Permanente ; Margo Sidell, Kaiser Permanente
- 53 **Bayesian Hierarchical Repeated Measures Models to Estimate the ED50 of Known Teratogens in Sea Urchin Eggs**—◆Martiniano Flores, University of California, Los Angeles; Robert E. Weiss, University of California, Los Angeles; Michael D. Collins, University of California, Los Angeles
- 54 **Reproducible Research and Multiple Testing**—◆Naomi Altman, Penn State
- 55 **Performance of Five Equating Methods to Assess Cognitive Impairment in Delirium Research**—◆Jamey Guess, Beth Israel Deaconess Medical Center; Long H. Ngo, Harvard Medical School; Edward Marcantonio, Beth Israel Deaconess Medical Center
- 56 **Psychometric Property of the Perceived Stress Scale (PSS) in a Community-Based Participatory Research: Application of Cross-Validation Method**—◆Yating Yeh; Deena Wang, Tufts University School of Medicine; Doug Brugge, Tufts University School of Medicine
- 57 **The Parametric G-Formula to Compare the Effectiveness**



of Two Anemia Management Strategies Among Medicare Dialysis Patients—◆ Yi Zhang, Medical Technology and Practice Patterns Institute; Mae Thamer, Medical Technology and Practice Patterns Institute

in Autism Spectrum Disorder Prevalence Estimates Derived from Postcensal Population Estimates—◆ Lin Tian, CDC; Owen Devine, CDC

354 **CC-Exhibit Hall B2**
Contributed Oral Poster Presentations:
Section on Statistics in Imaging—
Contributed

Section on Statistics in Imaging

Chair(s): Daniel S. Cooley, Colorado State University

- 58 **Analysis of Multimodal PET and Rs-fMRI via Seed-Partial Least Squares**—◆ Dana L. Tudorascu, University of Pittsburgh; Howard J. Aizenstein, University of Pittsburgh; Lisa Weissfeld, University of Pittsburgh; Bedda L. Rosario, University of Pittsburgh; Sarah E. Walker, University of Pittsburgh Medical Center; Sterling Johnson, University of Wisconsin-Madison; Bradley T. Christian, University of Wisconsin-Madison
- 59 **Multiple Testing for Neuroimaging via Hidden Markov Random Field**—◆ Hai Shu, University of Michigan; Bin Nan, University of Michigan; Robert Koeppe, University of Michigan
- 60 **Spatial Correlations Induced During fcMRI Preprocessing Decomposed into Second-Order Temporal Frequencies Bands**—◆ Mary Kociuba, Marquette University; Daniel Rowe, Marquette University
- 61 **Spatio-Temporal Models for Brain Optical Imaging Data**—◆ Yuxiao Wang; Hernando Ombao, University of California, Irvine; Cynthia Bee, University of California, Irvine; Ron Frostig, University of California, Irvine

- 2 **Modeling Population Psychometric Characteristics of a Speech-in-Noise Task: Using a Large Cross-Sectional Study to Explore Associations Between Cognition and Listening**—◆ Mark Edmondson-Jones, NIHR
- 3 **Using Contact Networks and Mortality Patterns to Estimate Epidemiological Process Parameters**—◆ Kezia Manlove, Penn State
- 4 **Sampling Strategies Based on Existing Information in Nested Case Control Study**—◆ Yi Luo, University of Southern California
- 5 **Follow-Up Survey Response Rates in Women at Risk for Breast Cancer**—◆ Jeannette Lee, University of Arkansas for Medical Sciences; Ishwori Dhakal, University of Arkansas for Medical Sciences; Susan Kadlubar, University of Arkansas for Medical Sciences
- 6 **Clustering of Dietary Patterns in Pregnant Women and Children Living in the Seychelles**—◆ Tanzy Love, University of Rochester; Maria S. Mulhern, University of Ulster; Alison Yeates, University of Ulster; Sean Strain, University of Ulster; Emeir McSorley, University of Ulster; Conrad Shamlaye, Republic of Seychelles; Juliette Henderson, Republic of Seychelles; Sally Thurston, University of Rochester; Gene E. Watson, University of Rochester; Philip W. Davidson, University of Rochester; Edwin van Wijngaarden, University of Rochester; Gary Myers, University of Rochester
- 7 **Using Bayesian Statistical Inference to Improve the Measurement of Adequacy of Mental Health Care Utilization in a Nationally Representative Sample**—◆ Chih-Nan Chen, National Taipei University; Benjamin Cook, Center for Multicultural Mental Health Research; Margarita Alegria, Center for Multicultural Mental Health Research
- 8 **Releasing Synthetic Microdata for Magnitude Tabular Data**—◆ Lan Wei, Duke University; Jerome P. Reiter, Duke University
- 9 **Comparison of Estimates for Lifetime Depression Using the National Survey on Drug Use and Health (NSDUH) and Behavioral Risk Factor Surveillance System (BRFSS)**—◆ Kimberly Ault, RTI International; Greta Kilmer, RTI International
- 10 **Big Data and Advanced Analytics in Radiology Precision and Pre-Emptive Patient Care**—Nasser Fard, Northeastern University; ◆ Jean Hosseini, Inteltek; Scott Cameron, Medical Clinic
- 11 **Automated Survey Coding for German Occupations**—◆ Malte Schierholz,
- 12 **Weight Smoothing Using Laplace Priors**—◆ Michael Elliott, University of Michigan; Xi Xia, University of Michigan

Speed Poster Presentations

11:35 a.m.–12:20 p.m.

355 **CC-Exhibit Hall B2**
Speed Session #4: Topics in
Epidemiology and Survey Research
Methods, Part 2—Contributed

Section on Statistics in Epidemiology, Survey Research Methods Section

Chair(s): Joseph Sakshaug, Institute for Employment Research

- 1 **Monte Carlo Simulation to Examine the Uncertainty**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 13 **Implementation and Results of an Experiment Using Mahalanobis Distance in Responsive Design to Reduce Nonresponse Bias**—◆Jennifer Cooney, RTI International; Peter Siegel, RTI International; Melissa Cominole, RTI International; Bryan Shepherd, RTI International
- 14 **Understanding Egypt's Telephone-Using Population Using RDD and Face-to-Face Surveys**—◆Timothy Van Blarcom, D3 Systems; David Rae, D3 Systems; David Peng, D3 Systems
- 15 **Modeling Clustering Design Effects When Cluster Sizes Vary**—◆James Chromy, RTI International
- 16 **Computer-Based Training for NCES Complex Survey Micro-Data Sets: 2014 Update**—◆Andrew White, NCES/IES
- 17 **Opening the Doors to U.S. Department of Education Data: Program, Grant, and Statistical Data**—◆Marilyn M. Seastrom, NCES/U.S. Department of Education
- 18 **Protecting Survey Design Information in Public Use Files by Constructing Combined Strata Accounting for the Realized Sample Selection**—◆Vladislav Beresovsky, NCHS
- 19 **Project Talent: Weighting Adjustments Comparison for Nonresponse and Tracking Loss in a Follow-Up Survey 50 Years Later**—◆Danielle Battle, American Institutes for Research

Speaker with Lunch 12:30 p.m.–1:50 p.m.

356 **Economic Outlook Luncheon (Fee Event)—Speaker with Lunch** **CC-259B**

Business and Economic Statistics Section

Organizer(s): Beth Andrews, Northwestern University

- TL10** **The Global Economy: Lenses on the Past, Present, and Future**—◆Bart van Ark, The Conference Board

Roundtables with Lunch 12:30 p.m.–1:50 p.m.

357 **Section on Physical and Engineering Sciences P.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Section on Physical and Engineering Sciences

- TL11** **Handling Missing Data in Repeated Measures**—◆Vaneeta Grover, DuPont

358 **Health Policy Statistics Section P.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Health Policy Statistics Section

Organizer(s): Yuanjia Wang, Columbia University

- TL12** **Statistical Analysis of Neuroimaging Data: Past Methods, Current Challenges, and Opportunities**—◆DuBois Bowman, Columbia University

- TL13** **Making Sense of Reproducibility in Published Science**—◆Victoria Stodden, Columbia University

359 **Mental Health Statistics Section P.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Mental Health Statistics Section

Organizer(s): Nicholas J. Horton, Amherst College

- TL14** **Imputation for Large Cohorts**—◆Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health

360 **Quality and Productivity Section P.M. Roundtable Discussion (Fee Event)** **CC-Ballroom West**

Quality and Productivity Section

Organizer(s): Alix Robertson, Sandia National Laboratories

- TL15** **Pitfalls of Accelerated Testing**—◆Scott Vander Wiel, Los Alamos National Observatory; ◆Brian Weaver, Los Alamos National Laboratory

- TL16** **Achieving Process Excellence Using Design of Experiments**—◆Daksha Chokshi, Aerojet Rocketdyne

361 **Section for Statistical Programmers** **CC-Ballroom West**



and Analysts P.M. Roundtable Discussion (Fee Event)

Section for Statistical Programmers and Analysts

Organizer(s): *Michael Carniello, Takeda*

- TL17 **Infrastructure for Growth**—◆William Coar, Axio Research; ◆Amber Randall, Axio Research
- TL18 **What Can Statisticians Learn from Software Engineers?**—Paul Teetor; ◆John Castelleo, SAS Institute

362 CC-Ballroom West
Section on Statistical Consulting P.M. Roundtable Discussion (Fee Event)

Section on Statistical Consulting

Organizer(s): *Kim Love-Myers, University of Georgia*

- TL19 **Academic Collaborative Statistics**—◆Benjamin Goldstein, Stanford University

363 CC-Ballroom West
Section on Statistical Education P.M. Roundtable Discussion (Fee Event)

Section on Statistical Education

Organizer(s): *Erin Blankenship, University of Nebraska-Lincoln*

- TL20 **Resampling in the Undergraduate Curriculum**—◆Tim Hesterberg, Google
- TL21 **Embracing Reform in Mathematical Statistics**—◆Jennifer L. Green, Montana State University; Erin Blankenship, University of Nebraska-Lincoln

364 CC-Ballroom West
Section on Statistical Learning and Data Mining P.M. Roundtable Discussion (Fee Event)

Section on Statistical Learning and Data Mining

Organizer(s): *Matt Taddy, University of Chicago*

- TL22 **Data Mining and Data Quality: Can't Have One Without the Other**—◆Tamraparni Dasu, AT&T Labs Research

365 CC-Ballroom West
Section on Statistics and the Environment P.M. Roundtable Discussion (Fee Event)

Section on Statistics and the Environment

Organizer(s): *Edward L. Boone, Virginia Commonwealth University*

- TL23 **Changepoints: The Need to Homogenize Environmental Data**—◆Robert Lund, Clemson University

Invited Sessions 2:00 p.m.–3:50 p.m.

366 CC-104B
Recent Advances in Network Analysis and Graphical Models—Invited

General Methodology

Organizer(s): *Wenbin Lu, North Carolina State University*

Chair(s): *Jung-Ying Tzeng, North Carolina State University*

- 2:05 p.m. **Community Detection in Networks with Node Features**—Yuan Zhang, University of Michigan; ◆Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan
- 2:30 p.m. **Sure Independence Screening for Gaussian Graphical Models**—Shikai Luo, North Carolina State University; Daniela Witten, University of Washington; ◆Rui Song, North Carolina State University
- 2:55 p.m. **Network Analysis for Metagenomic Compositional Data**—◆Hongzhe Li, University of Pennsylvania; Yuanpei Cao, University of Pennsylvania; Wei Lin, University of Pennsylvania
- 3:20 p.m. **Relating Developmental Transcription Factors (TFs) Based on Fruitfly Embryonic Images**—◆Bin Yu, University of California, Berkeley; Siqi Wu, University of California, Berkeley; Erwin Frise, Lawrence Berkeley National Laboratory; Antony Joseph, University of California, Berkeley/LBNL; Ann Hammonds, LBNL; Susan Celniker, LBNL
- 3:45 p.m. **Floor Discussion**

367 CC-212
Feature Allocation Models—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Chinese Statistical Association

Organizer(s): *Peter Mueller, University of Texas at Austin*

Chair(s): *Peter Mueller, University of Texas at Austin*

- 2:05 p.m. **Feature Allocation Models for Phenotype Discovery**—◆Finale Doshi-Velez, Harvard
- 2:40 p.m. **Feature Allocations, Probability Functions, and Paintboxes**—◆Tamara Broderick, University of California, Berkeley; Jim Pitman, University of

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 3:15 p.m. **Application of Feature Allocation Models on the Inference of Tumor Heterogeneity Using Integrated Genomics Data**—◆Yuan Ji, NorthShore University HealthSystem; Peter Mueller, University of Texas at Austin; Juhee Lee, University of California, Santa Cruz; Kamalakar Gulukota, NorthShore University HealthSystem
- 3:45 p.m. **Floor Discussion**

- 2:30 p.m. **Identifying Genes Differentially Expressed in Both of Two Independent Experiments**—Megan Orr, North Dakota State University; Peng Liu, Iowa State University; ◆Dan Nettleton, Iowa State University
- 2:55 p.m. **Bayesian 2-Stage Space-Time Mixture Modeling with Spatial Misalignment of the Exposure in Small Area Health Data**—Andrew B. Lawson, Medical University of South Carolina; ◆Jungsoon Choi, Hanyang University
- 3:20 p.m. Disc: Scott Holan, University of Missouri
- 3:45 p.m. **Floor Discussion**

368 CC-257B

Emerging Statistical Methods for Complex Data—Invited

Biometrics Section, Mental Health Statistics Section
 Organizer(s): Lan Xue, Oregon State University
 Chair(s): Lan Xue, Oregon State University

- 2:05 p.m. **Nonparametric and Semiparametric Approaches to Studying Longitudinal Patterns**—◆Naisyin Wang, University of Michigan
- 2:30 p.m. **Semiparametric Modeling for Nonlinear Interactions**—◆Shujie Ma, University of California, Riverside; Peter Song, University of Michigan
- 2:55 p.m. **Sentiment Analysis**—Junhui Wang, UIUC; Annie Qu, University of Illinois at Urbana-Champaign; ◆Xiaotong Shen, University of Minnesota
- 3:20 p.m. **Statistical Inference for Functional Data via Simultaneous Confidence Region**—◆Lijian Yang, Soochow University
- 3:45 p.m. **Floor Discussion**

369 CC-259A

JABES Showcase: Impact of Advanced Statistical Methods on Agricultural and Environmental Sciences—Invited

ENAR
 Organizer(s): Jun Zhu, University of Wisconsin
 Chair(s): Montserrat Fuentes, North Carolina State University

- 2:05 p.m. **Experiments in Rectangular Areas: Design and Randomization**—◆Rosemary Bailey, University of St. Andrews/Queen Mary University of London

370 CC-102B

Facets of Risk Assessment Based on Complex Data Structures with Applications in the Biomedical and Engineering Settings—Invited

Section on Risk Analysis, Quality and Productivity Section
 Organizer(s): Edsel A. Pena, University of South Carolina
 Chair(s): Edsel A. Pena, University of South Carolina

- 2:05 p.m. **Failure Prediction from Condition Monitoring of Complex Systems**—◆Bo Henry Lindqvist, Norwegian University of Science and Technology; Gunnhild Hardersen Presthus, Norwegian University of Science and Technology
- 2:30 p.m. **Semiparametric Inference of Competing Risks Data with Additive Hazards and Missing Cause of Failure Under MCAR or MAR Assumptions**—◆Jean-Yves Dauxois, University of Toulouse-INSA; Laurent Bordes, University of Pau; Pierre Joly, University of Bordeaux II
- 2:55 p.m. **A Copula Model for Marked Point Processes**—◆Liqun Diao, University of Rochester; Richard J. Cook, University of Waterloo; Ker-Ai Lee, University of Waterloo
- 3:20 p.m. **Analyzing Recurrent Marker Data by Forward, Backward, and Time-Adjusted Models in the Presence of Terminal Events**—◆Mei-Cheng Wang, Johns Hopkins University

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Homework: Section 8.3 Homework Overview

8.3.24

Ex. Score: 0 of 1 pt HW Score: 0% (0 of 18 pts) 0 of 18 complete

A recent broadcast of a television show had a 15% share, meaning that among 5000 monitored households with TV sets in use, 15% of them were tuned to this program. Use a 0.01 significance level to test the claim of an advertiser that among the households with TV sets in use, less than 20% were tuned into the program. Identify the null hypothesis, alternative hypothesis, test statistic, P-value, conclusion about the null hypothesis, and final conclusion that addresses the original claim. Use the P-value method. Use the normal distribution as an approximation of the binomial distribution.

Identify the null and alternative hypotheses. Choose the correct answer below.

<input type="radio"/> A. $H_0: p = 0.80$ $H_1: p \neq 0.80$	<input type="radio"/> B. $H_0: p = 0.20$ $H_1: p > 0.20$
<input type="radio"/> C. $H_0: p = 0.80$ $H_1: p > 0.80$	<input type="radio"/> D. $H_0: p = 0.20$ $H_1: p \neq 0.20$
<input checked="" type="radio"/> E. $H_0: p = 0.20$ $H_1: p < 0.20$	<input type="radio"/> F. $H_0: p = 0.80$ $H_1: p < 0.80$

- Help Me Solve This provides guided, step-by-step solutions for exercises, allowing students to get help as they do their homework.
- View an Example walks students through a similar problem type, providing additional explanation and insight into how concepts and techniques are applied.
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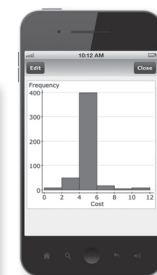
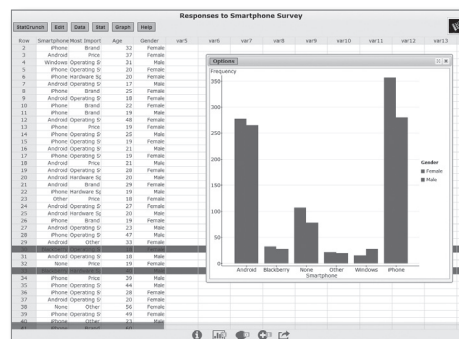
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3:45 p.m. Floor Discussion

371 **CC-156A**
■ ● The Past, Present, and Future of Federal Surveys: Observations from the Committee on National Statistics—Invited

Social Statistics Section, Government Statistics Section, Statistics Without Borders, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Carol C. House, National Academies, Committee on National Statistics

Chair(s): Alicia Carriquiry, Iowa State University

2:05 p.m. **Federal Surveys Under the Microscope: Lessons from the Past Decade of CNSTAT Reviews—◆** Constance Citro, Committee on National Statistics; Lawrence Brown, Wharton School

2:30 p.m. **The Past, Present, and Future of Federal Surveys: Observations from the Committee on National Statistics—◆** Lawrence Brown, Wharton School; Constance Citro, Committee on National Statistics

2:55 p.m. Disc: Hermann Habermann, Committee on National Statistics

3:10 p.m. Disc: Michael Horrigan, Bureau of Labor Statistics

3:25 p.m. Disc: Graham Kalton, Westat

3:40 p.m. Floor Discussion

372 **CC-258C**
■ ● Better Statistical Modeling of Computer Experiments—Invited

Technometrics, Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Peihua Qiu, University of Florida

Chair(s): Peihua Qiu, University of Florida

2:05 p.m. **Surrogate Modeling of Computer Experiments with Different Mesh Densities—**Dan Yu, Chinese Academy of Science; ◆ Rui Tuo, Chinese Academy of Science; C. F. Jeff Wu, Georgia Institute of Technology

2:25 p.m. **Engineering-Driven Statistical Adjustment and Calibration—◆** Roshan Joseph Vengazhiyil, Georgia Institute of Technology; Huan Yan, Georgia Institute of Technology

2:45 p.m. Disc: Daniel W. Apley, Northwestern University

3:05 p.m. Disc: David W. Higdon, Los Alamos National Laboratory

3:25 p.m. Disc: Max D. Morris, Iowa State University

3:45 p.m. Floor Discussion

373 **CC-156C**
■ ● Playing Games with a Purpose—Invited

Section on Statistical Education, Education Workgroup on Undergraduate Curriculum Guidelines

Organizer(s): Shonda Kuiper, Grinnell College

Chair(s): Ginger Holmes-Rowell, Middle Tennessee State University

2:05 p.m. **Using Games to Teach Design of Experiments—◆** Shonda Kuiper, Grinnell College

2:40 p.m. **TigerStat: An Immersive 3-D Game for Statistics Classes—◆** Kevin Cummiskey, United States Military Academy; John Jackson, United States Military Academy

3:15 p.m. **Playing and Getting ‘Messy’ with Data—◆** Rodney Sturdivant, Ohio State University; Kevin Cummiskey, United States Military Academy; Shonda Kuiper, Grinnell College

3:45 p.m. Floor Discussion

374 **CC-157C**
■ ● Global Impact: Statistical Analyses of Conflict Data in Syria, Guatemala, and Colombia—Invited

Committee on Scientific Freedom and Human Rights, Statistics Without Borders, Scientific and Public Affairs Advisory Committee

Organizer(s): Megan Price, Human Rights Data Analysis Group

Chair(s): Kristian Lum, Virginia Tech

2:05 p.m. **Global Impact: Statistical Analyses of Conflict Data in Syria, Guatemala, and Colombia—◆** Shira Mitchell, Harvard; Al Ozonoff, Harvard; Kristian Lum, Virginia Tech; Alan M. Zaslavsky, Harvard; Brent Coull, Harvard School of Public Health

2:30 p.m. **Estimating Undocumented Deaths During the Syrian Conflict—**Patrick Ball, Human Rights Data Analysis Group; Anita Gohdes, Human Rights Data Analysis Group; ◆ Megan Price, Human Rights Data Analysis Group

2:55 p.m. **Record Linkage and Capture-Recapture in the the Analysis of Genocide in Guatemala—◆** Patrick Ball,

Tuesday



- Human Rights Data Analysis Group
- 3:20 p.m. Disc: Brent Coull, Harvard School of Public Health
- 3:35 p.m. Disc: Nan Laird, Harvard

- Katrin Hambarsoomian, RAND Corporation; Nate Orr, RAND Corporation; Donna Farley, RAND Corporation; Alan M. Zaslavsky, Harvard
- 3:45 p.m. Floor Discussion

375 **CC-254B**
■ Statistical Contributions to Big Data—Invited

WNAR, Section on Physical and Engineering Sciences, Section on Statistics in Marketing, Statistics in Business Schools Interest Group, Conference on Statistical Practice Steering Committee

Organizer(s): Linda J. Young, USDA/NASS

Chair(s): Motomi Mori, Knight Cancer Institute

- 2:05 p.m. Using Big Data to Supplement Population Health Surveillance Systems—◆ Carol Gotway Crawford, CDC; Steven Gittleman,
- 2:30 p.m. Using Information from Disparate Sources to Improve Survey Estimates—◆ Linda J. Young, USDA/NASS
- 2:55 p.m. Text Analytics and Statistics—◆ Terry Woodfield, SAS Institute
- 3:20 p.m. Public Health Surveillance for the Public—◆ Clark Freifeld, HealthMap
- 3:45 p.m. Floor Discussion

376 **CC-151B**
■ Methodological Innovations in Assessing and Reporting Quality of Care in Medicare—Invited

Health Policy Statistics Section

Organizer(s): Amelia M. Haviland, Carnegie Mellon

Chair(s): Laura Hatfield, Harvard Medical School

- 2:05 p.m. Using Item Response Theory to Summarize Health Care Quality Measures—◆ John L. Adams, Kaiser Permanente; Marc N. Elliott, RAND Corporation
- 2:30 p.m. Kronecker-Structured Factor Analysis of Covariance Structure of Cross-Classified Health Care Quality Measures—◆ Alan M. Zaslavsky, Harvard; Laura Hatfield, Harvard Medical School
- 2:55 p.m. An Algorithm to Predict Probability of Spanish Reference, Calibrated by the Results of a Randomized Survey Experiment—◆ Marc N. Elliott, RAND Corporation
- 3:20 p.m. A Comparison of Low Income ('Dually Eligible') Medicare Beneficiaries' Experiences with Special Needs Plans Versus Other Forms of Medicare Coverage—◆ Amelia M. Haviland, Carnegie Mellon; Marc N. Elliott, RAND Corporation;

Topic-Contributed Sessions 2:00 p.m.–3:50 p.m.

377 **CC-252B**
■ ● Optimizing Drug Development Programs and Portfolios: Beyond Adaptive Design—Topic-Contributed

Biopharmaceutical Section

Organizer(s): James A. Bolognese, Cytel

Chair(s): James A. Bolognese, Cytel

- 2:05 p.m. Early Clinical Development Planning via Biomarkers, Clinical Endpoints, and Simulation: A Case Study to Optimize for Phase III Dose Selection—◆ Bret Musser, Merck; Ghassan Fayad, Merck; Yue Shentu, Bausch and Lomb; James A. Bolognese, Cytel; Nitin Patel, Cytel; Jaydeep Bhattacharyya, Cytel
- 2:25 p.m. Optimizing a Clinical Trial Within the Context of an Adaptive Clinical Drug Development Plan—◆ Brenda Gaydos, Eli Lilly and Company
- 2:45 p.m. Phase 2B Strategies and Optimization of Drug Development Programs—◆ Zoran Antonijevic,
- 3:05 p.m. Designing Phase III Trials to Optimize the Value of a Portfolio—◆ Nitin Patel, Cytel; Suresh Ankolekar, Maastricht School of Management
- 3:25 p.m. Disc: Olga V. Marchenko, Quintiles
- 3:45 p.m. Floor Discussion

378 **CC-156B**
■ ● Geometric Approaches to Statistical Analysis of Biological Structures—Topic-Contributed

Section on Statistics in Imaging

Organizer(s): Sebastian A. Kurtek, Ohio State University

Chair(s): Sebastian A. Kurtek, Ohio State University

- 2:05 p.m. On Synergy Between Statistical Shape Analysis and Functional Data Analysis—◆ Wei Wu, Florida State University; Anuj Srivastava, Florida State University
- 2:25 p.m. Testing Equality of Cell Populations Based on Shape and Geodesic Distance—◆ Charles Hagwood, NIST

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 2:45 p.m. **Permutation Testing for Covariance Matrices, with Applications in Shape Analysis**—◆ Hao Wang, Michigan State University
- 3:05 p.m. **Analysis of Binding Site Structure for Protein Function Prediction**—◆ Leif Ellingson, Texas Tech University
- 3:25 p.m. **Statistical Analysis of Parameterized Surfaces**—◆ Qian Xie, Florida State University
- 3:45 p.m. **Floor Discussion**

379 CC-152

Penalized Regression and Variable Selection for Spatially Dependent Data: Theory and Methods—Topic-Contributed

Section on Statistics and the Environment

Organizer(s): Rajib Paul, Western Michigan University; Chae Young Lim, Michigan State University

Chair(s): Tapabrata Maiti, Michigan State University

- 2:05 p.m. **Regularization Methods for the Selection of Covariates and Dependence Structure in Spatial Models**—◆ Jun Zhu, University of Wisconsin
- 2:25 p.m. **Some Information Criteria for Selecting Geostatistical Regression Models**—◆ Hsin-Cheng Huang, Academia Sinica; Chih-Hao Chang, Academia Sinica; Ching-Kang Ing, Academia Sinica
- 2:45 p.m. **Penalized Quasi-Likelihood Estimating Equations and Variable Selection for Spatial Data**—◆ Chae Young Lim, Michigan State University; Wenning Feng, Michigan State University; Tapabrata Maiti, Michigan State University
- 3:05 p.m. **A Variable Selection Method for Spatial Additive Models with Applications**—◆ Siddhartha Nandy, Michigan State University; Chae Young Lim, Michigan State University; Tapabrata Maiti, Michigan State University
- 3:25 p.m. **An Empirical Bayesian Approach for Selection of Knot Locations in Reduced Rank Spatial Models Using Penalized Regression**—◆ Rajib Paul, Western Michigan University; Casey M. Jelsema, National Institute of Environmental Health Sciences
- 3:45 p.m. **Floor Discussion**

380 CC-211

■ ● New Frontiers in Empirical Likelihood—Topic-Contributed

IMS
Organizer(s): Yichuan Zhao, Georgia State University
Chair(s): Zhezhen Jin, Columbia University

- 2:05 p.m. **Smoothed Jackknife Empirical Likelihood Inference for the Difference of Roc Curves**—◆ Yichuan Zhao, Georgia State University; Hanfang Yang, Renmin University of China
- 2:25 p.m. **Empirical Likelihood for Testing Function Constraints with Functional Data**—◆ Ping-Shou Zhong, Michigan State University; Honglang Wang, Michigan State University; Yuehua Cui, Michigan State University
- 2:45 p.m. **Jackknife Empirical Likelihood-Based Variable Selection for Accelerated Failure Time Models**—◆ Xuewen Lu, University of Calgary; Longlong Huang, University of Calgary; Karen Kopciuk, Alberta Health Services/University of Calgary
- 3:05 p.m. **On a Class of Maximum Empirical Likelihood Estimators**—◆ Hanxiang Peng, Indiana University-Purdue University Indianapolis
- 3:25 p.m. **Empirical Likelihood in Genetic Mixture Model**—◆ Jing Qin, NIH; Pengfei Li, University of Waterloo; Yukun Liu, East China Normal University
- 3:45 p.m. **Floor Discussion**

381 CC-209

■ SBSS Student Travel Award Winners - Session 2—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Sudipto Banerjee, University of Minnesota

Chair(s): Kate Calder, Ohio State University

- 2:05 p.m. **Bayesian Tensor Decompositions and Sparse Log-Linear Models**—◆ James Johndrow; Anirban Bhattacharya, Texas A&M; David Dunson, Duke University
- 2:25 p.m. **A Flexible Bayesian Approach to Monotone Missing Data in Longitudinal Studies with Informative Missingness**—◆ Antonio Linero, University of Florida; Michael Daniels, University of Texas at Austin
- 2:45 p.m. **Particle Move-Reweighting Strategies for Online Inference**—◆ Reinaldo Marques, University of Oslo; Geir Storvik, University of Oslo
- 3:05 p.m. **A Bayesian Perspective on Unreplicated Factorial Experiments Using Potential Outcomes**—◆ Valeria Espinosa, Harvard; Donald B. Rubin, Harvard; Tirthankar Dasgupta, Harvard
- 3:25 p.m. **Parallelizing MCMC via Weierstrass Sampler**—◆ Xiangyu Wang; David Dunson, Duke University
- 3:45 p.m. **Floor Discussion**



382
■ ● Surveys of International Education: Survey Design, Statistical Analysis, and Evaluation—Topic-Contributed

CC-153C

Survey Research Methods Section, Statistics Without Borders
 Organizer(s): Cynthia Augustine, RTI International
 Chair(s): Joseph P. McMichael, RTI International

- 2:05 p.m. **Planning and Implementing International Early Grade Reading Assessments**—◆Simon King, RTI International; Christine Davies, RTI International; Peter Frechtel, RTI International
- 2:25 p.m. **Using Household Surveys in International Education Research**—◆Cynthia Augustine, RTI International; Karol Krotki, RTI International
- 2:45 p.m. **A Snapshot of Primary Classroom Experiences in Nigeria**—◆Karol Krotki, RTI International; Safaa Amer, RTI International; Obert Pimhidzai, World Bank
- 3:05 p.m. **Qatar National Education Reform**—◆Ameena Alobaidili, Qatar Supreme Education Council; Safaa Amer, RTI International; Aysha Al-Hashemi, Qatar Supreme Education Council
- 3:25 p.m. **Evaluation Protocol for International Education Systems**—◆Safaa Amer, RTI International
- 3:45 p.m. **Floor Discussion**

383
■ ● Robust Functional Data Analysis—Topic-Contributed

CC-207

Section on Nonparametric Statistics
 Organizer(s): Nedret Billor, Auburn University
 Chair(s): H. Frazier Bindele, University of South Alabama

- 2:05 p.m. **Recent Advances in Robust Functional Data Analysis**—◆Nedret Billor, Auburn University
- 2:25 p.m. **Outlier Detection for Functional Data Using Principal Components**—◆Matias Salibian, University of British Columbia; Graciela Boente, Universidad de Buenos Aires
- 2:45 p.m. **Robust Methods for the Generalized Functional Linear Model**—◆Melody Denhere, University of Mary Washington
- 3:05 p.m. **Nonparametric Outlier Detection with Functional Data Using the Spatial Depth Approach**—◆Uditha Wijesuriya, University of Texas at Dallas; Robert Serfling, University of Texas at Dallas
- 3:25 p.m. **Floor Discussion**

384
■ ● Bayesian Methods in Bioinformatics—Topic-Contributed

CC-204B

Section on Physical and Engineering Sciences, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Statistics Without Borders
 Organizer(s): Sounak Chakraborty, University of Missouri-Columbia
 Chair(s): Francesco Stingo, MD Anderson Cancer Center

- 2:05 p.m. **Bayesian Hierarchical Structured Variable Selection Methods with Application to Mip Studies in Breast Cancer**—◆Lin Zhang, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center; Bani K. Mallick, Texas A&M; Ganiraju C. Manyam, MD Anderson Cancer Center; Patricia A. Thompson, University of Arizona; Melissa L. Bondy, Baylor University; Kim-Ahn Do, MD Anderson Cancer Center
- 2:25 p.m. **Bayesian Additive Regression Kernel for Right-Censored Survival Data and Its Application in Modeling Pathway Information**—◆Sounak Chakraborty, University of Missouri-Columbia
- 2:45 p.m. **An Automated Management System to Detect COPD Exacerbation Using Bayesian Network**—◆R. Guo, University of Colorado; J. Palmer, University of Colorado
- 3:05 p.m. **Bayesian Variable Selection for Correlated Multivariate Data**—◆Kyu Ha Lee, Harvard School of Public Health; Mahlet Tadesse, Georgetown University; Brent Coull, Harvard School of Public Health
- 3:25 p.m. **Bayesian Sparse Graphical Models for Classification with Application to Protein Expression Data**—◆Rajesh Talluri, MD Anderson Cancer Center
- 3:45 p.m. **Floor Discussion**

385
■ ● Impacts of Emerging Global Clinical Trials Transparency Initiatives—Topic-Contributed

CC-251

Biopharmaceutical Section, Section on Medical Devices and Diagnostics
 Organizer(s): Theodore Lystig, Medtronic
 Chair(s): Estelle Russek-Cohen, FDA/CBER

- 2:05 p.m. **When Is Data Transparency Useful?**—◆Michael Hale, Amgen

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 2:25 p.m. **Learning to Share: Challenges in the Implementation of Data Sharing**—◆Jonathan Hartzel, Merck
- 2:45 p.m. **Clinical Study Patient-Level Data Sharing: The GSK Experience to Date**—◆Amit Bhattacharyya, GlaxoSmithKline; Paul McSorley, GlaxoSmithKline
- 3:05 p.m. **Voluntary Disclosure of High-Profile Clinical Trial Data: The Infuse Example**—◆Theodore Lystig, Medtronic
- 3:25 p.m. **Sharing Clinical Trial Data: Recent Experience and Issues Raised**—◆Jesse Berlin, Johnson & Johnson
- 3:45 p.m. **Floor Discussion**

- 2:05 p.m. **Defining, Measuring, and Predicting the Global Business Cycle in Mature and Emerging Economics: A Composite Index Approach**—◆Ataman Ozyildirim, The Conference Board; Abdul Erumban, The Conference Board
- 2:25 p.m. **Unit Labor Costs and Manufacturing Competitiveness: Sources, Trends, and Implications**—◆Elizabeth Crofoot, The Conference Board
- 2:45 p.m. **The Sources of Global Economic Growth: Comparing the Relative Roles of Productivity and Factor Accumulation in the World Economy and Its Distribution Across Countries**—Abdul Erumban, The Conference Board; ◆Bart van Ark, The Conference Board
- 3:05 p.m. **The Growing Value of Intangible Capital Worldwide**—◆Carol Corrado, The Conference Board; Janet X. Hao, The Conference Board
- 3:25 p.m. **Disc: Catherine Mann, Brandeis University**
- 3:45 p.m. **Floor Discussion**

386 CC-257A

● **Biometrics Section Student Paper Award Session 1—Topic-Contributed**

Biometrics Section

Organizer(s): Jianwen Cai, University of North Carolina at Chapel Hill

Chair(s): Jianwen Cai, University of North Carolina at Chapel Hill

- 2:05 p.m. **Stable Weights That Balance Covariates for Causal Inference and Estimation with Incomplete Data**—◆Jose Zubizarreta, Columbia University
- 2:25 p.m. **Multiply Robust Estimation in Regression Analysis with Missing Data**—◆Peisong Han, University of Waterloo
- 2:45 p.m. **Nonparametric Tests of Treatment Effect for a Recurrent Event Process That Terminates**—◆Nabihah Tayob, MD Anderson Cancer Center; Susan Murray, University of Michigan
- 3:05 p.m. **Nonparametric Discrete Survival Function Estimation with Uncertain Endpoints Using an Internal Validation Subsample**—◆Jarcy Zee, University of Pennsylvania Perelman School of Medicine; Sharon X. Xie, University of Pennsylvania Perelman School of Medicine
- 3:25 p.m. **Disc: Jeremy Taylor, University of Michigan**
- 3:45 p.m. **Floor Discussion**

388 CC-102A

SLDM Student Paper Session—Topic-Contributed

Section on Statistical Learning and Data Mining

Organizer(s): Hernando Ombao, University of California, Irvine

Chair(s): Deepak Agarwal, LinkedIn

- 2:05 p.m. **Multiple Kernel Learning with Random Effects for Predicting Longitudinal Outcomes and Data Integration**—◆Tianle Chen, Columbia University; Donglin Zeng, University of North Carolina at Chapel Hill; Yuanjia Wang, Columbia University
- 2:25 p.m. **Bayesian Variable Selection with Shrinking and Diffusing Priors**—◆Naveen Naidu Narisetty, University of Michigan; Xuming He, University of Michigan
- 2:45 p.m. **Confidence Regions and Intervals for Sparse Penalized Regression with Random Designs**—◆Liang Yin, University of North Carolina at Chapel Hill; Shu Lu, University of North Carolina at Chapel Hill; Yufeng Liu, University of North Carolina at Chapel Hill
- 3:05 p.m. **An Interpretable Stroke Prediction Model Using Rules and Bayesian Analysis**—◆Benjamin Letham, MIT; Cynthia D. Rudin, MIT; Tyler H. McCormick, University of Washington; David Madigan, Columbia University
- 3:25 p.m. **Dynamic Classification Using Multivariate Locally Stationary Wavelets**—◆Timothy Park, Lancaster University; Idris Eckley, Lancaster University; Hernando Ombao, University of California, Irvine

387 CC-206A

■ ● **Statistics for International Comparisons of Economic and Business Performance—Topic-Contributed**

Business and Economic Statistics Section

Organizer(s): Ataman Ozyildirim, The Conference Board

Chair(s): John M. Abowd, Cornell University, ILR School

Tuesday



3:45 p.m. Floor Discussion

Topic-Contributed Panels 2:00 p.m.–3:50 p.m.

389 **■ ● Dialogue Between Data-Journalists and Statisticians—Topic-Contributed** CC-153B

Section on Statistical Graphics, Statistics Without Borders

Organizer(s): Naomi Robbins, NBR

Chair(s): Naomi Robbins, NBR

- Panelists:** ◆ Alberto Cairo, University of Miami
 ◆ Scott Klein, ProPublica
 ◆ Isabel Meirelles, Northeastern University

3:45 p.m. Floor Discussion

390 **■ ● Statistics in Epidemiology: Communication Is the Key to Success—Topic-Contributed** CC-260

390 **■ ● Statistics in Epidemiology: Communication Is the Key to Success—Topic-Contributed** CC-260

Section on Statistics in Epidemiology, Section on Statistical Consulting, Statistics Without Borders, Conference on Statistical Practice Steering Committee

Organizer(s): Jashvant Poeran, Icahn School of Medicine at Mount Sinai

Chair(s): Allen Heller, USC

- Panelists:** ◆ Jason H. Moore, Dartmouth
 ◆ Nicole Valentine, WHO
 ◆ Ann Zauber, Memorial Sloan Kettering Cancer Center
 ◆ Gouke Bonsel, Erasmus University Medical Center

3:45 p.m. Floor Discussion



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Contributed Sessions 2:00 p.m.–3:50 p.m.
391 **CC-105**
Modeling and Analysis of Complex Biomedical Data—Contributed

Korean International Statistical Society, Statistics Without Borders

Chair(s): Seongho Song, University of Cincinnati

- 2:05 p.m. **Hierarchical Peak Detection Algorithms for Comprehensive Two-Dimensional Gas Chromatography Time-Of-Flight Mass Spectrometry Data**—◆Seongho Kim, Wayne State University/Karmanos Cancer Institute; Xiang Zhang, University of Louisville; Changyu Shen, Indiana University
- 2:20 p.m. **Parafac2 Component Analysis of Multiple Groups with Nested Mean-Structures**—◆Sungjin Hong, PepsiCo
- 2:35 p.m. **Quantile-Based EMD and Its Application**—◆Minsu Park, Seoul National University; Hee-Seok Oh, Seoul National University; Donghoh Kim, Sejong University
- 2:50 p.m. **Bayesian Data Editing for Continuous Microdata**—◆Hang Joon Kim, Duke University/NISS; Jerome P. Reiter, Duke University; Alan F. Karr, NISS; Quanli Wang, Duke University; Lawrence H. Cox, National Institute of Statistical Sciences
- 3:05 p.m. **Diversity Complexity Index (DCI) for Spectratype/Immunoscope Analysis of the Expressed TCR Repertoire**—◆Byung Park, Oregon Health & Science University; Partha Samadder, University of Arizona; Janko Nikolich-Zugich, University of Arizona College of Medicine; Afam Okoye, Oregon National Primate Research Center; Motomi Mori, Knight Cancer Institute
- 3:20 p.m. **Dichotomic Classes, Correlations, and Entropy Optimization in Protein Coding Sequences**—◆Simone Giannerini, University of Bologna
- 3:35 p.m. **Models for Biosecurity and Spread of Contagious Diseases**—◆John Aleong, University of Vermont; Julie Smith, University of Vermont

392 **CC-255**
Goodness of Fit—Contributed

Biometrics Section

Chair(s): Feng-Chang Lin, University of North Carolina at Chapel Hill

- 2:05 p.m. **A Robust Coefficient of Determination for Heritability Estimation in Genetic Association Studies**—◆Vanda Lourenco, NOVA University of Lisbon; Paulo Canas Rodrigues, University of Lisbon; Ana Maria Pires, Universidade TÈcnica de

Lisboa

- 2:20 p.m. **Goodness-of-Fit Statistics for Generalized Method of Moments with Time-Dependent Covariates**—◆Maryann Shane, University of Northern Colorado
- 2:35 p.m. **A Sup-Score Test for the Cure Fraction in Mixture Models for Long-Term Survivors**—◆Wei-Wen Hsu, Kansas State University; David Todem, Michigan State University; KyungMann Kim, University of Wisconsin-Madison
- 2:50 p.m. **Tests of Calibration in Survival Analysis: Gronnesby-Borgan and D'agostino-Nam Tests**—◆Olga Demler, Brigham & Women's Hospital/Harvard Medical School; Nina Paynter, Brigham & Women's Hospital; Nancy Cook, Brigham & Women's Hospital/Harvard Medical School
- 3:05 p.m. **Goodness of Fit Using the Gffit Statistic Defined on Orthogonal Components of Pearson's Chi-Square**—◆Mark Reiser, Arizona State University; Silvia Cagnone, University of Bologna; Juhfei Zhu, Arizona State University
- 3:20 p.m. **Estimating Explained Variation of a Latent Scale Dependent Variable Underlying a Binary Indicator of Event Occurrence**—◆Dinesh Sharma, James Madison University; Amanda Miller, James Madison University; Caroline Hollingsworth, James Madison University
- 3:35 p.m. **Floor Discussion**

393 **CC-252A**
High-Throughput and Omics Data Analysis—Contributed

Biometrics Section

Chair(s): Yian Chen, Moffitt Cancer Center & Research Institute

- 2:05 p.m. **A New Normalization Method on Metagenomic Sequencing Data**—◆Ruofei Du, University of Arizona; Lingling An, University of Arizona
- 2:20 p.m. **Statistical and Computational Methods for Accurate Characterization of Microbes in Clinical and Environmental Sequencing Samples**—◆Solaiappan Manimaran, Boston University; W. Evan Johnson, Boston University School of Medicine
- 2:35 p.m. **Mixture Likelihood Ratio Test of Proteomics Data**—◆Stephen Erickson, University of Arkansas for Medical Sciences; Horace J. Spencer, University of Arkansas for Medical Sciences; Ricky D. Edmondson, University of Arkansas for Medical Sciences; Samuel G. Mackintosh, University of Arkansas for Medical Sciences; Mayumi Nakagawa, University of Arkansas for Medical



- Sciences
- 2:50 p.m. **Analysis of High-Throughput Methylation Data Using Wavelet-Based Functional Mixed Models**—◆ Wonyul Lee, MD Anderson Cancer Center; Jeffrey S. Morris, MD Anderson Cancer Center
- 3:05 p.m. **A Comparison of Classification Methods for Metabolic Data**—◆ Amanda Brucker, National Cancer Institute; Joshua Sampson, National Cancer Institute; Michelle Dunn, National Cancer Institute
- 3:20 p.m. **Evaluating Correlation Measures for Inferring the Co-Occurrence Network in Microbial Communities**—◆ Yuguang Ban, Northwestern University; Hongmei Jiang, Northwestern University
- 3:35 p.m. **Accurate Estimation of Genome Relative Abundance for Closely Related Species in a Metagenomic Sample**—◆ Lingling An, University of Arizona; Michael Sohn, University of Arizona; Naruekamol Pookhao, University of Arizona; Qike Li, University of Arizona

394 CC-258A **■ Innovative Clinical Trial Design and Analysis Methods—Contributed**

Biopharmaceutical Section

Chair(s): Mahinda Karunaratne, AbbVie

- 2:05 p.m. **Bayesian Predictive Probability Approach for Phase III Success Based on Published Trial Results from Early Development**—◆ Meichun Ding, GlaxoSmithKline; Ying Yang, FDA/CDRH
- 2:20 p.m. **Optimal Design of Dose-Response Studies in Time-To-Event Settings with Random Censoring**—◆ Xiaoqiang Xue; Valerii Fedorov, Quintiles
- 2:35 p.m. **Dichotomization of Continuous Endpoints: Examination of Efficiency Under Departures from Normality**—◆ Davis Gates, Merck
- 2:50 p.m. **Sequential Parallel Comparison Design in Major Depressive Disorder Trials**—◆ Yangchun Du, Alkermes; Asli Memisoglu, Alkermes; Marc de Somer, Alkermes; Randall Marshall, Alkermes; Richard Leigh-Pemberton, Alkermes; Bernard Silverman, Alkermes; Elliot Ehrich, Alkermes; Fava Maurizio, Massachusetts General Hospital
- 3:05 p.m. **Testing Multiple Hypotheses in Truncated Group Sequential Experiments**—◆ Tian Zhao
- 3:20 p.m. **Designs for Randomized Phase II Clinical Trials with Two Arms: Agent A vs. Agents A Plus B**—◆ Myron

Chang, University of Florida; Sin-Ho Jung, Duke University; Meenakshi Devidas, University of Florida

- 3:35 p.m. **Competing Events Models for Clinical Trial Planning and Management: Validation Using Historical Operational Trial Data**—◆ Dennis Sweitzer, Medidata Solutions

395 CC-258B **■ Missing Data Methods 1—Contributed**

Biopharmaceutical Section

Chair(s): Areti Manola, Janssen

- 2:05 p.m. **Sensitivity Analyses for Recurrent Event Data Trials Subject to Missing Data**—◆ Mouna Akacha, Novartis; Emmanuel Ogundimu, University of Oxford
- 2:20 p.m. **Multiple Imputation Using Gamma Meta-Regression for Missing Sample Variance Data in Meta-Analysis**—◆ Amit Kumar Chowdhry, University of Rochester Medical Center; Michael P. McDermott, University of Rochester Medical Center
- 2:35 p.m. **Tipping Point Sensitivity Analysis for Stress-Testing the Censored-at-Random Assumption in Survival Analysis**—◆ Bohdana Ratitch, InVentiv Health Clinical; Ilya Lipkovich, Quintiles; Michael O'Kelly, Quintiles
- 2:50 p.m. **Methods for Missing Data Handling in Randomized Clinical Trials with Non-Normal Endpoints with Application to a Phase III Rheumatoid Arthritis Clinical Trial**—◆ Chunpeng Fan, Sanofi; Donghui Zhang, Sanofi; Lynn Wei, Sanofi; Gary Koch, University of North Carolina at Chapel Hill
- 3:05 p.m. **Sensitivity Analyses for Clinical Trials with Missing Binary Outcomes**—◆ Michael O'Kelly, Quintiles
- 3:20 p.m. **Covariance Estimation of Favorable Proportion for Missing Dichotomous Data in a Multi-Visit Randomized Clinical Trial**—◆ Siying Li, University of North Carolina at Chapel Hill; Gary Koch, University of North Carolina at Chapel Hill
- 3:35 p.m. **Lost in Translation: Missing Data Theory and Practice**—◆ Melanie Bell, University of Arizona; Paul Hsu, University of Arizona; Mallorie Fiero, University of Arizona

396 CC-206B **■ Financial Time Series Modeling—Contributed**

Business and Economic Statistics Section

Chair(s): Daniel Graham, Imperial College London

- 2:05 p.m. **Point Processes with Coincidences and High-**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Frequency Finance—◆Victor Solo, University of New South Wales; Ahmed Pasha, University of New South Wales

2:20 p.m. **Estimating Multi-Factor Discretely Observed Vasicek Term Structure Models with Non-Gaussian Innovations**—◆Takayuki Shiohama, Tokyo University of Science

2:35 p.m. **Properties of Nonlinear Transformations of Non-Gaussian Linear Processes**—◆Yongli Sang; Hailin Sang, University of Mississippi

2:50 p.m. **Estimation and Prediction Under Asymmetric Loss**—◆Yvonne Zubovic, Indiana University-Purdue University Fort Wayne; Chand K. Chauhan, Indiana University-Purdue University Fort Wayne

3:05 p.m. **Distributional Assumptions and Estimation of Contingent Valuation Models**—◆James McDonald, Brigham Young University

3:20 p.m. **Forecasting Financial Volatility: An Exogenous Log-GARCH Model**—◆Ming Chen, University of Texas at Dallas; Qionxia Song, University of Texas at Dallas

3:35 p.m. **Floor Discussion**

397 CC-103 **■ Section for Statistical Programmers and Analysts Cpapers 1—Contributed**

Section for Statistical Programmers and Analysts

Chair(s): Jyoti Rayamajhi, Eli Lilly and Company

2:05 p.m. **glimplus: An R Package for Messy Longitudinal Data**—◆Ben Ogorek, Google; Caitlin Hogan, Google

2:20 p.m. **Evaluating the Power of Testing Mean Differences Using Glimmix and Mix Procedures**—◆Achut Adhikari, University of Northern Colorado; Robert Steiner, New Mexico State University

2:35 p.m. **Time to Recurrent Events in SAS**—◆Mathew Rosales, Experis

2:50 p.m. **Statistical Modeling of Extreme Values**—◆Deepak Sanjel, Minnesota State University; You-Gan Wang, University of Queensland

3:05 p.m. **Regression and Time Series Analyses**—◆Theresa Ngo, Warner Bros. Entertainment Group

3:20 p.m. **Give Me an Old Computer, a Blank DVD, and an Internet Connection and I'll Give You World-Class**

Analytics—◆Ty Henkaline,

3:35 p.m. **Floor Discussion**

398 CC-213 **■ Bayesian Inference in Science and Engineering—Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Shuguang Song, Boeing

2:05 p.m. **Dynamic Compositional Modeling of Pedestrian Crash Counts on Urban Roads in Connecticut**—◆Volodymyr Serhiyenko, University of Connecticut; John Ivan, University of Connecticut; Nalini Ravishanker, University of Connecticut; Md Saidul Islam, University of Connecticut

2:20 p.m. **Bayesian Hit-Miss Data Nondestructive Inspection Test Planning**—◆Yew-Meng Koh, Iowa State University of Science and Technology

2:35 p.m. **Bayesian Analysis of Computer Experiments with an Application in Cosmology**—◆Sivaranjani Vaidyanathan, Ohio State University; Mark Berliner, Ohio State University

2:50 p.m. **A Bayesian Approach for Signal Detection in Noisy Images**—◆Khalil Shafie, University of Northern Colorado; Mohammad Reza Farid Rouhani, Shahid Beheshti University

3:05 p.m. **Bayesian Estimation in Differential Equation Models**—◆Prithwish Bhaumik, North Carolina State University; Subhashis Ghosal, North Carolina State University

3:20 p.m. **Parameter Inference and Model Selection in Deterministic and Stochastic Dynamical Models via Approximate Bayesian Computation**—◆Libo Sun, Colorado State University; Chihoon Lee, Colorado State University; Jennifer A. Hoeting, Colorado State University

3:35 p.m. **Dynamic Priors in Estimating Incidence and Prevalence in Epidemics**—◆Anisha Pulinchani Melethil, Georgia Regents University; Arni S.R. Srinivasa Rao, Georgia Regents University

399 CC-157A **Economic Data: CPI, PPI, NCS—Contributed**

Government Statistics Section

Chair(s): Adam Safir, Bureau of Labor Statistics

2:05 p.m. **Keeping Price Indices Representative Despite**

Tuesday



Constant Market Changes Using Auxiliary Information in Index Estimation Formulae—

◆ Daniele Toninelli, University of Bergamo; Martin Beaulieu, Statistics Canada; Catalin Dochitoiu, Statistics Canada

- 2:20 p.m. **Simulated Statistics for the Proposed By-Division Design in Consumer Price Index—**◆ John Schilp, Bureau of Labor Statistics
- 2:35 p.m. **National Urban Consumer Price Index (CPI-Nu) of Argentina: General Features and Implementation—**Sebastian Gonzalez, INDEC; ◆ Pablo Ezequiel Faifman, INDEC; Norberto Damian Itzcovich, INDEC
- 2:50 p.m. **Hybrid Weights: Purposes, Advantages, and Disadvantages of Its Use in Price Indexes—**◆ Juan Pilorget, INDEC
- 3:05 p.m. **Analyzing the Sensitivity of PPI Industry Indexes to the Effects of Extreme Item Weight Values—**◆ Andy Sadler, Bureau of Labor Statistics
- 3:20 p.m. **Validation in the Occupational Requirements Survey: Analysis of Approaches—**◆ Kristin Smyth, Bureau of Labor Statistics
- 3:35 p.m. **Occupational Requirements Survey Sample Design Evaluation—**◆ Gwyn Ferguson, BLS; Erin McNulty, Bureau of Labor Statistics; Chester Ponikowski, Bureau of Labor Statistics

400 CC-208 Nonparametric Modeling—Contributed

Section on Nonparametric Statistics

Chair(s): Maarten Jansen, Universite Libre de Bruxelles

- 2:05 p.m. **Estimating Conditional Variance Functions Nonparametrically Using Asymmetric Least Squares—**◆ Yuwen Gu, University of Minnesota
- 2:20 p.m. **Nonparametric Information Criterion for Model-Assisted Survey Estimators—**◆ Addison James; Lan Xue, Oregon State University; Virginia Lesser, Oregon State University
- 2:35 p.m. **Composite Empirical Likelihood: A Derivation of Multiple Nonparametric Likelihoods—**◆ Adam Jaeger, University of Georgia; Nicole Lazar, University of Georgia
- 2:50 p.m. **A Kernel Machine Approach for Metabolomics—**◆ Xiang Zhan, Penn State; Debashis Ghosh, Penn State; Andrew Patterson, Penn State
- 3:05 p.m. **Nonparametric Estimation for Self-Exciting Point Processes: A Parsimonious Approach—**◆ Feng Chen, University of New South Wales; Peter Hall, University of Melbourne
- 3:20 p.m. **Improved Interval Estimation of Comparative Treatment Effects—**◆ Ryne VanKrevelen,
- 3:35 p.m. **Varying-Coefficient Single Index Model—**◆ Feiyang Niu, University of Virginia; Jianhui Zhou,

University of Virginia

401 CC-101 Monte Carlo Methods—Contributed

Section on Statistical Computing, Interface Foundation of North America

Chair(s): Joseph Rickert, Revolution Analytics

- 2:05 p.m. **A New Efficient MCMC Algorithm for Sampling Banana-Shaped Distributions Based on Coordinate Transformation—**◆ Xiaodan Fan, Chinese University of Hong Kong
- 2:20 p.m. **Efficient Estimation of the Convergence Rate of the Random-Scan Metropolis Algorithm—**◆ David Spade, University of Missouri-Kansas City
- 2:35 p.m. **Approximate Bayesian Computation for a Five-Parameter Bivariate Beta Model and Its Applications—**◆ Roberto Crackel; James Flegal, University of California, Riverside
- 2:50 p.m. **Bayesian Network Structure Learning: A Sequential Monte Carlo Approach—**◆ Kaixian Yu, Florida State University; Jinfeng Zhang, Florida State University
- 3:05 p.m. **On Single Variable Transformation Approach to Markov Chain Monte Carlo—**◆ Kushal Dey; Sourabh Bhattacharya, Indian Statistical Institute
- 3:20 p.m. **Simulated Likelihood for Heteroscedastic Gaussian Mixture Models—**◆ Monia Ranalli, University of Rome; Bruce G. Lindsay, Penn State
- 3:35 p.m. **A Characterization of Burr Type III and Type XII Distributions Through the Method of Percentiles—**◆ Mohan Pant, University of Texas at Arlington; Todd Christopher Headrick, Southern Illinois University at Carbondale

402 CC-104A Graph Theory Methods—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Bailey Fosdick, SAMSI

- 2:05 p.m. **Selecting a Non-Negative Factorization Model for Statistical Inference on Time Series of Graphs—**◆ Nam Lee; Youngser Park, Johns Hopkins University; Carey Priebe, Johns Hopkins University; Michael Rosen, Johns Hopkins University; I-Cheng Wang, Johns Hopkins University
- 2:20 p.m. **Latent Space Models for Dynamic Networks—**◆ Daniel Sewell, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 2:35 p.m. **Spectral Clustering in Heterogeneous Networks**—◆Srijan Sengupta, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign
- 2:50 p.m. **Spectral Bootstrapping for Networks**—◆Xinyu Kang, Boston University; Prakash Balachandran, Boston University; Eric Kolaczyk, Boston University
- 3:05 p.m. **Analysis of Multiview Legislative Networks with Structured Matrix Factorization: Does Twitter Influence Translate to the Real World?**—◆Shawn Mankad; George Michailidis, University of Michigan
- 3:20 p.m. **A Longitudinal Marginalized Random Graph Model**—◆James D. Wilson, University of North Carolina at Chapel Hill; Andrew B. Nobel, University of North Carolina at Chapel Hill; Shankar Bhamidi, University of North Carolina at Chapel Hill
- 3:35 p.m. **Seeded Graph Matching**—◆Vince Lyzinski, Johns Hopkins University

403 CC-204A Analytics, Attrition, and Words—Contributed

Section on Statistics in Marketing

Chair(s): Lynd Bacon, Loma Buena Assoc.

- 2:05 p.m. **Scalable Rejection Sampling for Bayesian Hierarchical Models**—◆Michael Braun, SMU Cox School of Business; Paul Damien, University of Texas at Austin
- 2:20 p.m. **Some Customers Rather Leave Without Saying Goodbye**—◆Eva Ascarza, Columbia Business School; Oded Netzer, Columbia Business School; Bruce G.S. Hardie, London Business School
- 2:35 p.m. **A Web-Based Marketing Data Analysis Application of Hierarchical Bayesian ANOVA**—◆Chen Dong, University of Maryland; Michel Wedel, Robert H. Smith School of Business
- 2:50 p.m. **Where Did My Customers Go? Modeling Longitudinal Changes in Customer Segment Solutions Using Latent Transition Analysis**—◆Jorge Alejandro, Market Probe; Sharon Kim, Market Probe
- 2:50 p.m. **Bayesian Co-Clustering of Consumer Data**—◆Ewa Nowakowska, GfK; Joseph Retzer, CMI Research
- 3:05 p.m. **GPCIV and GraphPCA: Two R Packages for PCA**

- of Complex Data—◆Brahim Brahim, Big Data Visualizations; Sun Makosso-Kallyth, Big Data Visualizations
- 3:20 p.m. **A 3-Stage Approach to Code-Frame Development for Open-Ended Survey Responses: Software Assisted, Person-Ware Refined, Statistically Evaluated**—◆Bernard L. Dugoni, NORC at the University of Chicago; Kevin Brown, NORC at the University of Chicago
- 3:35 p.m. **Floor Discussion**

404 CC-151A Contemporary Approaches to Modeling Weather and Climate—Contributed

Section on Statistics and the Environment

Chair(s): Kristin M. Broms, Colorado State University

- 2:05 p.m. **Predicting Historical Climate with a Reduced Rank Model with an Orthogonal Predictive Process**—◆John Tipton, Colorado State University; Mevin Hooten, Colorado State University
- 2:20 p.m. **A Fossil Pollen-Based Spatio-Temporal Reconstruction of the Paleoclimate**—◆Lasse Holmstrom, University of Oulu; Liisa Ilvonen, University of Oulu; Heikki Seppa, University of Helsinki; Siim Veski, Tallinn University of Technology
- 2:35 p.m. **Missing Data and Heat Island Effects**—◆Jessica Seeger, Candace Berrett, Brigham Young University
- 2:50 p.m. **Ensemble-Based Characterization of Uncertain Environmental Features**—◆Seyed Hamed Alemohammad, Massachusetts Institute of Technology; Dennis B. McLaughlin, MIT; Dara Entekhabi, Massachusetts Institute of Technology
- 3:05 p.m. **A Relative Probability Prediction Modeling of Carbon Dioxide in the Atmosphere by Climate Regions in the United States**—◆Doo Young Kim, University of South Florida; Bong-Jin Choi, University of South Florida; Chris P. Tsokos, University of South Florida
- 3:20 p.m. **Hierarchical Modeling of Spatial-Temporal Tropical Cyclone Occurrences with Application to Seasonal**



Cyclone Forecasting—◆ Marcela Alfaro-Córdoba, North Carolina State University; Montserrat Fuentes, North Carolina State University; Joe Guinness, North Carolina State University; Lian Xie, North Carolina State University

3:35 p.m. Floor Discussion

405 CC-157B Inference and Variance Estimation - 1—Contributed

Survey Research Methods Section, Government Statistics Section
Chair(s): Darryl Creel, RTI International

2:05 p.m. **Replication Variance Estimation for Balanced Sampling: An Application to the PIAAC Study**—◆ Jianzhu Li, Westat; Sixia Chen, Westat; Thomas Krenzke, Westat; Leyla Mohadjer, Westat

2:20 p.m. **Analysis of Interval-Censored Data Using Competing Risks Model and Multiple Imputation**—◆ Tiandong Li, Westat; Ulrike Luderer, University of California, Irvine

2:35 p.m. **Coverage Properties of Confidence Intervals for Proportions in Complex Surveys**—◆ Carolina Franco, U.S. Census Bureau; Roderick Little, University of Michigan; Thomas Louis, U.S. Census Bureau/Johns Hopkins University; Eric Slud, U.S. Census Bureau

2:50 p.m. **Empirical Likelihood Confidence Intervals Under the Rao-Hartley-Cochran Sampling Design**—◆ Yves Berger, University of Southampton

3:05 p.m. **Empirical Likelihood Confidence Intervals and Significance Test for Regression Parameters Under Complex Survey Sampling Designs**—◆ Melike Oгуz Alper, University of Southampton; Yves Berger, University of Southampton

3:20 p.m. **Semiparametric Estimation for Recurrent Event Data from Complex Survey Designs**—◆ Russell Stocker, Indiana University of Pennsylvania; Akim Adekpedjou, Missouri University of Science & Technology

3:35 p.m. **Predictive Ratio Matching Imputation of Nested Compositional Data with Semicontinuous Variables**—◆ Gerko Vink, Utrecht University; Jeroen Pannekoek, Statistics Netherlands; Stef Van Buuren, Utrecht University

406 CC-153A Sample Design - 2—Contributed

Survey Research Methods Section, Government Statistics Section
Chair(s): Jamie Ridenhour, RTI International

2:05 p.m. **Decomposing the Variance of Child Outcomes in Multistage Sample of Head Start Children**—◆ Barbara Carlson, Mathematica Policy Research; John Hall, Mathematica Policy Research

2:20 p.m. **PPS Subsampling from NHIS to MEPS: Effect on Precision of MEPS Estimates**—◆ Sadeq R. Chowdhury, AHRQ/DHHS; Robert Baskin, AHRQ, DHHS; Steven R. Machlin, AHRQ

2:35 p.m. **Hospital-Based Sampling: The Safe Experience**—◆ Brenda Cox, Social & Scientific Systems; Nicole Santomauro, Boston University; Jane Sheehan, Boston University; Dena Margoli, Boston University

2:50 p.m. **Toward an Optimum Allocation for the Survey of Doctorate Recipients**—◆ Yonghe Michael Yang, NORC at the University of Chicago; Wan-Ying Chang, NSF; Julia Batishev, NORC at the University of Chicago

3:05 p.m. **The Benefits of Sampling Clusters with Probability Proportional to Size in Cluster-Randomized Experiments**—◆ Michael Higgins,

3:20 p.m. **Multivariate Stratification for Competing Estimation Objectives**—◆ Stephanie Zimmer, Iowa State University; Zhengyuan Zhu, Iowa State University; Sarah Nusser, Iowa State University; Jae-Kwang Kim, Iowa State University

407 CC-254A Interesting Application of Complex Methods in the Fields of HIV, Aging, Asthma, and Oncology—Contributed

Section on Statistics in Epidemiology, Committee on Gay and Lesbian Concerns in Statistics

Chair(s): Huaqing Zhao, Temple University

2:05 p.m. **Measuring the Effect of HIV Behavioral Interventions: Individual Behavior Change Success vs. HIV Acquisition Risk**—◆ Lillian Lin, CDC; Craig B. Borkowf, CDC

2:20 p.m. **Estimating Biological Age Using Ensemble-Based Prediction Models in Genomic Data**—◆ Wendy Shih, University of California, Los Angeles; Steve Horvath, University of California, Los Angeles; Roel Ophoff, University of California, Los Angeles

2:35 p.m. **Clustering Random Coefficients of Piecewise Mixed Effects Model to Group Children with Differential Weight Gain Patterns Before and After Diagnosis of Asthma**—◆ Md Hossain, Nemours; H. Timothy Bunnell, Nemours; Jason E. Lang, Nemours; Tim Wysocki, Nemours; Thomas Shaffer, Nemours

2:50 p.m. **The Risk Prediction Model for Second Primary Malignancy in Head and Neck Cancer Patients**—

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

◆ Hui Zhao, MD Anderson Cancer Center; Wenyaw Chan, University of Texas Health Science Center at Houston; Xi Rong, University of Texas School of Public Health

- 3:05 p.m. **Relationships Between Prostate Cancer, BMI, and Alcohol**—◆ Negasi Beyene, CDC/NCHS; Peter Meyer, NCHS
- 3:20 p.m. **An Investigation of the Independence Assumption in Capture-Recapture Methods in Epidemiology**—◆ Patricia Humphrey, Georgia Southern University
- 3:35 p.m. **Empiric Demonstration of the Trend-in-Trend Study Design for Causal Inference**—◆ Xinyao Ji,

408 Forecasting and Inference—Contributed

CC-104C

Section on Statistical Learning and Data Mining

Chair(s): Golam Kibria, Florida International University

- 2:05 p.m. **Genotype Calling in Trisomic Samples**—◆ Yan Lin, University of Pittsburgh; Soo Yeon Cheong, University of Pittsburgh; Eleanor Feingold, University of Pittsburgh
- 2:20 p.m. **Assessing the Past, Present and Future of Aviation Fuel Efficiency**—◆ Nastaran Coleman, FAA/ANG-51
- 2:35 p.m. **Estimating Undirected Graphs Under Weak Assumptions**—◆ Mladen Kolar; Larry Wasserman, Carnegie Mellon; Alessandro Rinaldo, Carnegie Mellon
- 2:50 p.m. **Methods of Adjusting for Misclassification in Respondent-Driven Sampling**—◆ Isabelle Beaudry, University of Massachusetts, Amherst; Krista J. Gile, University of Massachusetts, Amherst
- 3:05 p.m. **Real-Time Traffic Forecasting in Urban Networks: Regime Switching Combinations of Space-Time Models**—◆ Yiannis Kamarianakis,
- 3:20 p.m. Floor Discussion

Speed Poster Presentations 2:00 p.m.—2:45 p.m.

409 CC-Exhibit Hall B2 Speed Session #5: Topics in Nonparametric and Biopharmaceutical

Statistics, Part 2—Contributed

Section on Nonparametric Statistics, Biopharmaceutical Section

Chair(s): Dominic Schuhmacher, University of Goettingen

- 1 **Inconsistency for Arm-Based Models in Network Meta-Analysis**—◆ Hong Zhao, University of Minnesota; James S. Hodges, University of Minnesota; Haijun Ma, Amgen; Qi Jiang, Amgen; Bradley P. Carlin, University of Minnesota
- 2 **Valid Inference with Dependent Samples**—◆ Suzanne Swann, GlaxoSmithKline
- 3 **Integrated Analysis of lncRNAs and MRNAs via mdSEM: A Two-Stage Modified SEM Approach**—◆ Hui Xie, Florida Hospital; Lauren Sparks, TRI-FH; Steven Smith, Florida Hospital; Adeline Divoux, Florida Hospital; Subramaniam Govindara, Sanford-Burnham Medical Research Institute; Natalie Stephens, Florida Hospital
- 4 **Modeling Nuclease Digestion Coupled High-Throughput Sequencing for Genome-Wide Characterization of RNA Structure**—◆ Chenchen Zou, JAX LAB for Genomic Medicine; Zhengqing Ouyang, JAX LAB for Genomic Medicine
- 5 **Statistical Interaction Term to Assess Treatment Effect in Biomarker Analysis**—◆ Dung-Tsa Chen, Moffitt Cancer Center & Research Institute; James J. Chen, NCTR/FDA; Ying-Lin Hsu, National Chung Hsing University, Taiwan; Po-Yu Huang, National Chung Hsing University, Taiwan
- 6 **Ensemble-Based Feature Selection for Bayesian Integration Models to Improve Biomarker Panel Identification**—◆ Bobbie-Jo Webb-Robertson, Pacific Northwest National Laboratory; Marian Rewers, University of Colorado; Qibin Zhang, Pacific Northwest National Laboratory; Katrina Waters, Pacific Northwest National Laboratory; Thomas Metz, Pacific Northwest National Laboratory
- 7 **The Utility of Extending Spectral Analysis Methods to Evaluate Group Differences in Circadian Rhythms from Longitudinal Pre-Clinical Studies That Exhibit Missingness by Design**—◆ Kenneth Wilkins, NIH
- 8 **Using Thresholding Difference-Based Estimators for Variable Selection**—◆ June Luo, Clemson University; Patrick Gerard, Clemson University
- 9 **Bandwidth Selection and Bias Correction for the Conditional Survival Estimator with Censored Survival Data**—◆ Chin-Tsang Chiang, National Taiwan University
- 10 **Determination of Structural Dimension and Estimation of Central Subspace with Censored Survival Data**—◆ Chih-Heng Chiu, National Taiwan University

Join Us

for ASA's 175th Anniversary Celebration!

When: Tuesday, August 5, 8:00 p.m.–9:30 p.m.

Where: CC-Ballroom

Enjoy hors d'oeuvres, champagne, and dessert while we pay tribute to the past 175 years and look forward to an energized future.

Top off the celebration by watching ASA's Got Talent, a statistically themed talent competition featuring your friends and colleagues.

Tickets required!

175 *years*



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 11 **Comparison of Power for GEE and Permutation Tests with Calculated Power Using the Design-Effect Method for a Group-Randomized Trial**—◆Ping Xu, Axio Research; Brian Leroux, University of Washington
- 12 **A Masking Index for Quantifying Hidden Glitches**—◆Ji Meng Loh, New Jersey Institute of Technology; Tamraparni Dasu, AT&T Labs Research; Laure Berti-Equille, Qatar Computing Research Institute
- 13 **Multiple Comparison Tests Applied to the Jonckheere-Terpstra Statistic for AUC Regression**—◆Amy Buros, Baylor University; Jack D. Tubbs, Baylor University
- 14 **Noise Estimation in High-Dimensional PCA**—◆Didier Chetelat, Cornell University
- 15 **Detecting Interactions in Supervised Ensemble Learning Algorithms**—◆Lucas Mentch, Cornell University; Giles Hooker, Cornell University
- 16 **A Nonparametric Approach for Detecting Differential Alternative Splicing in RNA-Seq Data**—◆Yang Shi, University of Michigan; Hui Jiang, University of Michigan
- 17 **Flexible Large Margin Classifiers: SVM, DWD, and Beyond**—◆Xingye Qiao, SUNY Binghamton University; Lingsong Zhang, Purdue University
- 18 **Novel Methods to Identify and Estimate Interactions via Random Forest**—◆Arturo Valdivia,
- 19 **Test Linearity Assumption in Generalized Linear Mixed-Effects Models Versus the Smooth Alternative**—◆Changming Xia, University of Rochester; Hua Liang, George Washington University

Topic-Contributed Poster Presentations

2:00 p.m.–3:50 p.m.

410 CC-Exhibit Hall B2

Topic-Contributed Poster Presentations: SPA Competition—Topic-Contributed

Scientific and Public Affairs Advisory Committee
Chair(s): Daniel McCaffrey, Educational Testing Service
 Health Policy Statistics Section

- 1 **Multiple Treatment Groups: A Case Study with Health Care Practice and Policy Implications**—◆Alexandra Hanlon, University of Pennsylvania; Karen Hirschman, University of Pennsylvania; Beth Ann Griffin, RAND

Corporation; Mary Naylor, University of Pennsylvania
 Section on Bayesian Statistical Science

- 2 **Bayesian Design and Data Analysis for an Ordinal Staging Score in Patients with Familial Adenomatous Polyposis**—◆Sijin Wen, West Virginia University; Jeffrey S. Morris, MD Anderson Cancer Center; Patrick M. Lynch, MD Anderson Cancer Center

Biopharmaceutical Section

- 3 **Optimal Normality Transformation Methods for the Analysis of Biomarkers**—◆Kelly Zou, Pfizer; Ching-Ray Yu, Pfizer; Martin O. Carlsson, Pfizer; Ye Tan, Pfizer
- 4 **A Comparison and Integration of Quantile Regression and Finite Mixture Modeling**—Richard Willke, Pfizer; ◆Ching-Ray Yu, Pfizer; Birol Emir, Pfizer; Kelly Zou, Pfizer; Javier Cabrera, Rutgers University
- 5 **Optimal Designs with Interim Analyzes for Phase II Studies with Long-Term Time-Specific Endpoints**—◆Bo Huang, Pfizer; Neal Thomas, Pfizer

IMS

- 6 **Describing High-Order Statistical Dependence Using 'Concurrence Topology' with Application to Functional MRI Brain Data**—◆Steven Ellis, NYSPI at Columbia University; Arno Klein, Sage Bionetworks

Biometrics Section

- 7 **Statistical and Computational Methods for Predicting Cancer Prognosis by Integrating Omics Data**—◆Lizhen Peng, Stony Brook University; Xuefeng Wang, Stony Brook University

Section on Statistics in Epidemiology

- 8 **Overall Exposure Effects Estimation for Tobit Regression Models**—◆Wei Wang, University of Mississippi Medical Center; Michael Griswold, University of Mississippi Medical Center

Section on Statistical Education

- 9 **How to Tell the Truth with Statistics: The Daily Change in the Dow, Is it Random?**—◆John L. Stedl, Chicago State University

Section on Physical and Engineering Sciences

- 10 **Spatiotemporal Analysis and Clustering of Wind Speeds**—◆Laura Tupper, Cornell University; David Scott Matteson, Cornell University

WNAR

- 11 **Single Index Methods for Estimation and Evaluation of Marker-Guided Treatment Rules Based on Multivariate Marker Panels**—◆Veronika Skrivankova, University of Washington; Patrick Heagerty, University of Washington

IMS

- 12 **Resilience of Power-Law Degree Distributions of Networks**—◆Yafei Wei, University of Pittsburgh; Satish Iyengar, University of Pittsburgh

Section on Statistics in Epidemiology

- 13 **The Importance of Local Area Ecologic and Individual-**

Tuesday



Level Risk Factor Interactions in Understanding Social Determinants of Health—◆ Kathryn A. Williams, Boston Children's Hospital/University of Ottawa; David N. Williams, Boston Children's Hospital/Harvard School of Medicine; Ian McDowell, University of Ottawa

Chair(s): Daniel S. Cooley, Colorado State University

18 A Comparison of Methods for Repeated Binary Outcome with Missing Data—◆ Hy Tran, University of Illinois at Chicago; Mike Gaffney, Pfizer; Ed Whalen, Pfizer; Ha Nguyen, Pfizer; Birol Emir, Pfizer

19 Performance of the Gail's Breast Cancer Risk Prediction Model Among Women Aged 75+—Mara A. Schonberg, Beth Israel Deaconess Medical Center; ◆ Vicky Li, Beth Israel Deaconess Medical Center; Heather Eliassen, Channing Division of Network Medicine; Long H. Ngo, Harvard Medical School

20 Fitting Marginal Models to Clustered Temporal Data with Informative Cluster Size and Informative Number of Temporal Observations—◆ Joseph Bible, University of Louisville; Somnath Datta, University of Louisville

21 Redundancy Control in Pathway Databases (RECIPA): An Open-Source Application for Improving Pathway Analysis of Large Genomic and Genetic Data Sets—◆ Juan Vivar, BBRI - NCCU

22 Identification and Analysis of Patient Community Patterns with K-Means Clustering Methodology—◆ Tingting Zhang, Press Ganey Associates; Jenhao Cheng, Press Ganey Associates; Wei-Han Chen, PRESSGANAY

23 Developing a Prognostic Model Using Multiple Imputation and Bootstrap in the Presence of Missing Data—◆ Lie Chen, Kaiser Permanente; Wansu Chen, Kaiser Permanente; Chun R. Chao, Kaiser Permanente; Lanfang Xu, Kaiser Permanente

Contributed Poster Presentations 2:00 p.m.–3:50 p.m.

411 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: International Chinese Statistical Association—Contributed

International Chinese Statistical Association

Chair(s): Daniel S. Cooley, Colorado State University

14 Spatial Analysis of Hotel Room Rate: Evidence from Star-Rated Hotels in Beijing—◆ Chuan Wang, University of Florida

15 Regression Diagnostics for Current Status Data Using the Odds-Rate Model—◆ Chi-Chung Wen,

412 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Korean International Statistical Society—Contributed

Korean International Statistical Society

Chair(s): Daniel S. Cooley, Colorado State University

16 Joint Multivariate Control Charts with Both the First Few and the Remaining Principal Components—◆ Sungim Lee, Dankook University; Johan Lim, Seoul National University

17 A Case Study on Normalizing Batch Effects on Microarrays—◆ Dongseok Choi, Oregon Health & Science University; William O. Cepurna, Oregon Health & Science University; John C. Morrison, Oregon Health & Science University; Elaine C. Johnson, Oregon Health & Science University; Stephen R. Planck, Oregon Health & Science University; James T. Rosenbaum, Oregon Health & Science University

413 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section for Statistical Programmers and Analysts—Contributed

Section for Statistical Programmers and Analysts

414 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Bayesian Statistical Science—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Daniel S. Cooley, Colorado State University

24 Asymptotic Properties of the Bayes and Pseudo-Bayes Estimators of Ability in Item Response Theory—◆ Haruhiko Ogasawara, Otaru University of Commerce

25 Predictive Posterior Power Estimation for Sample Determination—◆ Marc Sobel, Temple University; Ibrahim Turkoz, Janssen

26 Markov Chain Monte Carlo Implementation of Empirical Bayes and Likelihood Inference—◆ Yeonhee Park, University of Florida; Hani Doss, University of Florida

27 A Bayesian Approach to Modeling Correlated Measurement Errors—◆ Jennifer Weeding; Mark Greenwood, Montana State University

28 Bayesian Sample Size Determination for Informative and Complementary Hypotheses—◆ Kristen Tecson,

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Baylor University; John W. Seaman, Baylor University
- 29 **Eliciting Informative Priors for Bayesian Hurdle Models—**◆Joyce Cheng, Baylor University; David Kahle, Baylor University; John W. Seaman, Baylor University
- 30 **Probing Interactions in Multiple Regression: Frequentist Versus Bayesian Approaches—**◆Yu Liu, Arizona State University; Roy Levy, Arizona State University; Stephen G. West, Arizona State University
- 31 **Writing Error-Free MCMC Code—**◆Margaret Short, University of Alaska Fairbanks
- 32 **Model Misspecification and Improved Algorithms in Cases of Preferential Sampling in Population Dynamics—**◆Michael Karcher, University of Washington; Julia A. Palacios, Brown University; Trevor Bedford, Fred Hutchinson Cancer Research Center; Vladimir Minin, University of Washington
- 33 **Modified Continual Reassessment Method in Phase I Clinical Trials of Categorical and Numerical Response Models—**◆Ying Ji, University of Texas at San Antonio; Xiaobin Yang, Analytic Focus; Keying Ye, University of Texas at San Antonio
- 34 **Applications of Bregman Divergence Measures in Sparse High-Dimensional Problems—**◆Gyuhyeong Goh, University of Connecticut; Dipak Dey, University of Connecticut
- 35 **Modeling Multiple Types of Outcomes Using SAS® PROC MCMC—**◆Sitaram Vangala, University of California, Los Angeles; Li-Jung Liang, University of California, Los Angeles; Yih-Ing Hser, University of California, Los Angeles Integrated Substance Abuse Programs
- 36 **Case Studies Utilizing a Bayesian Informative Prior to Reduce Sample Size in Clinical Trials—**◆Julie Brevard, Quanticate
- 37 **A Bayesian Framework to Detect Differentially Methylated Loci in Both Mean and Variability with Next-Generation Sequencing—**◆Shuang Li, Varghese George, Georgia Regents University; Duchwan Ryu, Georgia Regents University; Xiaoling Wang, Georgia Regents University; Shaoyong Su, Georgia Regents University; Huidong Shi, Georgia Regents University; Robert H. Podolsky, Wayne State University; Hongyan Xu, Georgia Regents University
- 38 **A Bayesian Framework for Joint Analysis of Heterogeneous Data—**◆Esther Salazar, Duke University
- 39 **Bayesian and Frequentist Blinded Sample Size Adjustment for Risk Differences—**◆Andrew Hartley, PPD; Anita Moghe, PPD; Savanna Steele, PPD
- 40 **Performance of Constant Accrual Model and Alternatives on Clinical Data and Simulation—**◆Yu Jiang, University of Kansas Medical Center; Byron Gajewski, University of Kansas Medical Center; Steve Simon, P. Mean Consulting/University of Missouri-Kansas City; Matthew S. Mayo, Kansas University Medical Center
- 41 **An Analysis of Liver Transplant Waiting Times Addressing Ordinal and Missing Predictors—**◆Bradley Turnbull, North Carolina State University; Sujit Ghosh, North Carolina State University/NSF
- 415 **CC-Exhibit Hall B2**
Contributed Oral Poster Presentations: Section on Nonparametric Statistics—Contributed
 Section on Nonparametric Statistics
Chair(s): Daniel S. Cooley, Colorado State University
- 42 **The Probability Weighted Characteristic Function and Goodness-of-Fit Testing—**◆James Allison, North-West University; Simos Meintanis, Kapodistrian University of Athens; Jan Swanepoel, North-West University
- 43 **Functional Mixed Effects Model for Time-Dependent Spectral Analysis—**◆Shuangyan Xiong; Robert Krafty, Temple University
- 44 **A Test for Symmetry Based on the Probability Weighted Characteristic Function—**◆Leonard Santana, North-West University; James Allison, North-West University; Simos Meintanis, Kapodistrian University of Athens
- 45 **Ability Measure—**◆Nan L. Kong, Educational Testing Service
- 46 **A Class of Linearly Extrapolated Variance Estimators—**◆Shiwen Chen, Williams College; Qing Wang, Williams College
- 47 **Spline-Backfitted Kernel Forecasting for Functional-Coefficient Autoregressive Models—**◆Joshua Patrick, University of California, Davis
- 48 **Using Linear Approximations to Relate the Distributions of the Highest Order Statistics from Random Samples of Different Sizes—**◆Li Luo,
- 49 **Semiparametric Mixed-Model Analysis for Nonlinear Gene-Environment Interactions in Genome-Wide Association Studies—**◆Zijian Huang; Shujie Ma, University of California, Riverside
- 50 **Local Orthogonal Polynomial Expansions Method for Density Estimation—**◆Don Placida Amali Dassanayake,
- 51 **Minimax Risks for High-Dimensional Nonparametric Regression—**◆Yun Yang, Duke University; Surya Tokdar,



- Duke University
- 52 **A Semiparametric Model via Local Polynomial Smoothing for Unevenly Sampled Longitudinal Data**—◆ Lei Ye, University of Pittsburgh; Ada Youk, University of Pittsburgh; Susan Sereika, University of Pittsburgh; Stewart Anderson, University of Pittsburgh; Lora Burke, University of Pittsburgh
- 53 **New Insights into the Log-Rank and Gehan's Tests**—◆ Eric R. Siegel, University of Arkansas for Medical Sciences; Songthip T. Ounpraseuth, University of Arkansas for Medical Sciences; Ralph L. Kodell, University of Arkansas for Medical Sciences
- 54 **Oracally Efficient Spline Smoothing of Functional Coefficient Regression Models with Simultaneous Confidence Band**—◆ Weixin Cai, University of California, Davis; Prabir Burman, University of California, Davis; Joshua Patrick, University of California, Davis

- Chair(s): Daniel S. Cooley, Colorado State University*
- 61 **Stochastic Model of the 2012 PGA Tour Season**—◆ Erik Heiny, Utah Valley University
- 62 **A Study of Statistical Efficiency on the Effects of Non-Complaint Reporting from the Indirect Questioning Techniques: Random Response and Non-Random Response Models**—◆ Jay Schaffer, University of Northern Colorado; Caroline Emsermann, University of Northern Colorado
- 63 **A New Method for Determining the Fedex Cup Winner**—◆ Qinglin Pei, University of Florida; Samuel Wu, University of Florida; Johnny Wu, University of Florida; Huangang Jia, Center of Innovation for Disability and Rehabilitation Research
- 64 **NFL Overtime Rule Change: Kick the Field Goal or Go for It?**—◆ Zachary Hass; Bruce Craig, Purdue University; Sean McCabe, Purdue University

416 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Physical and Engineering Sciences—Contributed

Section on Physical and Engineering Sciences

Chair(s): Daniel S. Cooley, Colorado State University

- 55 **On Equivalence of Fractional Factorial Designs Based on Singular Value Decomposition**—◆ Tena Katsaounis, Ohio State University
- 56 **Do I Really Want to Replace My Seven-Year-Old Laptop?**—◆ Peng Liu, SAS Institute
- 57 **Application of Quaternion Series Expansion to the Estimation Problem**—◆ Rosa Fernandez Alcalá, University of Jaen; Jesus Navarro-Moreno, University of Jaen; Juan Carlos Ruiz-Molina, University of Jaen
- 58 **A Nonparametric Procedure for Comparing Methods to Estimate Particle Size Distribution**—◆ Scott Richter, University of North Carolina at Greensboro; Melinda McCann, Oklahoma State University
- 59 **Multivariate Gaussian Process Interpolators with Varying-Parameter Covariance: An Application to Pareto Front Estimation**—◆ Po-Hsu Chen, Ohio State University; Thomas J. Santner, Ohio State University; Angela Dean, University of Southampton
- 60 **Three-Dimensional Spatial Projections of Molecular Dynamics Simulation Data**—◆ Geoffrey Peterson, North Carolina State University

417 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Statistics in Sports— Contributed

Section on Statistics in Sports

418 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Teaching of Statistics in the Health Sciences—Contributed

Chair(s): Daniel S. Cooley, Colorado State University

Section on Teaching of Statistics in the Health Sciences

- 65 **Comparison of Integrative Clustering Methods for Determining Molecular Subtypes**—◆ Milan Bimali,
- 66 **Robust Regression: When Should We Use It?**—◆ Barbara R. Neas, University of Oklahoma Health Sciences Center; Hoang Nguyen, University of Oklahoma Health Sciences Center
- 67 **Using ROC Curves to Evaluate Diagnostic Tests: An Exercise in Teaching Through Replicating Research**—◆ Brianna Hitt,

419 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: SSC—Contributed

Chair(s): Daniel S. Cooley, Colorado State University

SSC

- 68 **Optimal Method in Multiple Regression with Structural Changes**—◆ SÈvÈrien Nkurunziza, University of Windsor; Fuqi Chen, University of Windsor
- 69 **Bootstrapping Improvement to Portmanteau Test in ARFIMA Model**—◆ Jinkun Xiao, University of Western Ontario; Aian McLeod, University of Western Ontario
- 70 **Could Nonresponse Be Biasing Trends of Health Estimates?**—◆ Beatrice Baribeau, Statistics Canada
- 71 **Reducing the Structure of Statistical Models for Probabilistic Record Linkage**—◆ Abel C. Dasyuva, Statistics Canada; Sanjoy Sinha, Carleton University



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Invited Sessions 4:00 p.m.–5:50 p.m.

420 CC-Ballroom East **Deming Lecture—Invited**

ASA, Deming Lectureship Committee, ENAR, IMS, International Chinese Statistical Association, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society, SSC, WNAR, Section on Physical and Engineering Sciences, Statistics Without Borders, Conference on Statistical Practice Steering Committee, Accreditation Committee

Chair(s): Marilyn M. Seastrom, NCES/U.S. Department of Education

4:05 p.m. **Red Beads and Profound Knowledge: Deming and Quality of Education—◆Sharon Lohr, Westat**

5:45 p.m. **Floor Discussion**

Invited Sessions 7:00 p.m.–8:00 p.m.

421 CC-Ballroom East **ASA President’s Address and Founders and Fellows Recognition—Invited**

ASA, ENAR, IMS, International Chinese Statistical Association, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society, SSC, WNAR, Statistics Without Borders, ASA 175th Anniversary Steering Committee, Accreditation Committee

Organizer(s): Nathaniel Schenker, ASA

7:00 p.m. **Why Your Involvement Matters—◆Nathaniel Schenker, ASA President**

Tuesday

WEDNESDAY, AUGUST 6

JSM Hours

7:00 a.m. - 6:00 p.m. CC-256

Speaker Management Room

7:30 a.m. - 4:30 p.m. CC-Southeast Lobby B2, Level 1

JSM Main Registration

7:30 a.m. - 6:00 p.m. CC-Southeast Lobby B2, Level 1

Cyber Center, Sponsored by IBM

7:30 a.m. - 4:30 p.m. CC-Southeast Lobby B2, Level 1

ASA Membership/Help Desk/Press Desk

8:00 a.m. - 2:30 p.m. CC-Exhibit Hall B2

Career Placement Service

9:00 a.m. - 2:30 p.m. CC-Exhibit Hall B2

American Statistical Association Booth #201

9:00 a.m. - 2:30 p.m. CC-Exhibit Hall B2

ASA Marketplace

9:00 a.m. - 2:30 p.m. CC-Exhibit Hall B2

EXPO 2014

9:00 a.m. - 6:00 p.m. CC-North Lobby

Boston Visitor Services Desk

2:30 p.m. - 9:00 p.m. CC-Exhibit Hall B2

Exhibitor Move Out

Committee/Business Meetings & Other Activities

7:00 a.m.–8:30 a.m. W-Frost Boardroom

175th Anniversary Steering Committee Breakfast Meeting

Chair(s): Christy Chuang-Stein, Pfizer

7:00 a.m.–8:30 a.m. W-Executive Board Room

Scientific and Public Affairs Advisory Committee Business Meeting

Chair(s): Mary Gray, American University

7:00 a.m.–8:30 a.m. W-Bulfinch

Statistical Analysis and Data Mining Editorial

Board Meeting

Organizer(s): David Madigan, Columbia University

7:00 a.m.–8:30 a.m. W-Hale

Quality and Productivity Section Strategic Planning Meeting

Chair(s): Diane Michelson, SAS Institute

8:00 a.m.–10:00 a.m. W-Otis Room

Diversity Mentoring Program (Closed)

Chair(s): Sydeaka Watson, University of Chicago

8:00 a.m.–4:00 p.m. W-Hancock

Beyond AP Statistics (BAPS) Workshop

Chair(s): Roxy Peck, Cal Poly, San Luis Obispo

8:00 a.m.–4:00 p.m. W-Webster

Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Day 2

Chair(s): Katherine Halvorsen, Smith College

8:30 a.m.–12:00 p.m. W-Adams

NISS/ASA/IMS Writing Workshop for Junior Researchers (Closed)

Chair(s): Keith Crank, Retired

10:00 a.m.–11:00 a.m. W-Frost Boardroom

Advisory Committee on Continuing Education Debriefing

Chair(s): John Gabrosek, Grand Valley State University

12:00 p.m.–2:00 p.m. W-Bulfinch

ENAR 2015 Spring Meeting Planning Committee Lunch

Organizer(s): DuBois Bowman, ENAR; Jose Pinheiro, ENAR

12:30 p.m.–2:00 p.m. W-Executive Board Room

Committee on Meetings Business Meeting

Chair(s): Xuming He, University of Michigan

12:30 p.m.–1:30 p.m. CC-Hall B2

Popcorn Break

Sponsored by Liberty Mutual

12:30 p.m.–2:00 p.m. W-Adams

NISS/ASA/IMS Writing Workshop for Junior Researchers (Closed)

Chair(s): Keith Crank, Retired



12:30 p.m.–2:00 p.m. W-Hale
Workgroup on Curriculum Guidelines for Undergrad Stat Programs (Closed)
Chair(s): Nicholas J. Horton, Amherst College

12:30 p.m.–2:00 p.m. W-Otis Room
Noether Committee Luncheon
Chair(s): Dennis Boos, North Carolina State University; Katherine Monti, Rho; Marilyn Seastrom, NCES/U.S. Department of Education; Pam Craven, ASA; Ron Wasserstein, ASA

12:30 p.m.–2:00 p.m. W-Frost Boardroom
Journal of Quantitative Analysis of Sports Editorial Meeting
Organizer(s): Jim Albert, Bowling Green State University

4:00 p.m.–8:00 p.m. W-Executive Boardroom
Adaptive Design Scientific Working Group
Organizer(s): Zoran Antonijevic,

5:30 p.m.–7:30 p.m. W-Bulfinch
Yale Biostatistics Alumni Reception

6:00 p.m.–7:00 p.m. W-Faneuil
PStat/GStat Reception
Chair(s): Lynn Palmer, ASA

6:00 p.m.–7:30 p.m. CC-154
Section on Statistical Education Business Meeting
Chair(s): Jim Albert, Bowling Green State University

6:00 p.m.–7:30 p.m. W-Ron's Suite
2014 JSM Program Committee/Committee on Meetings Appreciation Reception (By Invitation Only)
Chair(s): Meetings Amstat, ASA; TBD TBD,

6:00 p.m.–7:30 p.m. W-Hale
Statisticians Working on Complementary and Alternative Medicine (CAM) and Integrative Medicine Studies
Organizer(s): Laura Lee Johnson, NIH/NCCAM

6:00 p.m.–8:00 p.m. CC-157B
ICSA General Member Meeting
Organizer(s): Zhezhen Jin, Columbia University

6:00 p.m.–8:00 p.m. CC-157C
Survey Research Methods Business Meeting
Chair(s): Phillip Kott, RTI International

Professional Development (Fee Events)

CE_27T
Introduction to Data Mining with CART Classification and Regression Trees
 8:00 a.m.–9:45 a.m. W-Douglass
 ASA, Salford Systems
Instructor(s): Mikhail Golovnya, Salford Systems

CE_28T
Creating Statistical and Clinical Graphics in SAS® †
 8:00 a.m.–9:45 a.m. CC-154
 ASA, SAS
Instructor(s): Warren Kuhfeld, SAS Institute

CE_29T
Structural Equation Modeling Using Stata
 8:00 a.m.–9:45 a.m. W-Faneuil
 ASA, Stata
Instructor(s): Kristin MacDonald, StataCorp

CE_30T
Modern Dose Escalation Designs for Oncology in East®
 8:00 a.m.–9:45 a.m. W-Alcott
 ASA, Cytel Software Corporation
Instructor(s): Pantelis Vlachos, Carnegie Mellon; Charles Liu, Cytel

CE_31T
Introduction to Modern Regression Analysis Techniques: Linear, Logistic, Nonlinear, Regularized, GPS, LARS, Lasso, Elastic Net, and MARS
 10:00 a.m.–11:45 a.m. W-Douglass
 ASA, Salford Systems
Instructor(s): Mikhail Golovnya, Salford Systems

CE_32T
Model Selection Methods with Examples from SAS/STAT Software
 10:00 a.m.–11:45 a.m. CC-154
 ASA, SAS
Instructor(s): Funda Gunes, SAS Institute

CE_33T
Multilevel and Mixed Models in Stata
 10:00 a.m.–11:45 a.m. W-Faneuil
 ASA, Stata
Instructor(s): William Rising,

CE_34T
Designing Confirmatory Trials with Multiple Endpoints in East® 6.3
 10:00 a.m.–11:45 a.m. W-Alcott
 ASA, Cytel Software Corporation
Instructor(s): Cyrus Mehta, Cytel; Lingyun Liu, Cytel

CE_35T

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Evolution of Classification: From Logistic Regression and Decision Trees to Bagging/Boosting and Netlift Modeling: Case Study Examples Drawn from Direct Marketing and Biomedical Data Analysis

1:00 p.m.–2:45 a.m. W-Douglass
 ASA, Salford Systems
Instructor(s): Mikhail Golovnya, Salford Systems

CE_36T Current Methods in Survival Analysis Using SAS/STAT Software

1:00 p.m.–2:45 p.m. CC-154
 ASA, SAS
Instructor(s): Changbin Guo, SAS Institute

CE_37T Power and Sample-Size Analysis in Stata

1:00 p.m.–2:45 p.m. W-Faneuil
 ASA, Stata
Instructor(s): Yulia Marchenko, StataCorp

CE_47T Clinical Trial Simulation and Design Using the Facts Platform

1:00 p.m.–2:45 p.m. W-Alcott
 ASA, Berry Consultants
Instructor(s): Scott Berry, Berry Consultants; Ashish Sanil, Berry Consultants

CE_38T Applied Data Mining Analysis: A Step-by-Step Introduction Using Real-World Data Sets

3:00 p.m.–4:45 p.m. W-Douglass
 ASA, Salford Systems
Instructor(s): Mikhail Golovnya, Salford Systems

CE_39T Power and Sample Size Computations

3:00 p.m.–4:45 p.m. CC-154
 ASA, SAS
Instructor(s): John Castelloe, SAS Institute

CE_40T Multiple Imputation Using Stata

3:00 p.m.–4:45 p.m. W-Faneuil
 ASA, Stata
Instructor(s): Yulia Marchenko, StataCorp

Roundtables with Coffee 7:00 a.m.–8:15 a.m.

422 CC-Ballroom West Biopharmaceutical Section A.M. Roundtable Discussion (Fee Event)

Biopharmaceutical Section
Organizer(s): Gary Aras, Amgen
WLo1 Vaccine Effectiveness Studies: Designs and Challenges—◆Lihan Yan, FDA

423 CC-Ballroom West Mental Health Statistics Section A.M. Roundtable Discussion (Fee Event)

Mental Health Statistics Section
Organizer(s): Nicholas J. Horton, Amherst College
WLo2 Single-Patient (N-Of-1) Trial: a Pragmatic Clinical Decision Methodology for Patient-Centered Comparative Effectiveness Research—◆Naihua Duan, Columbia University

424 CC-Ballroom West Section on Statistical Education A.M. Roundtable Discussion (Fee Event)

Section on Statistical Education
Organizer(s): Erin Blankenship, University of Nebraska-Lincoln
WLo3 What to Do in Stat II?—◆Robin Lock, St. Lawrence University
WLo4 Moving SAS Online—Lynette M. Smith, University of Nebraska Medical Center; ◆Elizabeth R. Lyden, University of Nebraska Medical Center; Kendra Schmid, University of Nebraska Medical Center



425 **CC-Ballroom West**
Section on Statistics in Epidemiology
A.M. Roundtable Discussion (Fee Event)

Section on Statistics in Epidemiology

Organizer(s): *Haitao Chu, University of Minnesota*

WLo5 **Analyzing Data from Older Study Samples: What Should the Toolkit of a Gerontologic Biostatistician Include?**—◆ Peter Van Ness, Yale School of Medicine

426 **CC-Ballroom West**
Survey Research Methods Section A.M. Roundtable Discussion (Fee Event)

Survey Research Methods Section

Organizer(s): *Daniell Toth, Bureau of Labor Statistics*

WLo6 **Valid Analytic Properties and Disclosure Limitation for Microdata**—◆ William Winkler, U.S. Census Bureau

Special Presentation 8:30 a.m.–10:20 a.m.

427 **CC-258C**
Introductory Overview Lecture: Privacy and Big Data—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, Section on Physical and Engineering Sciences, Statistics Without Borders, Conference on Statistical Practice Steering Committee, Committee on Professional Ethics

Organizer(s): *Julia Lane, American Institutes for Research*

Chair(s): *Mike Holland, New York University*

8:35 a.m. **Privacy, Big Data, and the Public Good: Frameworks for Engagement**—◆ Julia Lane, American Institutes for Research; Victoria Stodden, Columbia University; Stefan Bender, Institut für Arbeitsmarkt- und Berufsforschung (IAB); Helen Nissenbaum, New York University

10:05 a.m. **Floor Discussion**

Invited Sessions 8:30 a.m.–10:20 a.m.

428 **CC-104B**
Ethical and Policy Issues in the Statistical Use of Big Data—Invited

Committee on Professional Ethics, Scientific and Public Affairs Advisory Committee

Organizer(s): *Howard Hogan, U.S. Census Bureau*

Chair(s): *Howard Hogan, U.S. Census Bureau*

8:35 a.m. **Ethical Issues in Getting It Right: Using Big Data to Determine Medical Treatment**—◆ John J. Crowley, Cancer Research and Biostatistics

8:55 a.m. **Assessing the Ethical Implications of Big Data Sets**—◆ Kirsten Martin, George Washington University

9:15 a.m. **The Legal and Regulatory Framework for the Analysis of Big Data**—◆ Paul Ohm, University of Colorado Law School

9:35 a.m. **Ethical Issues in the Collection and Use of Consumer and Social Data**—◆ Richard D. De Veaux, Williams College

9:55 a.m. **Disc: Kathleen Styles, U.S. Department of Education**

10:15 a.m. **Floor Discussion**

429 **CC-260**
Statistical Planning of an Adaptive Design in Early Phase Trials—Invited

Biopharmaceutical Section

Organizer(s): *Bo Huang, Pfizer*

Chair(s): *Bo Huang, Pfizer*

8:35 a.m. **Simple Benchmark for Planning and Evaluating Complex Dose-Finding Designs**—◆ Ken Cheung, Columbia University

9:00 a.m. **Improvements in Early Phase Innovative Designs Following Sound Regulatory Science**—◆ Sue Jane Wang, FDA

9:25 a.m. **Model-Based Approaches to Improve Adaptive Designs in Early Clinical Development**—◆ Jose C. Pinheiro, Janssen

9:50 a.m. **Seamless Adaptive Designs in Early Phase Drug Development**—◆ Vlad Dragalin, Aptiv Solutions

10:15 a.m. **Floor Discussion**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

430 **CC-157C**
■ ● The Impact of Statistical Consulting Laboratories: Past, Present, and Future—Invited

Section on Statistical Consulting, International Chinese Statistical Association, Statistics Without Borders, ASA 175th Anniversary Steering Committee, Committee on ASA Archives and Historical Materials

Organizer(s): Eric Vance, LISA-Virginia Tech

Chair(s): James Rosenberger, Penn State

- 8:35 a.m. **Measuring the Impact of an Academic Statistical Consulting Center**—◆ Kim Love-Myers, University of Georgia
- 8:55 a.m. **Being Impactful from a Business Perspective: The OSU Statistical Consulting Service**—◆ Christopher H. Holloman, Ohio State University
- 9:15 a.m. **The Impact of Computing on the Transition from Consulting to Collaboration: A Historical Perspective**—◆ George P. McCabe, Purdue University
- 9:35 a.m. **LISA 2020: How Stat Labs Can Make an Impact Now and in the Future**—◆ Eric Vance, LISA-Virginia Tech
- 9:55 a.m. **Floor Discussion**

431 **CC-105**
■ ● Statistical Challenges in Big Imaging Data Analysis—Invited

SSC, Section on Statistical Computing, Section on Statistics in Imaging

Organizer(s): Jian Kang, Emory University

Chair(s): Linglong Kong, University of Alberta

- 8:35 a.m. **Computationally Efficient Estimation and Inference Methods for Hierarchical ICA of fMRI Data**—◆ Ying Guo, Emory University; Ran Shi, Emory University
- 8:55 a.m. **Efficient Dimension Reduction of a Group of High-Dimension Imaging Data**—◆ Haipeng Shen, University of North Carolina at Chapel Hill
- 9:15 a.m. **Evaluating Dynamic Correlations in fMRI**—◆ Martin Lindquist, Johns Hopkins Bloomberg School of Public Health
- 9:35 a.m. **Estimation of the Error Correlation Matrix in Semiparametric Models for Brain fMRI Data**—◆ Chunming Zhang, University of Wisconsin-Madison; Xiao Guo, University of Wisconsin-Madison

- 9:55 a.m. **Disc: Hernando Ombao, University of California, Irvine**
- 10:15 a.m. **Floor Discussion**

432 **CC-157A**
Bayesian Regression: Paradoxes and Priors—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Steven N. MacEachern, Ohio State University

Chair(s): Steven N. MacEachern, Ohio State University

- 8:35 a.m. **Implications of Uniformly Most Powerful Bayesian Tests for the Reproducibility of Scientific Research**—◆ Valen Johnson, Texas A&M; Scott D. Goddard, Texas A&M
- 9:00 a.m. **The Ubiquity of Information Inconsistency in Testing and Model Selection**—◆ James O. Berger, Duke University; M. J. Bayarri, University of Valencia; Joris Mulder, Tilburg University
- 9:25 a.m. **From a Conditional Lindley's Paradox to Poly-Hyper-G Priors**—◆ Christopher Hans, Ohio State University; Agniva Som, Ohio State University; Steven N. MacEachern, Ohio State University
- 9:50 a.m. **Hierarchical Sparsity Priors for Regression Models**—◆ Jim Griffin, University of Kent; Phil Brown, University of Kent
- 10:15 a.m. **Floor Discussion**

433 **CC-206A**
Big Data in Astro-Statistics—Invited

Section on Statistical Learning and Data Mining, Interface Foundation of North America, Section on Physical and Engineering Sciences

Organizer(s): Thomas C.M. Lee, University of California, Davis

Chair(s): David van Dyk, Imperial College London

- 8:35 a.m. **Detecting Thermal Features in Massive Streams of Solar Images**—◆ Nathan M. Stein, University of Pennsylvania
- 9:00 a.m. **Fast Wiener Filtering and the Bayesian Lensing Challenge**—◆ Ethan Anderes, University of California, Davis
- 9:25 a.m. **Mining Solar Big Data with the Flare Detective**—◆ Henry "Trae" Winter III, Harvard
- 9:50 a.m. **Statistics with Large Astronomical Data Sets**—◆ Alex Szalay, Johns Hopkins University
- 10:15 a.m. **Floor Discussion**

434 **CC-156B**

Wednesday



● Advances in Model Selection—Invited

IMS

Organizer(s): Veronika Rockova, Wharton School

Chair(s): Veronika Rockova, Wharton School

- 8:35 a.m. **Valid Inference After Selecting Predictors and Variable Transformations**—◆Andreas Buja, Wharton School; Lawrence Brown, Wharton School; Linda Zhao, Wharton School; Richard Berk, University of Pennsylvania; Edward George, Wharton School
- 9:00 a.m. **Particle Bayes**—◆Nicholas Polson, Booth School of Business
- 9:25 a.m. **Automated Variable Selection for ABC Algorithms**—◆Christian P. Robert, Université Paris-Dauphine
- 9:50 a.m. **Spike and Slab Variable Selection via EMVS**—Veronika Rockova, Wharton School; ◆Edward George, Wharton School
- 10:15 a.m. **Floor Discussion**

435 CC-156C New Frontiers of Longitudinal Data Analysis—Invited

Korean International Statistical Society

Organizer(s): Mi-Ok Kim, Cincinnati Children's Hospital Medical Center

Chair(s): Mi-Ok Kim, Cincinnati Children's Hospital Medical Center

- 8:35 a.m. **Subgroup Identification for Longitudinal Data with Unspecified Random Effects**—◆Hyunkeun Cho, Western Michigan University; Annie Qu, University of Illinois at Urbana-Champaign; Peng Wang, Bowling Green State University
- 9:00 a.m. **Disease Progression Monitoring: Bayesian Joint Modeling of Latent Time Series Measures of Longitudinal Data and Time-to-Event Outcomes**—Mi-Ok Kim, Cincinnati Children's Hospital Medical Center; ◆Sungduk Kim, NIH/NICHD
- 9:25 a.m. **Generalized Quasi-Likelihood Ratio Tests for Semiparametric Analysis of Covariance Models in Longitudinal Data**—◆Yehua Li, Iowa State University; Jin Tang, University of Georgia; Yongtao Guan, University of Miami
- 9:50 a.m. **Local Feature Selection in Varying Coefficient Models for Longitudinal Data**—◆Lan Xue, Oregon State University; Xinxin Shu, University of Illinois at Urbana-Champaign; Peibei Shi, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign
- 10:15 a.m. **Floor Discussion**

436

CC-103

■ ● Recent Advances in Causal Inference Methods for Health Policy and Services Research—Invited

Health Policy Statistics Section, Statistics Without Borders

Organizer(s): Roe Gutman, Brown University

Chair(s): Cassandra Pattanayak, Wellesley College

- 8:35 a.m. **Measurement Error in HIV Research**—◆Erica Moodie, McGill University; Nema Dean, University of Glasgow
- 9:00 a.m. **Aporetic Conclusions When Testing the Validity of an Instrumental Variable**—◆Dylan Small, University of Pennsylvania; Fan Yang, Wharton School; Jose Zubizarreta, Columbia University; Scott Lorch, Children's Hospital of Philadelphia; Paul R. Rosenbaum, Wharton School
- 9:25 a.m. **Extending Difference-in-Difference to Analyze Changes in Bed-Hold Policy for Nursing Homes**—◆Roe Gutman, Brown University; Orna Intrator, University of Rochester; Anthony Lancaster, Brown University; Chenyang Gu, Brown University
- 9:50 a.m. **Disc:** Donald B. Rubin, Harvard
- 10:15 a.m. **Floor Discussion**

437

CC-152

■ ● Adaptive Survey Designs: Reflecting on the Past, Describing the Present, and Considering the Possibilities of the Future—Invited

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders

Organizer(s): John M. Finamore, NSF

Chair(s): John M. Finamore, NSF

- 8:35 a.m. **An Overview of Adaptive Survey Design**—◆Peter V. Miller, U.S. Census Bureau
- 8:55 a.m. **Adaptive Mixed-Mode Survey Designs Accounting for Mode Effects**—◆Johannis Schouten, Statistics Netherlands
- 9:15 a.m. **Limiting the Risk of Nonresponse Bias by Using Regression Diagnostics as a Guide to Data Collection**—◆James Wagner, University of

- Michigan
- 9:35 a.m. **Examining the Impact of Data Collection Interventions on Data Quality, Cost, and the Risk of Nonresponse Bias**—◆ Benjamin M. Reist, U.S. Census Bureau; Stephanie M. Coffey, U.S. Census Bureau
- 9:55 a.m. Disc: Mick Couper, University of Michigan
- 10:15 a.m. **Floor Discussion**

Invited Panels 8:30 a.m.–10:20 a.m.

438 CC-212

■ Statistics on Ice: Advances in Methods for the Analysis of Ice Hockey—Invited

Section on Statistics in Sports

Organizer(s): Andrew C. Thomas, Carnegie Mellon

Chair(s): Andrew C. Thomas, Carnegie Mellon

- Panelists:** ◆ Michael Schuckers, St. Lawrence University
 ◆ Brian Macdonald, United States Military Academy
 ◆ Samuel Ventura, Carnegie Mellon
 ◆ Kevin Mongeon, Brock University

10:15 a.m. **Floor Discussion**

439 CC-102A

■ Negotiating in Statistical Careers—Invited

Joint Committee on Women in the Mathematical Sciences, IMS, Caucus for Women in Statistics, Committee on Women in Statistics, Committee on Career Development, Committee on Applied Statisticians, Isolated Statisticians, Statistics Without Borders, International Indian Statistical Association, Conference on Statistical Practice Steering Committee

Organizer(s): Janet Buckingham, Southwest Research Institute; Amber Puha, California State University, San Marcos; Paula Roberson, University of Arkansas for Medical Sciences; Jane Ling Wang, University of California, Davis

Chair(s): Paula Roberson, University of Arkansas for Medical Sciences

- Panelists:** ◆ Nandini Kannan, University of Texas at San Antonio
 ◆ David Madigan, Columbia University
 ◆ Nancy Reid, University of Toronto
 ◆ Kelly Zou, Pfizer

10:15 a.m. **Floor Discussion**

Topic-Contributed Sessions 8:30 a.m.–10:20 a.m.

440 CC-211

● Experimental Design and Statistical Analysis for Deep Sequencing Studies: Challenges and Methods—Topic-Contributed

ENAR, WNAR

Organizer(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

Chair(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

8:35 a.m. **Robust Adjustment of Sequence Tag Abundance in Next-Generation Sequencing Data**—◆ Rebecca Doerge, Purdue University; Douglas Baumann, University of Wisconsin-LaCrosse

8:55 a.m. **Quantifying Allele-Specific Gene Expression Using Personalized Genomes**—◆ Narayanan Raghupathy, Jackson Laboratory; Kwangbom Choi, Jackson Laboratory; Steven C. Munger, Jackson Laboratory; Gary Churchill, Jackson Laboratory

9:15 a.m. **Ballgown: A General Statistical Framework for Transcript Assemblies**—◆ Alyssa Frazee; Steven Salzberg, Johns Hopkins University School of Medicine; Geo Pertea, Johns Hopkins University School of Medicine; Jeff Leek, Johns Hopkins Bloomberg School of Public Health

9:35 a.m. **Robust Statistics for Rare Genetic Variant Association Studies**—◆ Paul Auer, University of Wisconsin-Milwaukee

9:55 a.m. **Efficient Study Design for Next-Generation Sequencing**—◆ Joshua Sampson, National Cancer Institute; Nilanjan Chatterjee, NCI

10:15 a.m. **Floor Discussion**

441 CC-151B

■ ● Analysis of Longitudinal Studies with Functional and Imaging Data—Topic-Contributed

Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Organizer(s): Russell Shinohara, University of Pennsylvania

Chair(s): Ani Eloyan, Johns Hopkins University



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- 8:35 a.m. **Parsimonious Spatiotemporal Modeling Through Matrix Decompositions**—◆ Russell Shinohara, University of Pennsylvania; Simon Vandekar, University of Pennsylvania; Ted Satterthwaite, University of Pennsylvania
- 8:55 a.m. **A Machine Learning Analysis of the Progression of Alzheimer's Disease Using the Alzheimer's Disease Neuroimaging Initiative Data Set**—◆ Bruno Jedynak, Johns Hopkins University
- 9:15 a.m. **Quantitative Assessment of Treatment Effects in Psoriasis Using FDG-PET/CT**—◆ Daniel Shin, University of Pennsylvania; Russell Shinohara, University of Pennsylvania; Joel Gelfand, University of Pennsylvania; Abass Alavi, University of Pennsylvania; Ali Salavati, University of Pennsylvania
- 9:35 a.m. **Varying-Smoother Models for Brain Development**—◆ Philip T. Reiss, New York University School of Medicine; Lei Huang, Johns Hopkins University; Huaihou Chen, New York University; Stan Colcombe, Nathan Kline Institute
- 9:55 a.m. **Normalized Cardiac MRI Summaries to Enable Inter-Patient and Longitudinal Intra-Patient Comparison**—◆ Vadim Zipunnikov, Johns Hopkins University
- 10:15 a.m. **Floor Discussion**

Advances in Statistical Approaches to Modeling Risk in the Insurance and Banking Industries—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Mahesh V. Joshi, SAS Institute

Chair(s): Mark Little, SAS Institute

- 8:35 a.m. **An Alternative to GLM for Including Covariates in Loss Models with Application to Operational Risk Modeling**—◆ Steven Major, SAS Institute; Jacques Rioux, SAS Institute
- 8:55 a.m. **A Mixture Model Approach to Operational Risk Management**—◆ X. Sheldon Lin, University of Toronto
- 9:15 a.m. **Finite Mixed Erlang Distribution: Moment-Based Approximation and Loss Modeling with Actuarial Applications**—◆ H el ene Cossette, Universit e Laval; Etienne Marceau, Universit e Laval; David Landriault, University of Waterloo; Khouzeima Moutanabbir, American University in Cairo
- 9:35 a.m. **A Forecast-Based Approach to Economic Capital Models in the Insurance Industry**—◆ Alan Kessler, State Farm Insurance; Scott Farris, State Farm Insurance
- 9:55 a.m. **Harnessing Big Data and High-Performance Computing Architecture for Loss Scenario Analysis**—◆ Mahesh V. Joshi, SAS Institute

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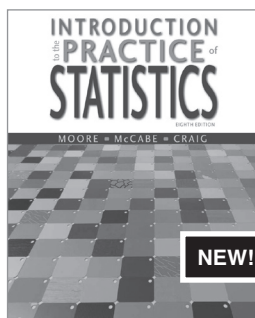
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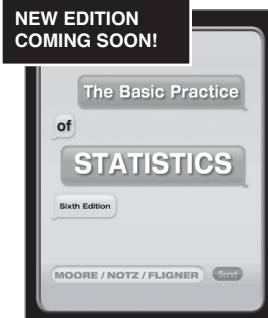
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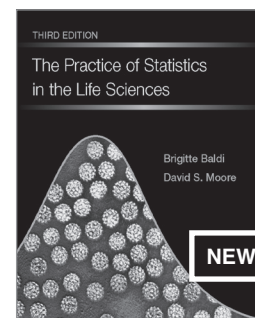
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10:15 a.m. Floor Discussion

443 **CC-258A**
■ Sequential Monitoring in Late-Stage Clinical Trials—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Guohui Liu, Takeda

Chair(s): Jianchang Lin, Takeda

8:35 a.m. Sequential Monitoring of Adaptive Randomized Clinical Trials—◆ Hongjian Zhu, University of Texas School of Public Health

8:55 a.m. Practical Issues in Reviewing Confirmatory Trials with Sequential Design—◆ Yun Wang, FDA; Rajeshwari Sridhara, FDA

9:15 a.m. Clinical Trial Stopping Rules in the Context of Conservative Regulatory Guidance—◆ Keaven Anderson, Merck

9:35 a.m. Sequential and Adaptive RCT Designs with Time-to-Event Endpoints—◆ Scott Emerson, University of Washington

9:55 a.m. Disc: Qing Liu, Johnson & Johnson

10:15 a.m. Floor Discussion

444 **CC-206B**
● Toward a Unified Approach for Designing and Developing Software for Mixed-Effects Models: Challenges and Opportunities—Topic-Contributed

Section on Statistical Computing

Organizer(s): Andrzej Galecki, University of Michigan

Chair(s): Andrzej Galecki, University of Michigan

8:35 a.m. Software for Fitting Mixed-Effects Models to Complex Sample Survey Data: Current State-Of-The-Art and Future Directions—◆ Brady T. West, Institute for Social Research, University of Michigan

8:55 a.m. Improved Estimation and Inference in the Generalized Linear Mixed Model with Firth Estimates—◆ Christopher Gotwalt, SAS Institute; Elizabeth Claassen, University of Nebraska; Walt Stroup, University of Nebraska-Lincoln

9:15 a.m. Mixed Models Through the Lens of HGLM: Applications and Grand Challenges—◆ Xia Shen,

Swedish University of Agricultural Sciences; Lars Rönnegård, Dalarna University; Moudud Alam, Dalarna University

9:35 a.m. Challenges and Opportunities in the Development of the Latent Gold Program—◆ Jay Magidson, Statistical Innovations; Jeroen K. Vermunt, Tilburg University

9:55 a.m. Disc: Tomasz Burzykowski, Hasselt University

10:15 a.m. Floor Discussion

445 **CC-104A**
■ Recent Advances in Statistics on a Spherical Domain—Topic-Contributed

Section on Statistics and the Environment

Organizer(s): Stefano Castruccio, KAUST

Chair(s): Ying Sun, Ohio State University

8:35 a.m. Matern-Based Nonstationary Cross-Covariance Models for Global Processes—◆ Mikyoung Jun, Texas A&M

8:55 a.m. Emulation of Global 3D Spatio-Temporal Temperature: A Distributed Computing Approach to Model One Billion Data Points—◆ Stefano Castruccio, KAUST; Marc G. Genton, King Abdullah University of Science and Technology

9:15 a.m. Modeling Nonstationary Covariance Function with Convolution on Sphere—◆ Zhengyuan Zhu, Iowa State University; Yang Li, University of Minnesota, Duluth

9:35 a.m. Spatial Processes on the Sphere Using Kernel Convolutions—◆ Candace Berrett, Brigham Young University; Matthew Heaton, Brigham Young University; Matthias Katzfuss, Texas A&M; Douglas Nychka, NCAR

9:55 a.m. Disc: Ephraim Hanks, Penn State

10:15 a.m. Floor Discussion

446 **CC-203**
■ Novel Contexts for SPC Methodology and Applications—Topic-Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Daniel Jeske, University of California, Riverside

Chair(s): Ming Li, REANCON.COM

8:35 a.m. Statistical Process Control for Reliability Assurance of Devices in Long Term Storage—◆ Alix Robertson, Sandia National Laboratories

8:55 a.m. Spc Methods for Non-Stationary Correlated Count Data with Applications to Network Surveillance—



- ◆ Daniel Jeske, University of California, Riverside; Yingzhuo Fu, MarketResearch
- 9:15 a.m. **A Robust Phase I Ewma Chart for Dispersion—**
◆ Ronald Does, University of Amsterdam; Inez Zwetsloot, University of Amsterdam; Marit Schoonhoven, University of Amsterdam
- 9:35 a.m. **Quality Control Charts for Generalized Exponential Lifetime Percentiles—**◆ Trenton Brown; Yuhlong Lio, University of South Dakota; Nan Jiang, University of South Dakota
- 9:55 a.m. Disc: Ron Fricker, Post Naval Graduate School
- 10:15 a.m. **Floor Discussion**

447 **CC-258B**
■ Recent Developments in the Design and Analysis of Cluster Randomized Trials—Topic-Contributed
 Biometrics Section
Organizer(s): Michael Pennell, Ohio State University
Chair(s): Michael Pennell, Ohio State University

- 8:35 a.m. **Correlation Selection for Cluster Randomized Trials—**◆ Philip Westgate, University of Kentucky
- 8:55 a.m. **Sample Size Considerations in the Design of Cluster Randomized Trials of Combination Hiv Prevention—**
◆ Rui Wang, Brigham & Women's Hospital; Ravi Goyal, Harvard School of Public Health ; Quanhong Lei, Harvard School of Public Health ; M. Essex, Harvard School of Public Health ; Victor DeGruttola, Harvard School of Public Health
- 9:15 a.m. **Mediation in Cluster Randomized Trials: Insights from Modern Causal Inference vs. Traditional Approaches—**◆ Elizabeth Turner, Duke University; Matthew Jukes, Room To Read; Elizabeth Adelman, Harvard Graduate School of Education; Margaret Dubeck, University of Virginia
- 9:35 a.m. **Bayesian Methods for Modeling Nonignorably Missing Data in Cluster Randomized Trials with Binary Outcomes—**◆ Catherine Crespi, University of California, Los Angeles
- 9:55 a.m. **Interim Monitoring of Cluster Randomized Trials: Benefits and Challenges—**◆ Abigail Shoben, Ohio State University; Siobhan Brown, University of Washington
- 10:15 a.m. **Floor Discussion**

448 **CC-153B**
■ Data Analytics in Business and Education—Topic-Contributed Panel

Section on Statistical Education, Statistics in Business Schools Interest Group, Statistics Without Borders
Organizer(s): Milo Schield, Augsburg College
Chair(s): Robert Carver, Stonehill College

- 8:30 a.m. **Data Analytics in Business and Education —**◆ Victor Lo, Fidelity; Dan Coyle, ProQuest; Dan Katz, RepEquity; Shaju Puthessery, DentaQuest
- 12:15 p.m. **Floor Discussion**

449 **CC-153A**
■ Latent Variable Models: Inference and Testing—Topic-Contributed

Social Statistics Section
Organizer(s): Mark Reiser, Arizona State University
Chair(s): Elena A. Eroshva, University of Washington

- 8:35 a.m. **Composite Likelihood Estimation and Testing for Structural Equation Modeling—**◆ Irimi Moustaki, London School of Economics; Myrsini Katsikatsou, London School of Economics
- 8:55 a.m. **Shared Versus Specific Effects of Treatment on Multiple Outcomes in Clinical Trials Using Latent Variable Modeling—**◆ Melanie Wall,
- 9:15 a.m. **Asymptotic and Finite Sample Bias Correction via Resampling Methods for Latent Variable Models—**
◆ Maria-Pia Victoria-Feser, University of Geneva; Stephane Guerrier, University of California, Santa Barbara; Elise Dupuis-Lozeron, University of Geneva
- 9:35 a.m. **Continuous Latent Factor Model for Nonignorable Missing Data—**◆ Jun Zhang; Mark Reiser, Arizona State University
- 9:55 a.m. Disc: Yasuo Amemiya, IBM Research
- 10:15 a.m. **Floor Discussion**

450 **CC-257A**
■ Method Comparison and Benefit Risk Evaluation for Diagnostic Devices—Topic-Contributed

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences
Organizer(s): Norberto Pantoja-Galicia, FDA
Chair(s): Gene Pennello, FDA

- 8:35 a.m. **Assessing the Benefit Risk Tradeoff in Diagnostic Devices—**◆ Norberto Pantoja-Galicia, FDA
- 8:55 a.m. **Is There a Universe Beyond Sensitivity and**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Specificity in Evaluation of Diagnostic and Prognostic Performance?—◆Michael Pencina, Duke University
- 9:15 a.m. **Challenges in Method Comparison for Diagnostic Devices**—◆Bo Zhang, FDA
- 9:35 a.m. **Bias Reduction in the Design and Analysis of Imaging Studies**—Philip Lavin, Lavin Consulting; ◆Scott Chasan-Taber, Consultant
- 9:55 a.m. Disc: Tom Gwise, FDA
- 10:15 a.m. **Floor Discussion**

- 8:35 a.m. **Multilevel Mediation Analysis, with an Application to Explore Racial Disparity in Physical Activity and Obesity**—◆Qingzhao Yu; Richard Scribner, LSUHSC; Claudia Leonardi, LSUHSC; Chi Li, LSUHSC; Lu Zhang, LSUHSC; Neal Simonsen,
- 8:40 a.m. **Meta-Analysis of Depression on the Risk of Coronary Heart Disease in Cohort Studies**—◆Qing Wu, Mayo Clinic; Juliana Kling, Mayo Clinic; Minako Katayama, Mayo Clinic

- 8:45 a.m. **Performance of Propensity Scores in the Analysis of Rare Events**—◆Jessica M. Franklin, Brigham & Women's Hospital/Harvard Medical School; Sebastian Schneeweiss, Brigham & Women's Hospital/Harvard Medical School

- 8:50 a.m. **Augmented Estimator for Censored Linear Regression for Case-Cohort Studies**—◆Jon Steingrimsson, Cornell University; Robert Strawderman, University of Rochester

- 8:55 a.m. **Comparison of Power from Area Under the Curve and Mixed Effects Models Methodologies for Profile Analysis**—◆Robbie Beyl, Pennington Biomedical Research Center; Jeff Burton, Pennington Biomedical Research Center; William Johnson, Pennington Biomedical Research Center

- 9:00 a.m. **Bayesian Marginal Structural Models for Analysis of Medication Use Among Critically Ill Older Patients**—◆Terrence Murphy; Katy Araujo, Yale; Margaret A. Pisani, Yale School of Medicine

- 9:05 a.m. **A Marginalized Zero-Inflated Poisson Regression Model with Random Effects**—◆D. Leann Long, West Virginia University; John Preisser, University of North Carolina; Amy Herring, University of North Carolina at Chapel Hill; Carol Golin, University of North Carolina at Chapel Hill

- 9:10 a.m. **Application of Negative Binomial Regression Models for Estimating Influenza-Associated Deaths Using the CDC 122 Cities Mortality Reporting System Data and Final Complete Mortality**—◆Po-Yung Cheng, CDC; Lynnette Brammer, CDC

- 9:15 a.m. **Selecting Spatial Scale of Contextual Covariates to Explain Childhood Obesity**—◆Lauren Grant, Virginia Commonwealth University; David Wheeler, Virginia Commonwealth University; Chris Gennings, Virginia Commonwealth University

- 9:20 a.m. **Validating Patterns for Longitudinal Trial Data**—◆Hua Fang, University of Massachusetts

451 **CC-104C**
Closing the Gap Between Applied Research and Statistics Education—Topic-Contributed

Section on Teaching of Statistics in the Health Sciences, Statistics Without Borders, Education Workgroup on Undergraduate Curriculum Guidelines
Organizer(s): Melinda Higgins, Emory University School of Nursing
Chair(s): Melinda Higgins, Emory University School of Nursing

- 8:35 a.m. **Teaching Statistics in the Context of the Larger Research Enterprise: Toward a Holistic Approach to Teaching Nonstatisticians How to Use Data to Gain Knowledge**—◆Vincent Staggs, University of Kansas Medical Center
- 8:55 a.m. **Are We 'In-Control' of Statistically Preparing Nursing Students for Their Dissertations?**—◆Myoung-Jin Kim, Illinois State University
- 9:15 a.m. **The Disconnect Between Construct Theory and Measurement in Nursing Research**—◆Bryan Williams, Emory University
- 9:35 a.m. **The Gap Between Applied Research and Nursing Statistics Education**—◆Yow-Wu Wu, University at Buffalo
- 9:55 a.m. **Incorporating Practical Statistics into a Quantitative Research Course for Nursing PhD Students: Lessons Learned**—◆Yelena Perkhounkova, University of Iowa; M. Kathleen Clark, University of Iowa; Maria Hein, University of Iowa
- 10:15 a.m. **Floor Discussion**

Contributed Sessions 8:30 a.m.–10:20 a.m.

452 **CC-255**
Speed Session #6: Statistics in Epidemiology, Part 1—Contributed

Section on Statistics in Epidemiology
Chair(s): Jeff Burton, Pennington Biomedical Research Center



- Medical School; Chanpaul Wang, University of Massachusetts Medical School; Zhaoyang Zhang, University of Massachusetts Medical School/Dartmouth; Jingfang Huang, University of Massachusetts Medical School/Dartmouth; Honggang Wang, University of Massachusetts/Dartmouth
- 9:30 a.m. **A Marginalized Zero-Inflated Negative Binomial Regression Model with Overall Exposure Effects—**◆John Preisser, University of North Carolina; Kalyan Das, University of Calcutta; D. Leann Long, West Virginia University; John Stamm, University of North Carolina
- 9:35 a.m. **Penalized Cox Regression Models of Sparse Outcomes—**◆G. Kolm, Christiana Care Health System; Pan Wu, Christiana Care Health System; Claudine Jurkovitz, Christiana Care Health System; Pranav Kansara, Christiana Care Health System
- 9:40 a.m. **Incorporating the Presence of Error-Prone Diagnostic Tests and Self-Reported Outcomes in Time-to-Event Models—**◆Xiangdong Gu; Raji Balasubramanian, University of Massachusetts, Amherst
- 9:45 a.m. **A Bayesian Approach to Joint Modeling of Longitudinal Menstrual Cycle Length and the Probability of Pregnancy—**◆Kirsten J. Lum, Johns Hopkins University/National Institute of Child Health and Human Development; Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Germaine M. Louis, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Thomas Louis, U.S. Census Bureau/Johns Hopkins University
- 9:50 a.m. **Assessing Personal PM2.5 Exposure Prediction Improvement After Addition of Indoor PM2.5 Exposure and Personal Characteristics to Outdoor PM2.5 Exposure Measurements—**◆Cole Brokamp, University of Cincinnati; M. B. Rao, University of Cincinnati; Patrick Ryan, Cincinnati Children's Hospital Medical Center
- 9:55 a.m. **Spatial Optimization with Respect to Extreme Weather and Human Health: A Zoning with Multidimensional Objective for Environmental Studies—**◆Alexander Liss, Tufts University; Elena Naumova, Tufts University
- 10:00 a.m. **On Stepped Wedge Designs for Vaccine Effectiveness Studies Under Complex Transmission Conditions—**◆Sahar Zangeneh, Fred Hutchinson Cancer Research Center; M. Elizabeth Halloran, Fred Hutchinson Cancer Research Center; Ira Longini, University of Florida

- 10:05 a.m. **Using Patient-Reported Outcome Measures and Electronic Health Record Data for Clinical Trial Recruitment—**◆Sandra D. Griffith, Cleveland Clinic; Susannah Rose, Cleveland Clinic
- 10:10 a.m. **Who Wins a Battle Between Efficiency and Accuracy? A Case of Spatial Interpolation for Environmental Applications—**◆Ilya Rozonoyer, Tufts University; Elena Naumova, Tufts University; Alexander Liss, Tufts University
- 10:15 a.m. **Modeling Heat Stroke Related Hospitalizations in the Elderly Residents in Boston, USA—**Elena Naumova, Tufts University; ◆Ruiruo Wu, Tufts University; Alexander Liss, Tufts University

Contributed Sessions 8:30 a.m.–10:20 a.m.

453 CC-213 Inference in Genetics and Genomics— Contributed

WNAR, ENAR, Section on Physical and Engineering Sciences

Chair(s): Margaret Carroll, NCHS/CDC/OSELS

- 8:35 a.m. **Phylogenetic Least Squares Inference Without Distances—**◆Peter Chi, Cal Poly, San Luis Obispo; Vladimir Minin, University of Washington
- 8:50 a.m. **Phylogenetic Stochastic Mapping Without Matrix Exponentiation—**◆Jan Irvahn; Vladimir Minin, University of Washington
- 9:05 a.m. **Mendelian Inheritance Transmission Disequilibrium Test with One Offspring—**◆Gulhan Bourget, California State University, Fullerton
- 9:20 a.m. **CNV-Guided Multi-Read Allocation for ChIP-Seq—**◆Qi Zhang, University of Wisconsin-Madison
- 9:35 a.m. **Joint Sparse Modeling of Multiple RNA-Seq Samples for mRNA Isoform Discovery and Abundance Estimation—**◆Jingyi Jessica Li, University of California, Los Angeles; Peter J. Bickel, University of California, Berkeley; Haiyan Huang; Shihua Zhang, Chinese Academy of Science
- 9:50 a.m. **Estimating the Power of Detecting Microbiome Associations in Epidemiological Studies by Incorporating Temporal Stability—**◆Jianxin Shi,
- 10:05 a.m. **Floor Discussion**

454 Applications of Time-to-Event Analyses—Contributed

Biometrics Section

Chair(s): Chuanhua Xing, Boston University/AstraZeneca - MedImmune

- 8:35 a.m. **A Rank-Based Endpoint Combining Tumor Assessment Information and Overall Survival in Randomized Phase II Trials When Phase III Is Based on Overall Survival**—◆ Fei Ma, University of Rochester; Weichao Bao, Novartis; Yunro Chung, University of North Carolina at Chapel Hill; William Leonard Mietlowski, Novartis
- 8:50 a.m. **Estimating Treatment Effects with Treatment Switching via Accelerated Failure Time Model with Frailty Term**—◆ Fang-I Chu; Yuedong Wang, University of California, Santa Barbara
- 9:05 a.m. **Controlling for Unmeasured Confounding in Time-to-Event Analysis of Longitudinal Observational Studies**—◆ James Troendle, NIH; Zhiwei Zhang, FDA/DHHS; Eric Leifer, NHLBI/NIH; Song Yang, NHLBI/NIH; Heather Jerry, Nebraska Department of Health and Human Services
- 9:20 a.m. **An Alternative Estimation Method for the Semiparametric Accelerated Failure Time Mixture Model**—◆ Yinding Wang; Jiajia Zhang, University of South Carolina
- 9:35 a.m. **Change-Point Proportional Hazards Model for Clustered Event Data**—◆ Yu Deng, University of North Carolina at Chapel Hill; Jianwen Cai, University of North Carolina at Chapel Hill; Donglin Zeng, University of North Carolina at Chapel Hill
- 9:50 a.m. **Semiparametric Accelerate Failure Time Modeling for Clustered Failure Times from Stratified Sampling**—◆ Sy Han Chiou, University of Minnesota, Duluth; Sangwook Kang, Yonsei University; Jun Yan, University of Connecticut
- 10:05 a.m. **A Reverse Counting Process for Analyzing Survival Data with Multiple Event Times**—◆ Brian Claggett, Harvard Medical School; Hajime Uno, Dana-Farber Cancer Institute; Lu Tian, Stanford University; Lee Jen Wei, Harvard

455 High-Dimensional Regression—Contributed

Biometrics Section

Chair(s): Chad He, Fred Hutchinson Cancer Research Center

- 8:35 a.m. **Integrative Analysis of Prognosis Data on Multiple**

CC-251

- 8:50 a.m. **Cancer Subtypes Using Penalization**—◆ Jin Liu, University of Illinois at Chicago; Jian Huang, University of Iowa; Shuangge Ma, Yale
- 8:50 a.m. **Variable Selection and Inference for Ultra-High-Dimensional Survival Data with Missing Covariates Under Proportional Hazards Models**—◆ Yang Ning, University of Waterloo; Grace Yi, University of Waterloo; Baojiang Chen, University of Nebraska Medical Center; Nancy Reid, University of Toronto
- 9:05 a.m. **Hypothesis Testing for High-Dimensional Linear Regression with Linear Constraints**—◆ Pixu Shi, University of Pennsylvania; Hongzhe Li, University of Pennsylvania
- 9:20 a.m. **Feature Screening for Time-Varying Coefficient Models with Ultrahigh Dimensional Longitudinal Data**—◆ Wanghuan Chu, Penn State; Runze Li, Penn State; Matthew Reimherr, Penn State
- 9:35 a.m. **Bayesian Approaches to Prognostic Gene Signature Identification from Microarray Data in a Functional Domain: Applications in Ovarian Cancer Survival Data**—◆ Miranda Lynch, University of Connecticut Health Center
- 9:50 a.m. **Measuring the Impact of High-Dimensional Missing Data in EMA Studies**—◆ Hui Xie; Donald Hedeker, University of Illinois at Chicago; Robin Mermelstein, UIC
- 10:05 a.m. **Multilevel Structural Models of Quality of Life of Breast Cancer Survivors**—◆ Shahid Kamal, University of Punjab; Rehan Ahmad Khan, Punjab University; Ghausia Masood Gilani, Punjab University

456 Large-Scale Hypothesis Testing—Contributed

CC-254B

Biometrics Section

Chair(s): Charles Smith, North Carolina State University

- 8:35 a.m. **False Discovery Rate Estimation for Large-Scale Homogeneous Discrete P-Values**—◆ Kun Liang,
- 8:50 a.m. **Testing of Hierarchically Structured Families of Hypotheses with Multidimensional Directional Decisions**—◆ Anjana Grandhi, New Jersey Institute of Technology; Wenge Guo, New Jersey Institute of Technology; Shyamal Peddada, NIH/NIEHS
- 9:05 a.m. **Minimax Solution for the Two-Stage Group Testing Problem**—◆ Yaakov Malinovsky, University of Maryland Baltimore County; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development



- 9:20 a.m. **The Role of Power Analysis in Large-Scale Statistical Inference**—◆ Ruobin Gong, Harvard; Edoardo M. Airoidi, Harvard
- 9:35 a.m. **Meta-Analysis of Microarray Data Using K Top-Scoring-Pairs-Based Pathway Approach**—◆ Nusrat Jahan, James Madison University; Terrie Rife, James Madison University
- 9:50 a.m. **Two-Stage Designs for Identifying Pathogenic Species in Microbiomic Studies**—◆ Xiaoshan Wang, Forsyth Institute; Jacqueline Starr, Forsyth Institute; Frias-Lopez Jorge, Forsyth Institute
- 10:05 a.m. **Association Studies with Imputed SNPs Using Expectation-Maximization-Likelihood-Ratio Test**—◆ Kuan-Chieh Huang; Yun Li, University of North Carolina at Chapel Hill

457 CC-252B Missing and Interval-Censored Data—Contributed

Biometrics Section

Chair(s): David Rumpf, GE Aviation

- 8:35 a.m. **A Multiple Imputation Approach to the Analysis of Clustered Interval-Censored Failure Time Data with the Additive Hazards Model**—◆ Ling Chen, Washington University in St. Louis; Tony Sun, University of Missouri
- 8:50 a.m. **How to Deal with Missing Covariate Data in Survival Analysis**—◆ Torben Martinussen,
- 9:05 a.m. **A Simulation Study to Compare Inverse Probability Weighting with Other Commonly Used Missing Data Imputation Methods for Binary Outcome Variables**—◆ Fang Liu, Merck; Chen Jingjing, MedImmune
- 9:20 a.m. **Assessment of Weighted KNN Imputation and Multiple Imputation Techniques Using Colorectal Cancer MiRNA Data**—◆ Anvar Suyundikov; John Stevens, Utah State University; Marty Slattery, University of Utah; Roger Wolff, University of Utah; Jennifer Herrick, University of Utah
- 9:35 a.m. **Random Survival Forests for Interval-Censored Outcomes in the Presence of Imperfect Diagnostic Tests**—◆ Hui Xu; Xiangdong Gu; Raji Balasubramanian, University of Massachusetts, Amherst
- 9:50 a.m. **Multiple Imputation for Interval-Censored Data with Time-Dependent Auxiliary Variables**—◆ Wen Ye, University of Michigan
- 10:05 a.m. **A Frailty Model for Bivariate Interval-Censored Data Allowing Weak Dependence and Independence**—◆ Naichen Wang, University of South Carolina;

Lianming Wang, University of South Carolina

458 CC-254A Sample Size Determination and Mid-Course Adjustment—Contributed

Biopharmaceutical Section

Chair(s): Xin Huang, AbbVie

- 8:35 a.m. **Sample Size Calculation for Before-After Experiments with Partially Overlapping Cohorts**—◆ Song Zhang, University of Texas Southwestern Medical Center; Jing Cao, Southern Methodist University; Chul Ahn, University of Texas Southwestern Medical Center
- 8:50 a.m. **Timeline Prediction for Major Cardiovascular Trials**—◆ Hui Quan, Sanofi; Xuezhou Mao, Sanofi; Yujun Wu, Sanofi
- 9:05 a.m. **Sample Size Consideration for Mixed Models**—◆ Richard McNally, Covance; Yuki Matsushima, Otsuka Pharmaceutical Co.
- 9:20 a.m. **Sample Size Estimation and Consideration for Japanese Subjects in a Multi-Regional Trial**—◆ Jang Yun,
- 9:35 a.m. **Mid-Course Sample Size Adjustment Using Combination Tests and Sequential Inference: A Comparative Study**—◆ Shanhong Guan,
- 9:50 a.m. **Phase II/III Seamless Design for Promising Investigational Drug**—◆ Lei Pang, Merck
- 10:05 a.m. **Nearly Exact Sample Size Calculation for Powerful Nonrandomized Tests for Differences Between Binomial Proportions**—◆ Stefan Wellek, CIMH/ University of Heidelberg

459 CC-257B Multiplicity Adjustment Methods 1—Contributed

Biopharmaceutical Section

Chair(s): Stan Altan, Janssen

- 8:35 a.m. **On Pairwise Comparisons of Means in an Analysis**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

of Variance Setting Using a Shortcut Sequential F-Test—◆ Eunhee Hwang, Pfizer; Dror Rom, Prosoft Clinical; Andrew Rhtherford, Keele University

- 8:50 a.m. **Generalized Holm's Procedure for Multiple Testing Problems**—◆ Huajiang Li, Allergan
- 9:05 a.m. **Connections Between Matched Parallel Gatekeeping Procedure and Graphical Approaches to Multiple Testing**—◆ Liaosa Xu, Forest Research Institute; Huiling Li, Forest Research Institute; Kaifeng Lu, Forest Research Institute; Yong Wang, Forest Research Institute; Hassan Lakkis, Forest Research Institute
- 9:20 a.m. **Multiple Testing Procedures Controlling the FWER in a Two-Stage Group Sequential Design**—◆ Li He, Merck; Sanat K. Sarkar, Temple University
- 9:35 a.m. **An Improved Hochberg Procedure for Logically Related Hypotheses**—◆ Dror Rom, Prosoft Clinical; Matt Hudson, Prosoft Clinical; Hong Jiang, Prosoft Clinical
- 9:50 a.m. **Optimization of Mixture Gatekeeping Multiple Testing Procedures with Serial Logical Restrictions**—◆ George Kordzakhia, FDA
- 10:05 a.m. **A Group Sequential Method for Testing Multiple Hypotheses**—◆ Aiyong Chen; Sanat K. Sarkar, Temple University; Li He, Merck

460 CC-204A **■ Forecasting and Official Statistics—Contributed**

Business and Economic Statistics Section, SSC, Government Statistics Section, Section on Statistics in Marketing

Chair(s): Michael C. Baker, Nielsen

- 8:35 a.m. **How Biased Are U.S. Government Forecasts of the Federal Debt?**—◆ Neil Ericsson,
- 8:50 a.m. **Metropolitan Econometric Electric Utility Forecast Accuracy**—◆ Adam Walke, University of Texas at El Paso
- 9:05 a.m. **Modeling Asymmetries in the Market for Gasoline in Western Canadian Cities**—◆ David Giles, University of Victoria
- 9:20 a.m. **Structured Regularization for Large Vector Autoregressions**—◆ William Nicholson, Cornell University; Jacob Bien, Cornell University; David Scott Matteson, Cornell University
- 9:35 a.m. **Forecasting Macroeconomic Time Series: Lasso-Based Approaches and Their Forecast Combinations with Dynamic Factor Models**—◆ Jiahan Li, University of Notre Dame; Weiye Chen, University of Notre Dame
- 9:50 a.m. **House Price Tiers in Repeat Sales Estimation**—◆ Douglas McManus, Freddie Mac
- 10:05 a.m. **Quality Measures for Gross Output and Gross**

Domestic Product—◆ Sanping Chen, Statistics Canada; Cindy Ubartas, Statistics Canada

461 CC-101 **■ New Approaches for Mental Health Research—Contributed**

Mental Health Statistics Section

Chair(s): Samiran Ghosh, Wayne State University

- 8:35 a.m. **Application of Time-to-Event Models to Ecological Momentary Assessment Data**—◆ Emily A. Blood, Boston Children's Hospital; Lin Huang, Boston Children's Hospital; Lydia A. Shrier, Boston Children's Hospital
- 8:50 a.m. **Estimating the Association of Bivariate Failure Times Using Copulas: Applications to Studies in Head and Neck Cancer**—◆ Pingfu Fu, Case Western Reserve University; Dennis Tang, Case Western Reserve University; Guang Z., Texas A&M; Chad Zender, Case Western Reserve University
- 9:05 a.m. **Comparing Multiple Imputation Methods for Correlated Data**—◆ David Kline, Ohio State University; Eloise Kaizar, Ohio State University; Rebecca R. Andridge, Ohio State University
- 9:20 a.m. **Variable Selection Methods for Population Mixtures**—◆ Tian Chen; Xin M. Tu, University of Rochester
- 9:35 a.m. **Modeling Treatment Compliance in Randomized Clinical Trials**—◆ Joseph Rausch, Cincinnati Children's Hospital Medical Center; Chad Sherk, Penn State
- 9:50 a.m. **Toward a Multimodal Characterization of Chronic Traumatic Encephalopathy**—◆ Laura Mariano, Charles Stark Draper Laboratory; John Irvine, Charles Stark Draper Laboratory; Alexander Lin, Brigham & Women's Hospital; Yorghos Tripodis, Boston University School of Public Health; Robert Stern, Boston University School of Medicine
- 10:05 a.m. **Can Images Be Effective in Evoking Emotions? A Pilot Study Based on an Innovative Visual Stimuli Database**—◆ Chiara Brombin, CUSSB, Vita-Salute San Raffaele University; Riccardo Maria Martoni, San Raffaele Scientific Institute; Elisa Bruna Matilde Galimberti, San Raffaele Scientific Institute; Paola Maria Vittoria Rancoita, Vita-Salute San Raffaele University; Scaini Simona, Vita-Salute San Raffaele University; Lorenzo Cibrario, Vita-Salute San Raffaele University; Manuela Ferrario, Politecnico di Milano



462 CC-151A Disclosure and Privacy—Contributed

Government Statistics Section

Chair(s): Paul Guerino, Centers for Medicare and Medicaid Services

- 8:35 a.m. **How to Obtain Additive Estimates of Missing Cell Values in Tabular Data Containing Non-Additive Rounded Cells**—◆ Ramesh Dandekar, Energy Information Administration
- 8:50 a.m. **Using Weighting to Improve Cell Suppression Pattern in Annual Survey of Manufacturer**—◆ Bei Wang, U.S. Census Bureau
- 9:05 a.m. **Likelihood-Based Finite Sample Inference for Synthetic Data from a Multiple Linear Regression Model**—◆ Martin Klein, U.S. Census Bureau
- 9:20 a.m. **Local Synthesis for Disclosure Limitation via Model-Based Clustering**—◆ Anna Oganyan, NCHS
- 9:35 a.m. **Generalized Linear Models with Variables Subject to Post Randomization Method, with Dependent Covariates**—◆ Yong Ming Jeffrey Woo, University of Virginia; Aleksandra Slavkovic, Penn State
- 9:50 a.m. **Mobile Phone Metadata: A New Source for Official Statistics**—◆ May Offermans, Statistics Netherlands; Martijn Tennekes, Statistics Netherlands
- 10:05 a.m. **Floor Discussion**

463 CC-157B Nonparametric Methods for High-Dimensional Data—Contributed

Section on Nonparametric Statistics

Chair(s): Gerda Claeskens, KU Leuven

- 8:35 a.m. **Bootstrapping the Partial Linear Model**—◆ Megan Heyman; Snigdhasu Chatterjee, University of Minnesota
- 8:50 a.m. **An RKHS Approach to Estimating High-Dimensional Graphs**—◆ Kuang-Yao Lee, Yale; Bing Li, Penn State; Hongyu Zhao, Yale
- 9:05 a.m. **Hypothesis Testing for Sparse Binary Regression**—◆ Rajarshi Mukherjee, Harvard; Xihong Lin, Harvard School of Public Health; Natesh S. Pillai, Harvard
- 9:20 a.m. **The Residual Bootstrap for High-Dimensional Linear Models with Low-Rank Designs**—◆ Miles Lopes, University of California, Berkeley
- 9:35 a.m. **Simultaneous Confidence Bands for Derivative Functions in Repeated Functional Data**—

◆ Guanqun Cao, Auburn University

9:50 a.m. **On Depth-Based Minimum Volume Ellipsoid Estimators**—◆ Jin Wang, Northern Arizona University

10:05 a.m. **Model-Based Block Clustering with EM Algorithm**—◆ Prabhani Kuruppumullage Don, Penn State; Bruce G. Lindsay, Penn State; Francesca Chiaromonte, Penn State

464 CC-207 Statistical Software and High-Performance Computing—Contributed

Section on Statistical Computing, Interface Foundation of North America

Chair(s): Murray Stokely, Google

- 8:35 a.m. **MM Optimization in Massive Observational Analysis**—◆ Trevor R. Shaddox, University of California, Los Angeles; Kenneth L. Lange, University of California, Los Angeles; David Madigan, Columbia University; Marc Suchard, University of California, Los Angeles
- 8:50 a.m. **Multivariate Wavelet Density Estimation for Streaming Data: a Parallel Programming Approach**—◆ Kyle Caudle, South Dakota School of Mines and Technology; Larry Pyeatt, South Dakota School of Mines and Technology; Christer Karlsson, South Dakota School of Mines and Technology
- 9:05 a.m. **High-Performance Computing Based on Massive Parallel Processing: Lessons Learned from the NORC Data Enclave**—◆ Timothy Mulcahy, NORC at the University of Chicago; Johannes Huessy, NORC at the University of Chicago; Scot Ausborn, NORC at the University of Chicago
- 9:20 a.m. **Tree Representations of XML and JSON Data Formats with an Implementation in R**—◆ Xiaotian Dai; Juergen Symanzik, Utah State University
- 9:35 a.m. **Testing Packages for the R Language**—◆ Stephen Kaluzny, TIBCO Software; Lou Bajuk-Yorgan, TIBCO Software
- 9:50 a.m. **Using R Analytics on Streaming Data**—◆ Lou Bajuk-Yorgan, TIBCO Software; Stephen Kaluzny, TIBCO Software
- 10:05 a.m. **Computational Probability**—◆ Lawrence Leemis,

College of William and Mary

465 **CC-153C**
Graphics Potluck—Contributed

 Section on Statistical Graphics, Interface Foundation of North America
 Chair(s): *Mario A. Morales, Simulmedia*

- 8:35 a.m. **Assessing the Use of Sound in Graphical Data Analysis**—◆ Jessica Orth, University of Iowa; Kate Cowles, University of Iowa
- 8:50 a.m. **Residual Plots to Identify Outliers and Influential Observations in Structural Equation Modeling**—◆ Laura Hildreth, Montana State University; Ulrike Genschel, Iowa State University; Fred Lorenz, Iowa State University
- 9:05 a.m. **Modeling Directional Dependence: A Copula Approach**—◆ Engin Sungur, University of Minnesota; Jessica Orth, University of Iowa
- 9:20 a.m. **Cartogram: Reshape Your Map to Tell the Truth**—◆ Xiaoyue Cheng, Iowa State University
- 9:35 a.m. **Introducing a New Type of Jittered Scatterplot: The Line-Up Jittered Scatterplot**—◆ Charlie Liu, Allergan
- 9:50 a.m. **Diagnostics for Repeated Measurements in Generalized Linear Mixed Effects Models**—◆ Jungwon Mun,
- 10:05 a.m. **Variance Estimation for L-Moments and L-Comoments**—◆ Jonathan R.M. Hosking, IBM Research

466 **CC-208**
Biodata Methods—Contributed

 Section on Statistical Learning and Data Mining
 Chair(s): *Deepak Agarwal, LinkedIn*

- 8:35 a.m. **Regularization Methods for Predicting an Ordinal Response Using Longitudinal High-Dimensional Genomic Data**—◆ Jiayi Hou, University of California, San Diego; Kellie Jo Archer, Virginia Commonwealth University
- 8:50 a.m. **Identifying Potential Patient Population Based on Electronic Medical Record Data**—◆ Jin Zhou, University of Arizona; Haoda Fu, Eli Lilly and Company
- 9:05 a.m. **A Point Process Approach to Identifying and Tracking Transitions in Neural Spiking Dynamics in the Subthalamic Nucleus of Parkinson's Patients**—◆ Xinyi Deng, Boston University; Uri T. Eden, Boston University; Emad Eskandar, Harvard

Medical School

- 9:20 a.m. **Statistical Modeling of Genomic Words and Motifs**—◆ Guozhu Zhang; Stephen Lee, University of Idaho
- 9:35 a.m. **Identifying Subgroups of Enhanced Predictive Accuracy from Longitudinal Biomarker Data with Applications to Monitoring Fetal Growth**—◆ Jared Foster, NICHD; Danping Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Aiyi Liu, NICHD; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 9:50 a.m. **Prediction of Future Cost for Congestive Heart Failure Patients: A Second Look**—◆ Donghui Wu, LexisNexis; Xin Deng, LexisNexis
- 10:05 a.m. **Health Outcomes Prediction: To Select Variables or Use Them All?**—◆ Arnold Mitnitski, Dalhousie University; Xiaowei Song, Dalhousie University; Kenneth Rockwood, Dalhousie University

467 **CC-156A**
Survey Methods and Estimation - 1—Contributed

 Survey Research Methods Section, Government Statistics Section
 Chair(s): *John Hall, Mathematica Policy Research*

- 8:35 a.m. **Evaluation of Efficiency of Standard Regression Mixed Model-Based BLUP Estimators in Household Surveys Assuming Unequal Error Variances**—◆ Prabhakar Ghangurde,
- 8:50 a.m. **Examining the Psychometric Properties of the Mental Health Recovery Measure-Revised in a Population of Individuals with Persistent Psychological Health Challenges**—◆ Karen Traxler, University of Northern Colorado; Sharon Young, CooperRiis Healing Farm; Matt Snyder, CooperRiis Healing Farm; Tyler Kincaid, University of Northern Colorado
- 9:05 a.m. **Undergraduates' Statistics Anxiety and Mathematics Anxiety: Are They Similar or Different Constructs?**—◆ Soofia Malik, University of Wyoming
- 9:20 a.m. **On Weighting in the Current Employment Statistics Survey Under Presence of Influential Observations**—◆ Michael Sverchkov, Bureau of Labor Statistics; Julie Gershunskaya, BLS
- 9:35 a.m. **Item Nonresponse: Modeling the Impact of Probing Don't Knows**—◆ Chris Skinner, London School of Economics; Jouni Kuha, London School of Economics; Myrsini Katsikatsou, London School of Economics; Sarah Butt, City University



9:50 a.m. **Using the Fraction of Missing Information (FMI) to Identify Auxiliary Variables for Imputation Procedures via Proxy Pattern-Mixture Models—**◆ Jenny Thompson, U.S. Census Bureau; Rebecca R. Andridge, Ohio State University

10:05 a.m. Floor Discussion

468 CC-259A Novel Methods for Analysis of Survival and Longitudinal Data—Contributed

Section on Statistics in Epidemiology

Chair(s): *Kepher Makambi, Georgetown University*

8:35 a.m. **Comparison of Methods to Analyze Longitudinal Data Subject to Informative Visit Times—**◆ John Neuhaus, University of California, San Francisco; Charles McCulloch, University of California, San Francisco

8:50 a.m. **Using Structural-Nested Models to Estimate the Effect of Cluster-Level Adherence on Individual-Level Outcomes with a Three-Armed Cluster-Randomized Trial—**◆ Babette Brumback, University of Florida; Zhulin He; Mansi Prasad, University of Florida; Matthew Freeman, Emory University; Richard Rheingans, University of Florida

9:05 a.m. **Bayesian Hierarchical Models for Two-Phase Studies—**◆ Michelle Ross, University of Pennsylvania

9:20 a.m. **Global Group Parameter Model for Multivariate Longitudinal Rates of Change—**◆ Matthew Bryan; Patrick Heagerty, University of Washington

9:35 a.m. **Count Data Modeling in Longitudinal Studies: Performance of Conditional and Marginal Approaches—**◆ Leila Amorim, Universidade Federal da Bahia; Daniele B. Trindade, Universidade Federal de Pernambuco; Raydonal Ospina, Universidade Federal de Pernambuco

9:50 a.m. **Comparing Immortal Time Biases in Pharmacoepidemiologic Survival Analyses of Antihypertensives After Pancreatic Cancer Versus**

Antidiabetics After Head and Neck Cancer—◆ Scott Keith, Thomas Jefferson University; Thomas Karagiannis, Thomas Jefferson University; Vittorio Maio, Thomas Jefferson University; Daniel Louis, Thomas Jefferson University; Carol Rabinowitz, Thomas Jefferson University; Mengdan Liu, Thomas Jefferson University

10:05 a.m. **Estimating the Effect of Beta-Interferon Exposure in Delaying Disease Progression in Relapsing-Remitting Multiple Sclerosis Patients Using Causal Inference Tools—**◆ Mohammad Karim, University of British Columbia; Paul Gustafson, University of British Columbia; Albert John Petkau, University of British Columbia; Yinshan Zhao, University of British Columbia; Afsaneh Shirani, University of Texas Southwestern Medical Center; Elaine Kingwell, University of British Columbia; Charity Evans, University of Saskatchewan; Mia van der Kop, Karolinska Institutet; Joel Oger, University of British Columbia; Helen Tremlett, University of British Columbia

469 CC-102B Statistical Approaches for Environmental Extremes—Contributed

Section on Statistics and the Environment

Chair(s): *Ali Arab, Georgetown University*

8:35 a.m. **Modeling of Nonstationarity in Spatial Extremes—**◆ Raphael Huser,

8:50 a.m. **Characterization of Extreme Precipitation Under Atmospheric River Events—**◆ Soyoung Jeon, Lawrence Berkeley National Laboratory; Mr. Prabhat, Lawrence Berkeley National Laboratory; Surendra Byna, Lawrence Berkeley National Laboratory; William Collins, Lawrence Berkeley National Laboratory; Michael Wehner, Lawrence Berkeley National Laboratory

9:05 a.m. **Logit-Normal Mixed Model for Indian Monsoon Rainfall Extremes—**◆ Lindsey Dietz, University of Minnesota; Snigdhanu Chatterjee, University of Minnesota

9:20 a.m. **Monthly Trends in Maxima of Low Temperatures in Georgia, USA—**◆ Lynne Seymour, University of Georgia; Waleed Navarro, NASS

9:35 a.m. **Downscaling Precipitation Extremes from Regional Climate Model Outputs Using a Kernel Weighted Regression of Fitted Parameters as Prior Inputs—**◆ Yibin Pan; Ernst Linder, University of New Hampshire

9:50 a.m. **Extreme Value Estimator for a Bifurcating Autoregressive Process with Heavy-Tail Innovations—**◆ Andrew Bartlett, Southern Illinois

University of Georgia; William McCormick, University of Georgia

10:05 a.m. **Spatio-Temporal Modeling of Pollutant Loads in Great Barrier Reef Catchments**—◆ Daniel W. Gladish, CSIRO Computational Informatics; Petra M. Kuhnert, CSIRO Computational Informatics; Daniel E. Pagendam, CSIRO Computational Informatics; Christopher K. Wikle, University of Missouri; Erin E. Peterson, CSIRO Computational Informatics

470 **CC-209**
Statistical Methods for Advancing Defense and National Security—Contributed

Section on Statistics in Defense and National Security, Statistical Learning and Data Mining Section, Section on Physical and Engineering Sciences

Chair(s): Matthew Avery, Institute for Defense Analyses

8:35 a.m. **Robust Analysis of Degradation Measures Using Quantile Regression**—◆ Jonathan Lane, Sandia National Laboratories; Stephen V. Crowder, Sandia National Laboratories

8:50 a.m. **Sequential Testing for Mean Time Between Failures**—◆ Jennifer Kensler, Applied Research Solutions

9:05 a.m. **Interval-Censoring Methods for Aoristic Crime Analysis**—◆ Michael D. Porter, University of Alabama

9:20 a.m. **Modeling Email Networks and Inferring Leadership Using Self-Exciting Point Processes**—◆ Eric Fox, University of California, Los Angeles

9:35 a.m. **Temporal Perceptions and Heuristic Adjustments in Short-Term Forecasts**—◆ John Irvine, Charles Stark Draper Laboratory; John R. Regan, Draper Laboratory

9:50 a.m. **A Skewed Version of the Robbins-Monro-Joseph Procedure for Binary Response**—◆ Dianpeng Wang, Beijing Institute of Technology; Yubin Tian, Beijing Institute of Technology; C. F. Jeff Wu, Georgia Institute of Technology

10:05 a.m. **Psychometric Properties of Connor-Davidson Resilience Scale in a Sample of Military Active Duty Service Members**—◆ Weimin Zhang, Samueli Institute; Salvatore Libretto, Samueli Institute; Courtney Lee, Samueli Institute

Special Presentation 10:30 a.m.–12:20 p.m.

471 **CC-258A**
Late-Breaking Session II: Recent Concerns About Reproducibility and Replicability: The Statistical Aspects—Invited

ASA, ENAR, IMS, SSC, WNAR, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, Statistics Without Borders

Organizer(s): Philip B. Stark, University of California

Chair(s): Victoria Stodden, Columbia University

10:35 a.m. **Tracking to Ground the Causes of Irreproducibility: Some Challenges**—◆ Marcia McNutt, American Association for the Advancement of Science

11:00 a.m. **Reproducibility and the Scientific Method**—◆ Philip B. Stark, University of California

11:25 a.m. **The Replicability Crisis in Science: It's Not the P-values' Fault**—◆ Yoav Benjamini, Tel Aviv University

11:50 a.m. **Assessing Replicability Across Studies: The R-Value**—◆ Ruth Heller, Tel Aviv University; Yoav Benjamini, Tel Aviv University; Marina Bogomolov, Technion - Israel Institute of Technology

12:15 p.m. **Floor Discussion**

Invited Sessions 10:30 a.m.–12:20 p.m.

472 **CC-258C**
Advances in Visualizing and Interacting with Data Over the Web—Invited

Section on Statistical Graphics, Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America, International Chinese Statistical Association

Organizer(s): J. J. Allaire, RStudio

Chair(s): J. J. Allaire, RStudio

10:35 a.m. **Shiny: Easy Web Applications in R**—◆ Joseph Cheng, Rstudio 11:00 a.m. **ggvis: Moving Toward a Grammar of Interactive Graphics**—◆ Hadley Wickham, RStudio

11:25 a.m. **Collaborative Data Analysis with Rcloud**—◆ Carlos E. Scheidegger, AT&T Labs

11:50 a.m. **Interactive Visualization of Large Data**—◆ Peter Zhi-Yuan Wang, Continuum Analytics

12:15 p.m. **Floor Discussion**

473 **CC-259A**



■ ● Recent Development in Personalized Medicine—Invited

ENAR, International Chinese Statistical Association

Organizer(s): Rui Song, North Carolina State University

Chair(s): Wenbin Lu, North Carolina State University

- 10:35 a.m. **New Developments in Machine Learning for Personalized Medicine**—◆ Michael Kosorok, University of North Carolina at Chapel Hill
- 11:00 a.m. **Efficiency and Bias Improvements in Optimal Regime Estimation**—◆ James Robins, Harvard School of Public Health
- 11:25 a.m. **Improved Outcome Weighted Learning for Dynamic Treatment Regimes**—◆ Donglin Zeng, University of North Carolina at Chapel Hill; Yuanjia Wang, Columbia University; Ying Liu, Columbia University; Michael Kosorok, University of North Carolina at Chapel Hill
- 11:50 a.m. **Machine Learning Methods for Individualizing Just in Time Adaptive Interventions**—◆ Susan Murphy, University of Michigan
- 12:15 p.m. **Floor Discussion**

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CC-257B

● Statistical Techniques for Modern Data Sets—Invited

WNAR, Section on Physical and Engineering Sciences

Organizer(s): Qing Mai, Florida State University

Chair(s): Qing Mai, Florida State University

- 10:35 a.m. **Discovery Among Binary Biomarkers**—◆ Elizabeth H. Slate, Florida State University; Junxian Geng, Florida State University; Bethany A. Wolf, Medical University of South Carolina; Elizabeth G. Hill, Medical University of South Carolina
- 11:00 a.m. **Selection and Estimation for Mixed Graphical Models**—◆ Daniela Witten, University of Washington; Ali Shojaie, University of Washington; Shizhe Chen, University of Washington
- 11:25 a.m. **On the Degrees of Freedom of Reduced-Rank Estimators in Multivariate Regression**—◆ Ji Zhu, University of Michigan; Ashin Mukherjee, Walmart

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● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Labs; Kun Chen, University of Connecticut;
Naisyin Wang, University of Michigan

11:50 a.m. **Sparse Semiparametric Discriminant Analysis—**
◆ Hui Zou, University of Minnesota; Qing Mai,
Florida State University

12:15 p.m. **Floor Discussion**

475 **CC-151B**
**■ ● Statistical Analysis of Educational
Data: Challenges and Opportunities—
Invited**

Social Statistics Section, Government Statistics Section, International
Chinese Statistical Association, Statistics Without Borders

Organizer(s): Jeffrey D. Kromrey, University of South Florida

Chair(s): Jeffrey D. Kromrey, University of South Florida

10:35 a.m. **Educational Transcript Coding and Analysis: Ninth
Grade Mathematics and Science Pathways to
STEM—**◆ Patricia Rodriguez de Gil, University of
South Florida

10:50 a.m. **Analysis of Educational Course Trajectories: The
Opportunity to Learn Algebra as a Pathway to
Rigorous Mathematics in High School—**◆ Reginald
Lee, University of South Florida; George
MacDonald, University of South Florida; Gladis
Kersaint, University of South Florida

11:05 a.m. **The Impact of Career Academies on STEM
Coursetaking: Moving to the Next Level—**◆ Rheta
E. Lanehart, University of South Florida; Patricia
Rodriguez de Gil, University of South Florida;
Maressa Dixon, University of South Florida;
Jeffrey D. Kromrey, University of South Florida

11:20 a.m. **How to Analyze Single Case Studies in Education: An
Illustration with Two Alternative Methods—**◆ Diep
Thi Nguyen, University of South Florida; John M.
Ferron, University of South Florida

11:35 a.m. **Cognitive Models in Educational Assessment—**
◆ Thanh Pham, University of South Florida; Yi-
Hsin Chen, University of South Florida

11:50 a.m. **Propensity Score Analysis in Multilevel Settings—**
◆ Aarti P. Bellara, University of South Florida ;
Eun Sook Kim, University of South Florida

12:05 p.m. **Disc:** Elizabeth A. Stuart, Johns Hopkins
Bloomberg School of Public Health

12:15 p.m. **Floor Discussion**

Chair(s): Myung Hee Lee, Colorado State University

10:35 a.m. **Large-Scale Multiple Testing of Correlations—**
◆ Tony Cai, University of Pennsylvania

11:00 a.m. **Sparse Discriminant Analysis and Multi-Collinearity
with Applications to Image Analysis—**◆ Line H.
Clemmensen, Technical University of Denmark

11:25 a.m. **Outlier Detection for High-Dimensional Data—**
◆ Jeongyoun Ahn, University of Georgia; Myung
Hee Lee, Colorado State University; Jung Ae Lee,
Washington University in St. Louis

11:50 a.m. **Optimal Detection of Sparse Signal Segments—**
◆ Ming Yuan, University of Wisconsin

12:15 p.m. **Floor Discussion**

477 **CC-103**
**■ ● Estimation and Testing Problems
in Large Spatial Data Sets and Their
Applications—Invited**

Section on Statistics and the Environment

Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL

Chair(s): Jan Beran, University of Konstanz

10:35 a.m. **Detecting Exceedance Regions for Spatial and
Spatio-Temporal Data—**◆ Joshua French,
University of Colorado Denver; Stephan R. Sain,
NCAR

10:55 a.m. **Tapering for Prediction of Multivariate Spatial
Processes—**◆ Reinhard Furrer, University of
Zurich

11:15 a.m. **A Bayesian Multivariate Smoothing Spline Model
for Spatial-Temporal Data—**◆ Xiaofeng Wang,
Cleveland Clinic Lerner Research Institute; Ryan
Yue, City University of New York

11:35 a.m. **Distributed Gaussian Process for Massive Spatial
Data—**◆ Rajarshi Guhaniyogi, Duke University;
Natesh S. Pillai, Harvard; Sudipto Banerjee,
University of Minnesota

11:55 a.m. **Fast Bayesian Inference for Missing Data on Circular
Domains—**◆ Joe Guinness, North Carolina State
University; Montserrat Fuentes, North Carolina
State University

12:15 p.m. **Floor Discussion**

476 **CC-156C**
**● Sparse Analyses for High-
Dimensional Data—Invited**

IMS

Organizer(s): Jeongyoun Ahn, University of Georgia



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CC-157A

■ ● **Bayesian Methods in Microsimulation—Invited**

Section on Bayesian Statistical Science, Health Policy Statistics Section, International Society for Bayesian Analysis (ISBA)

Organizer(s): *Bradley P. Carlin, University of Minnesota*

Chair(s): *Bradley P. Carlin, University of Minnesota*

- 10:35 a.m. **Microsimulation Models: Calibration, Validation, and Belief in Model Predictions**—◆Carolyn M. Rutter, Group Health Research Institute
- 11:00 a.m. **Consumer Choice Modeling in Microsimulation**—◆Laura Hatfield, Harvard Medical School; Thomas McGuire, Harvard Medical School; Michael Chernew, Harvard Medical School
- 11:25 a.m. **Bayesian Reconstruction of Two-Sex Populations by Age: Estimating Sex Ratios at Birth and Sex Ratios of Mortality**—Mark C. Wheldon, Auckland University of Technology; ◆Adrian E. Raftery, University of Washington; Samuel J. Clark, University of Washington; Patrick Gerland, United Nations
- 11:50 a.m. **A Bayesian Microsimulation Approach to Health Economic Evaluation in Schizophrenia Treatment Algorithms and Lifetime Colorectal Cancer Screening**—Vanja Dukic, University of Colorado at Boulder; ◆Yolanda Hagar, University of Colorado at Boulder; ◆Anirban Basu, University of Washington; Herbert Y. Meltzer, Northwestern University
- 12:15 p.m. **Floor Discussion**

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CC-254A

■ ● **New Advances in Survival Analysis—Invited**

Biometrics Section

Organizer(s): *Yichuan Zhao, Georgia State University*

Chair(s): *Yichuan Zhao, Georgia State University*

- 10:35 a.m. **The Analysis of Biased Time-to-Event Data from Pregnancy Registries**—◆Ronghui Xu, University of California, San Diego; Walter Faig, University of California, San Diego
- 11:00 a.m. **Bootstrap for the Case-Cohort Design in Survival Studies**—◆Yijian Huang, Emory University
- 11:25 a.m. **Challenges to Analyzing Survival Data Subject to Biased Sampling**—◆Yu Shen, MD Anderson Cancer Center
- 11:50 a.m. **Longitudinal Markers, Recurrent Competing Risks, and Terminal Events**—◆Edsel A. Pena, University of South Carolina; Piaomu Liu, University of South

Carolina

12:15 p.m. **Floor Discussion**

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CC-152

■ ● **Preparing Students for the Future: Teaching Data Science at the Undergraduate Level—Invited**

Section on Statistical Education, Statistics in Business Schools Interest Group, Education Workgroup on Undergraduate Curriculum Guidelines, ASA 175th Anniversary Steering Committee

Organizer(s): *Katherine Halvorsen, Smith College*

Chair(s): *John D. McKenzie Jr., Babson College*

- 10:35 a.m. **Teaching Concepts in Computing with Data**—◆Deborah Nolan, University of California, Berkeley; Duncan Temple Lang, University of California
- 11:05 a.m. **Partnering with Computer Scientists to Develop and Teach a Statistical Computing Course**—◆Paul Roback, St. Olaf College; Olaf Hall-Holt, St. Olaf College; Kevin Sanft, St. Olaf College
- 11:35 a.m. **Teaching Data Science at a Small Liberal Arts College for Women**—◆Ben S. Baumer, Smith College
- 12:05 p.m. **Floor Discussion**

481

CC-104B

Noether Award—Invited

Noether Award Committee

Chair(s): *Dennis Boos, North Carolina State University*

- 10:35 a.m. **New Nonparametric Methods in Financial Econometrics and Additive Models**—◆Yingying Fan, University of Southern California; Jianqing Fan, Princeton University; Gareth James, University of Southern California; Jiancheng Jiang, University of North Carolina at Charlotte; Jinchi Lv, University of Southern California; Peter Radchenko, University of Southern California
- 11:05 a.m. **Deconvolution, Classification, and Semiparametric Approaches to Linear Partial Differential Equations**—◆Raymond J. Carroll, Texas A&M
- 11:35 a.m. **Floor Discussion**

Invited Panel

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CC-102A

Great Expectations: Training Future Biostatisticians for Careers in Interdisciplinary Biomedical Research

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Consulting, Statistics Without Borders

Organizer(s): *Tor D. Tosteson, Geisel School of Medicine at Dartmouth*

Chair(s): *Xihong Lin, Harvard School of Public Health*

10:30 a.m. **TeaGreat Expectations: Training Future Biostatisticians for Careers in Interdisciplinary Biomedical Research**—◆Michelle Dunn, National Cancer Institute; Melissa D. Begg, Columbia University; Tor D. Tosteson, Geisel School of Medicine at Dartmouth; Brian Scott Caffo, Johns Hopkins University; Lisa Sullivan, Boston University School of Public Health

12:15 p.m. **Floor Discussion**

Invited Poster Presentations

10:30 a.m.–12:20 p.m.

483 **CC-Exhibit Hall B2**

Celebrate Our Past Through Histories of ASA Sections, Chapters, and Committees—Invited

Committee on ASA Archives and Historical Materials, ASA 175th Anniversary Steering Committee, Committee on Professional Ethics, Transportation Statistics Interest Group

Chair(s): *John D. McKenzie Jr., Babson College*

- 1 **The History of the Biopharmaceutical Section of the ASA**—◆Maria Matilde Sanchez-Kam, Arena Pharmaceuticals; Dionne Price, FDA; Amit Bhattacharyya, GlaxoSmithKline
- 2 **Professional Ethics for Statisticians: An ASA Organizational History**—Howard Hogan, U.S. Census Bureau; ◆Duane Steffey, Exponent
- 3 **Section on Teaching of Statistics in the Health Sciences: 25 Years Later**—◆Constantine Daskalakis, Thomas Jefferson University
- 4 **A History of the Boston Chapter of the American Statistical Association**—◆Dominique Haughton, Bentley

- University/U. Paris I; John D. McKenzie Jr., Babson College
- 5 **History of the Washington Statistical Society**—◆Michael P. Cohen, American Institutes for Research
 - 6 **A History of the Statistical Education Section**—◆John D. McKenzie Jr., Babson College; Katherine Halvorsen, Smith College
 - 7 **The History Project of the San Francisco Bay Area Chapter of the American Statistical Association**—◆Chris Barker, InVentiv Health Clinical; Dean Fearn, California State University, East Bay (Retired)
 - 8 **Statistics Without Borders: Providing Pro Bono Statistical Consulting Globally**—◆Nilupa S. Gunaratna, Harvard School of Public Health; Gary Shapiro, Statistics Without Borders
 - 9 **From Stagflation to Lean: Thirty Years of Quality and Productivity**—Jason E. Gillikin, Priority Health
 - 10 **Transportation Interest Group the Version Zero**—◆Clifford Spiegelman, TTI/TAMU
 - 11 **The History of the Section on Statistics and the Environment**—◆Alix I. Gitelman, Oregon State University; Kathryn Irvine, U.S. Geological Survey
 - 12 **A History of the ASA Section on Statistical Computing**—◆Michael Minnotte,
 - 13 **A Brief History of the Kansas-Western Missouri Chapter of the American Statistical Association**—◆Jo A. Wick, University of Kansas Medical Center; John Keighley, Kansas University Medical Center; Ananda Jayawardhana, Pittsburg State University
 - 14 **History of the ASA Conference on Statistical Practice**—◆LeAnna Stork, Monsanto
 - 15 **The Committee on Gay and Lesbian Concerns in Statistics**—◆Christopher H. Johnson, CDC; Diane Herz, Mathematica Policy Research; Arthur B. Kenickell, Federal Reserve Board
 - 16 **Risky Business: A Walk Through the History and Future Direction of the Section on Risk Analysis**—◆Susan Simmons, University of North Carolina at Wilmington
 - 17 **History of ASA's Section on Statistical Consulting**—◆Ann Lazar, University of California; Richard Ittenbach, Cincinnati Children's Hospital Medical Center; Marlene Egger, University of Utah; Rick Peterson, ASA

Topic-Contributed Sessions

10:30 a.m.–12:20 p.m.

484 **CC-252B**
Bayesian Methods in Global Clinical Trials: An Era of Synthesizing



Evidence—Topic-Contributed

Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Satrajit Roy Choudhury, Novartis

Chair(s): Beat Neuenschwander, Novartis

- 10:35 a.m. **Bayesian Hierarchical Modeling and Dose Finding in Alzheimer's Disease**—◆Guosheng Yin, University of Hong Kong
- 10:55 a.m. **Using Bayesian Analyses to Create More Efficient Enrichment Designs**—◆Scott Berry, Berry Consultants; Todd Graves, Berry Consultants
- 11:15 a.m. **Tailored Exchangeability Designs for Clinical Trials**—◆Satrajit Roy Choudhury, Novartis; Beat Neuenschwander, Novartis
- 11:35 a.m. **Meta-Analysis Using Dirichlet Process and Ordered Power Priors with Applications**—◆Ram Tiwari, FDA; Margaret Gamalo, FDA/CDER/OB
- 11:55 a.m. **Disc:** Sujit Ghosh, North Carolina State University/NSF
- 12:15 p.m. **Floor Discussion**

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CC-102B

Deciding Who Is Best in Sports—Topic-Contributed

Section on Statistics in Sports

Organizer(s): Ray Stefani, California State University, Long Beach

Chair(s): Ray Stefani, California State University, Long Beach

- 10:35 a.m. **Towards a Rating System for Multi-Competitor Games and Sports**—◆Mark Glickman, Boston University
- 10:55 a.m. **Complex Network Approach to Cricket Matches**—◆Satyam Mukherjee, Northwestern University
- 11:15 a.m. **Improving NFL Standings Using Bonus Points**—◆Niven Winchester, MIT
- 11:35 a.m. **Is a Tennis Player's Popularity on Twitter Predictive of Playing Ability?**—◆Stephanie Kovalchik, RAND Corporation
- 11:55 a.m. **Prestige Score: A Self-Consistent Method for Measuring the Performance of Tennis Players**—◆Filippo Radicchi, Indiana University
- 12:15 p.m. **Floor Discussion**

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CC-260

Advances in Modeling and Estimating Longitudinal and Time Series Data—Topic-Contributed

International Society for Bayesian Analysis (ISBA)

Organizer(s): Robert J. Kohn, University of New South Wales

Chair(s): Robert Krafty, Temple University

- 10:35 a.m. **Covariate Dependent Spectral Analysis of Multivariate Time Series with Application to Heart Rate Variability During Sleep**—◆Ori Rosen, University of Texas at El Paso; Robert Krafty, Temple University; David Stoffer, University of Pittsburgh; Daniel Buysse, University of Pittsburgh; Martica Hall, University of Pittsburgh
- 10:55 a.m. **Copula Modeling of Dependence in Multivariate Time Series**—◆Michael Smith,
- 11:15 a.m. **Covariance Partition Priors: a Bayesian Approach to Simultaneous Covariance Estimation for Longitudinal Data**—◆Jeremy Gaskins, University of Louisville; Michael Daniels, University of Texas at Austin
- 11:35 a.m. **Importance Sampling Squared for Bayesian Inference in Latent Variable Models**—◆Robert J. Kohn, University of New South Wales
- 11:55 a.m. **Speeding up MCMC by Efficient Data Subsampling**—◆Mattias Villani, Linköping University; Matias Quiroz, Sveriges Riksbank/Stockholm University; Robert J. Kohn, University of New South Wales
- 12:15 p.m. **Floor Discussion**

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CC-104A

Contributions of Minority Statisticians: Past, Present, and Future—Topic-Contributed

Committee on Minorities in Statistics, Statistics Without Borders, International Indian Statistical Association, ASA 175th Anniversary Steering Committee, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Sydeaka Watson, University of Chicago

Chair(s): Brian Millen, Eli Lilly and Company

- 10:35 a.m. **Standing on the Shoulders of Giants: A Minority Perspective**—◆Jacqueline Hughes-Oliver, North Carolina State University
- 10:55 a.m. **Building a Statistics Alliance**—◆Kimberly Weems, North Carolina State University
- 11:15 a.m. **Joint Models as an Integrated Approach for Behavioral and Biological Outcomes in HIV Adherence Research**—◆Scarlett L. Bellamy, University of Pennsylvania Perelman School of Medicine; Erica Billig, University of Pennsylvania; Robert Gross, University of Pennsylvania Perelman School of Medicine
- 11:35 a.m. **Exploring the Heritability of Cancer Resistance**—◆Christina McIntosh, Harvard; Giovanni Parmigiani, Dana-Farber Cancer Institute
- 11:55 a.m. **Mentoring Under-Represented Students and the**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Bivariate Kaplan-Meier Estimator—◆Javier Rojo, University of Nevada, Reno

12:15 p.m. **Floor Discussion**

488 **CC-257A**
■ Methods to Adjust for Treatment Switching That Disrupts Randomization in Clinical Trials—Topic-Contributed

Biometrics Section

Organizer(s): Ling Wang, Takeda

Chair(s): Yuanjun Shi, Takeda

10:35 a.m. **Causal Inference in Randomized Trials with Noncompliance and Losses to Follow-Up**—◆Miguel Hernan, Harvard School of Public Health

10:55 a.m. **Methods to Adjust for Treatment Switching That Disrupts Randomization in Clinical Trials**—◆Jessica Young, Harvard School of Public Health

11:15 a.m. **Extension of Rank Preserving Structural Failure Time Model and Its Application in Oncology Clinical Trials**—Ling Wang, Takeda; ◆Shijie Tang, Infinity Pharmaceuticals; Connie Lee, Takeda; Yuanjun Shi, Takeda

11:35 a.m. **Challenges Posed by Treatment Switches in the Assessment of Safety of Hiv Drugs**—◆Susan Gruber, Harvard School of Public Health; Mark J. van der Laan, University of California, Berkeley

11:55 a.m. **Adjusting for Treatment Switching in Randomised Controlled Trials in the Context of Economic Evaluation - Simulation Studies and a Novel Two-Stage Method**—◆Nicholas Latimer, University of Sheffield

12:15 p.m. **Floor Discussion**

489 **CC-104C**
■ Recent Advances in Survival Analysis of Composite Endpoints—Topic-Contributed

International Chinese Statistical Association

Organizer(s): Ken Cheung, Columbia University

Chair(s): Ken Cheung, Columbia University

10:35 a.m. **Regression Extension of the Win Ratio Approach for Composite Endpoints with Clinical Priorities**—◆Xiaodong Luo, Mount Sinai School of Medicine;

Ken Cheung, Columbia University; Wei Yann Tsai, Columbia University

10:55 a.m. **Using Repeated Measures to Aid Cut Point Selection**—Zhezhen Jin, Columbia University; ◆Xinhua Liu, Columbia University

11:15 a.m. **Two Sample Inferences for Differences in Survival at a Fixed Time Point with Small Sample Sizes**—◆Michael Fay, National Institute of Allergy and Infectious Diseases; Michael A. Proschan, National Institute of Allergy and Infectious Diseases; Erica Brittain, National Institute of Allergy and Infectious Diseases

11:35 a.m. **The Identifiability of Dependent Competing Risks Models Induced by Bivariate Frailty Models**—◆Antai Wang, New Jersey Institute of Technology; Krishnendu Chandra, Columbia University; Ruihua Xu, NIH; Junfeng Sun, NIH

11:55 a.m. **Disc: Jason Fine, University of North Carolina at Chapel Hill**

12:15 p.m. **Floor Discussion**

490 **CC-204B**
■ ● Business Cycle Analysis and Forecasting—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Gian Luigi Mazzi, Eurostat

Chair(s): Baoline Chen, Bureau of Economic Analysis

10:35 a.m. **The Effects of Seasonal Adjustment Methods in Nonparametric Trend-Cycle Prediction**—◆Estella Dagum, University of Bologna; Silvia Bianconcini, University of Bologna

10:55 a.m. **The Reliability of Output-Gap Estimates in Real Time**—◆Elmar Mertens, Board of Governors of the Federal Reserve System

11:15 a.m. **New Parametric Synchronization Measures of Cyclical Fluctuation**—◆Gian Luigi Mazzi, Eurostat

11:35 a.m. **A Bayesian Nonlinear Forecast Combination Method**—◆Kajal Lahiri, SUNY Albany; Yang Liu, SUNY Albany

11:55 a.m. **Disc: Dominique Ladiray, INSEE**

12:15 p.m. **Floor Discussion**



491 **CC-156A**

■ Current Research on the Use of Paradata to Examine Multiple Error Sources Simultaneously in the Total Survey Error Framework—Topic-Contributed

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders

Organizer(s): Brady T. West, Institute for Social Research, University of Michigan

Chair(s): Brady T. West, Institute for Social Research, University of Michigan

- 10:35 a.m. **Changes in Interviewer-Related Error Over the Course of the Field Period: An Empirical Examination Using Paradata and Behavior Codes—◆**Kristen Olson, University of Nebraska-Lincoln; Antje Kirchner, University of Nebraska-Lincoln
- 10:55 a.m. **The Coverage-Nonresponse Trade-Off—◆**Stephanie Eckman, Institute for Employment Research; Frauke Kreuter, University of Maryland
- 11:15 a.m. **Nonresponse Patterns and Bias in the American Time Use Survey—◆**John Dixon, Bureau of Labor Statistics
- 11:35 a.m. **Using Paradata from Interviewer Voices to Examine Nonresponse Error and Measurement Error—◆**Frauke Kreuter, University of Maryland; Fred Conrad, University of Michigan; Jose Benki, University of Michigan; Alexandra Birg, University of Munich
- 11:55 a.m. Disc: Brad Edwards, Westat
- 12:15 p.m. Floor Discussion

492 **CC-254B**

■ ● Approaches for Benefit-Risk Assessment in Clinical Development Decisionmaking—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Weili He, Merck

Chair(s): Weili He, Merck

- 10:35 a.m. **Using Endpoint Data to Analyze Patients Rather Than Patient Data to Analyze the Endpoints—◆**Scott R. Evans, Harvard School of Public Health
- 10:55 a.m. **Using Decision Analysis to Regulate Medical Devices—◆**Xuefeng Li, FDA; Telba Z. Irony, Center for Devices and Radiological Health; Martin Ho, FDA
- 11:15 a.m. **Communicating Benefit-Risk Analysis Results Using Graphics—◆**Richard Forshee, FDA
- 11:35 a.m. **Weight in Benefit-Risk Evaluation—◆**Yabing Mai, Merck; Weili He, Merck
- 11:55 a.m. Disc: Jerald Schindler, Merck

12:15 p.m. Floor Discussion

493 **CC-255**

■ Counting Processes for Disease Modeling—Topic-Contributed

Section on Statistics in Epidemiology, Statistics Without Borders

Organizer(s): Vladimir Minin, University of Washington

Chair(s): Vladimir Minin, University of Washington

- 10:35 a.m. **Phylogenetics, Within-Host Evolution, and Who-Infected-Whom—◆**Eben Kenah, University of Florida
- 10:55 a.m. **Accounting for Recombination in Infectious Disease Phylodynamics—◆**Julia Palacios, Harvard; Sohini Ramachandran, Brown University; John Wakeley, Harvard
- 11:15 a.m. **Counting Process Models for Infectivity in Familial Disease Clusters—◆**Forrest W. Crawford, Yale School of Public Health; Daniel Zelterman, Yale
- 11:35 a.m. **Rebalancing a Longitudinal Panel Count Design—◆**Elizabeth Juarez-Colunga, University of Colorado Denver; Charmaine B. Dean, Western University
- 11:55 a.m. **A Joint Model for Multistate Disease Processes and Random Informative Observation Times, with Applications to Electronic Medical Records Data—◆**Jane Lange, University of Washington
- 12:15 p.m. Floor Discussion

494 **CC-206A**

● Recent Developments on Ranked Set and Judgment Post-Stratified Sampling Designs—Topic-Contributed

Section on Statistics in Marketing, Section on Nonparametric Statistics

Organizer(s): Omer Ozturk, Ohio State University

Chair(s): Asuman Turkmen, Ohio State University

- 10:35 a.m. **Distribution-Free Two-Sample Procedures for Judgment Post-Stratified Samples—◆**Omer Ozturk, Ohio State University
- 10:55 a.m. **A Nonparametric Approach for Assessing Treatment Effects Using Ranked Set Sampling with Randomized Block Designs—**Xinlei Wang, Southern Methodist University; ◆Ou Bai, Southern Methodist University
- 11:15 a.m. **Generalized Isotonized Mean Estimators for Judgment Post-Stratification with Multiple Rankers—◆**Min Chen, University of Texas at

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Dallas; Johan Lim, Seoul National University;
Xinlei Wang, Southern Methodist University;
Johan Lim, Seoul National University

- 11:35 a.m. **Ranked Set Sampling in Biased Distributions—**
◆ Kaushik Ghosh, University of Nevada, Las Vegas
- 11:55 a.m. **Application of Ranked Set Sampling in Clinical
Studies—**◆ Abdulkadir Hussein, University of
Windsor
- 12:15 p.m. **Floor Discussion**

Education

Chair(s): Lynne Stokes, Southern Methodist University

- Panelists:** ◆ Michael Brewster Hawes, U.S. Department of
Education
- ◆ Peter Meyer, NCHS
- ◆ Mark Asiala, U.S. Census Bureau
- ◆ Jacob Bournazian, U.S. Energy Information
Administration
- ◆ Chris Chapman, Bureau of Labor Statistics

- 12:15 p.m. **Floor Discussion**

495 CC-157B

■ ● **Recent Advances in Longitudinal
Analysis—Topic-Contributed**

Section on Nonparametric Statistics, Mental Health Statistics Section

Organizer(s): Xin Tian, NHLBI/NIH

*Chair(s): Lei Liu, Northwestern University Feinberg School of
Medicine*

- 10:35 a.m. **Estimating Branching Curves in the Presence of
Subject-Specific Random Effects—**◆ Sarah J.
Ratcliffe, University of Pennsylvania; Angelo Elmi,
George Washington University; Wensheng Guo,
University of Pennsylvania
- 10:55 a.m. **Estimation of Conditional Distributions and
Rank-Tracking Probabilities with Time-Varying
Transformation Models—**◆ Xin Tian, NHLBI/NIH
- 11:15 a.m. **Quantile Regression for Repeated Responses
Measured with Error—**◆ Pedro Torres-Saavedra;
Huixia Judy Wang, North Carolina State
University; Daowen Zhang, North Carolina State
University
- 11:35 a.m. **Gene-Level Meta-Analysis of Quantitative Traits by
Functional Linear Models—**◆ Ruzong Fan, NICHD;
Yifan Wang, NICHD; Momiao Xiong, University of
Texas Health Science Center at Houston
- 11:55 a.m. **Floor Discussion**

Contributed Sessions 10:30 a.m.–12:20 p.m.

497 CC-153C

● **Nonparametric—Contributed**

IMS

Chair(s): Sounak Chakraborty, University of Missouri-Columbia

- 10:35 a.m. **Consistency Analysis of a Convex Clustering
Framework—**◆ Gourab Mukherjee, University of
Southern California; Peter Radchenko, University
of Southern California
- 10:50 a.m. **Divergence-Based Inference for General Estimating
Equations—**◆ Anand Vidyashankar, George Mason
University
- 11:05 a.m. **Parametric and Nonparametric Estimators for
Bivariate Extremes—**◆ Sabrina Vettori; Raphael
Huser; Marc G. Genton, King Abdullah University
of Science and Technology
- 11:20 a.m. **On Multivariate Nonparametric MLEs Under Order
Restrictions—**◆ Wolfgang Polonik, University of
California, Davis
- 11:35 a.m. **On Variance Estimation for Nonparametric Surface
Estimates Under Gaussian Subordination—**
◆ Sucharita Ghosh, Swiss Federal Research
Institute WSL
- 11:50 a.m. **On a Class of Maximum Empirical Likelihood
Estimators Defined by Convex Functions—**◆ Fei
Tan; Hanxiang Peng, Indiana University-Purdue
University Indianapolis
- 12:05 p.m. **Floor Discussion**

Topic-Contributed Panel 10:30 a.m.–12:20 p.m.

496 CC-153B

■ ● **Privacy at What Cost? The
Differential Effects of Disclosure
Avoidance Methods on Data About
Small Groups—Topic-Contributed**

Government Statistics Section, Committee on Gay and Lesbian Concerns
in Statistics

Organizer(s): Michael Brewster Hawes, U.S. Department of

498 CC-213



Correlated/Clustered Data Analysis—Contributed

Biometrics Section

Chair(s): Catherine Crespi, University of California, Los Angeles

- 10:35 a.m. **Outlier Removal Using the Log-Likelihood for Group-Based Trajectory Modeling**—◆ Christopher Davies, University of Adelaide; Gary Glonek, University of Adelaide; Lynne Giles, University of Adelaide
- 10:50 a.m. **Matrix Time Series Models**—◆ Seyed Yaser Samadi, University of Georgia; Lynne Billard, University of Georgia
- 11:05 a.m. **Inference Concerning a Common Intraclass Correlation for Binary Responses from Reproductive and Developmental Toxicity Experiments**—◆ Debaraj Sen; Krishna Saha, Central Connecticut State University; Dariusz Dziuda, Central Connecticut State University
- 11:20 a.m. **A Composite Conditional Likelihood Approach to Estimation in a Logistic Regression Model with Crossed Random Effects**—◆ Jorgen Petersen, University of Copenhagen
- 11:35 a.m. **Covariance Structures for Multiple Repeated Measures Models**—◆ Hongmei Han, Pennington Biomedical Research Center; Robbie Beyl, Pennington Biomedical Research Center; Lei Zhang, Mississippi State Department of Health; William Johnson, Pennington Biomedical Research Center; Jeff Burton, Pennington Biomedical Research Center
- 11:50 a.m. **A Proposed Family of Covariance Structures for Clustered Data**—◆ Samantha R. Seals, University of Mississippi Medical Center; Charles R. Katholi, University of Alabama at Birmingham; Inmaculada Aban, University of Alabama at Birmingham
- 12:05 p.m. Floor Discussion

499 RNA Sequencing and High-Throughput Data—Contributed

CC-252A

Biometrics Section

Chair(s): Wei-Wen Hsu, Kansas State University

- 10:35 a.m. **RMATS: Robust and Flexible Detection of Differential Alternative Splicing from Replicate RNA-Seq Data**—◆ Shihao Shen; Juw Won Park, University of California, Los Angeles; Zhi-xiang Lu, University of California, Los Angeles; Lin Lan, University of

California, Los Angeles; Michael Henry, University of Iowa; Ying Nian Wu, University of California, Los Angeles; Qing Zhou, University of California, Los Angeles; Yi Xing, University of California, Los Angeles

- 10:50 a.m. **A Bayesian Approach to Biomarker Selection Through MiRNA Regulatory Network with Application to Kidney Cancer**—◆ Thierry Chekouo, MD Anderson Cancer Center; Francesco Stingo, MD Anderson Cancer Center; James Doecke, CSIRO Computational Informatics; Kim-Ahn Do, MD Anderson Cancer Center
- 11:05 a.m. **SimSeq: A Nonparametric Approach to Simulation of RNA-Sequence Data Sets**—◆ Samuel Benidt, Iowa State University; Dan Nettleton, Iowa State University
- 11:20 a.m. **Multiplatform Single-Sample Estimates of Transcriptional Activation**—◆ W. Evan Johnson, Boston University School of Medicine; Stephen Piccolo, Boston University; Andrea Bild, University of Utah
- 11:35 a.m. **Strategy for Modeling Nonrandom Missing Data Mechanisms in High-Throughput Omics Studies**—◆ Kyoungmi Kim, University of California, Davis; Sandra L. Taylor, University of California, Davis
- 11:50 a.m. **A Regression Framework for Assessing the Covariate Effects on the Reproducibility of High-Throughput Biological Experiments**—◆ Qunhua Li, Penn State
- 12:05 p.m. **DAFS: Data-Adaptive Flag Method for RNA-Sequencing Data**—◆ Nysia George, FDA/National Center for Toxicological Research; Ching-Wei Chang, FDA/National Center for Toxicological Research

500

CC-258B

■ Noninferiority and Equivalence Trials—Contributed

Biopharmaceutical Section

Chair(s): Lisa Rodriguez, FDA

- 10:35 a.m. **Sample Size Determination for a Three-Arm Equivalence Trial of Poisson Distributed Responses**—◆ Victoria Chang; Yi Tsong, FDA; Zhigen Zhao, Temple University
- 10:50 a.m. **The Application of Improved Fallback Procedure to Testing Noninferiority and Superiority for Multiple Endpoints**—◆ Huiling Li, Forest Research Institute; Yong Wang, Forest Research Institute; Kaifeng Lu, Forest Research Institute
- 11:05 a.m. **Get More Information from Recurrent Events Data**—◆ Wayne Nelson, Wayne Nelson Statistical Consulting

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- 11:20 a.m. **Bayesian-Augmented Control Methods for Efficiently Incorporating Historical Information in Clinical Trials**—◆ Carl Dicasoli, Bayer Healthcare Pharmaceuticals; Michael Kunz, Bayer Healthcare Pharmaceuticals; Daniel Haverstock, Bayer Healthcare Pharmaceuticals
- 11:35 a.m. **Assessing Subgroup Consistency in Noninferiority Clinical Trials**—◆ Oliver Lee, Amgen; Kathy Zhang, Amgen; Alan Rong, Amgen
- 11:50 a.m. **Mid-Course Sample Size Modification in Group-Sequential Designs for Three-Arm Noninferiority Clinical Trials**—◆ Toshimitsu Ochiai, Shionogi & Co.; Yuko Ohno, Osaka University Graduate School of Medicine; Toshimitsu Hamasaki, Osaka University Graduate School of Medicine
- 12:05 p.m. **A Noninferiority Test for a Matched Pair Design with an Ordinal Outcome with a Majority of Zeros**—◆ Wanjie Sun, FDA

501 **CC-251**

■ Methods for Safety, Quality, and Benefit-Risk—Contributed

Biopharmaceutical Section

Chair(s): T. Ceesay, Merck

- 10:35 a.m. **Mining Association Rules in Clinical Trial Safety Data**—◆ Li Zhu, Amgen; Amy Xia, Amgen; Qi Jiang, Amgen; Liron Walsh, Amgen; William Go, Amgen
- 10:50 a.m. **Revisiting Risks Ratio and Properties of Corresponding Confidence Intervals**—◆ Ramin Arani, AstraZeneca; Ian Hirsch, AstraZeneca
- 11:05 a.m. **Generalized Multi-Criteria Decision Analysis for Pharmaceutical Benefit Risk Analysis**—◆ Kao-Tai Tsai; Bruce Dornseif, Celgene Corporation
- 11:20 a.m. **Modeling Censored Stability Data Using Tobit Mixed Models**—◆ Seth Clark, Merck
- 11:35 a.m. **Using a Tolerance Region Approach as a Statistical Quality Control Process for Traditional Chinese Medicine**—◆ Chinfu Hsiao, National Health Research Institutes; Yi-Hsuan Lai, National Health Research Institutes
- 11:50 a.m. **A Dynamic Bayesian Network Predictive Model with Stochastic Serial Structures in Detecting Safety Signals for Hematologic Responses in Cancer Patients**—D. Das Purkayastha, Novartis; ◆ Jagannath Ghosh, Novartis
- 12:05 p.m. **An Exposition to Integrated Modeling of Patients' Random Early Safety Signals for Effective Detections (Impressed): Cytogenetic, Molecular, and Hematologic Disorders**—Sandip Acharya, Novartis; ◆ D. Das Purkayastha, Novartis

502 **CC-204A**

■ Risk Measurement and Strategies for Risk Management—Contributed

Business and Economic Statistics Section

Chair(s): Eyub Yegen, SUNY Oswego

- 10:35 a.m. **Analysis of Risk Measurement and Risk Adjustment**—◆ Min Deng, University of Maryville of St. Louis
- 10:50 a.m. **Automatic Model Selection for Forecasting Large Sets of Count Time Series**—◆ Ta-Hsin Li, IBM Research
- 11:05 a.m. **The Value of Demand Sharing in Supply Chains Facing ARMA Demand**—◆ Vladimir Kovtun, Yeshiva University; Avi Giloni, Yeshiva University; Clifford Hurvich, NYU Stern School of Business
- 11:20 a.m. **Using Moments to Approximate Value-at-Risk by Four Methods**—Donald Lien, University of Texas at San Antonio; ◆ Christopher Stroud, University of Texas at San Antonio; Keying Ye, University of Texas at San Antonio
- 11:35 a.m. **Network Effects and CCP Stability**—◆ Xiao Feng; Mattew Pritsker, Federal Reserve Bank of Boston; Woo Seong Jo, SKK University; Beomjun Kim, SKK University
- 11:50 a.m. **Re-Examination of the Meaning of Strategy**—◆ Chandra Aleong, Delaware State University; John Aleong, University of Vermont
- 12:05 p.m. **Smarter City Predictive Analytics Using Generalized Additive Models**—◆ Bei Chen, IBM Research; Mathieu Sinn, IBM

503 **CC-156B**

Wednesday



Bayesian Inference: Theory and Foundations—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Dongchu Sun, University of Missouri-Columbia

- 10:35 a.m. **Asymptotic Properties of Bayesian Type Estimators When It Is Not Assumed the Hessian Matrices of Contrast Functions Converge**—◆ Yoichi Miyata, Takasaki City University of Economics
- 10:50 a.m. **Robust Bayes Analysis with Hierarchical Classes of Priors**—◆ Xiaomu Wang, Ohio State University; Mark Berliner, Ohio State University
- 11:05 a.m. **Prior and Prejudice: An Algorithm for Weakening Prior Influence**—◆ Keli Liu; Xiao-Li Meng, Harvard; Natesh S. Pillai, Harvard
- 11:20 a.m. **Exploring Minimality and Admissibility of the Usual Estimates and Usual Confidence Sets for the Means of Selected Populations**—◆ Alexandra Bolotskikh, Cornell University; Martin Wells, Cornell University
- 11:35 a.m. **A Decision Theoretic Approach to Multiple Testing of Grouped Hypotheses**—◆ Yanping Liu, Temple University; Sanat K. Sarkar, Temple University; Zhigen Zhao, Temple University
- 11:50 a.m. **On Probability Matching Fiducial Distributions**—◆ Abhishek Pal Majumder, University of North Carolina at Chapel Hill; Jan Hannig, University of North Carolina at Chapel Hill
- 12:05 p.m. **Reference Prior Development for Exponential Random Graph Model**—◆ Sayan Chakraborty, Michigan State University; Tapabrata Maiti, Michigan State University

504 CC-101

■ Provider Profiling and Predicting Hospital Outcomes—Contributed

Health Policy Statistics Section, Statistics Without Borders

Chair(s): Wei Pan, Duke University

- 10:35 a.m. **Penalized Count Data Regression with Application to Hospital Stay After Pediatric Cardiac Surgery**—◆ Zhu Wang, Connecticut Children's Medical Center; Shuangge Ma, Yale; Michael Zappitelli, McGill University Health Centre; Chirag Parikh, Yale; Ching-Yun Wang, Fred Hutchinson Cancer Research Center; Prasad Devarajan, Cincinnati Children's Hospital Medical Center
- 10:50 a.m. **Particle Swarm Optimization for Diagnosis Code Variable Selection**—◆ Gregory Watson,
- 11:05 a.m. **Inference for Identifying Outlying Health Care Providers**—◆ Michael Racz, Albany College of Pharmacy and Health Sciences
- 11:20 a.m. **Operating Characteristics of a Performance Index for**

Benchmarking Hospital Performance: Illustrated on Riksstroke, the Swedish Stroke Register—◆ Anita Lindmark, UmeÅ University; Bart van Rompaye, USBE/UmeÅ University; Els Goetghebeur, Ghent University; Eva-Lotta Glader, UmeÅ University; Marie Eriksson, UmeÅ University

- 11:35 a.m. **Profiling a Large Number of Centers for a Rare Event**—◆ Purna Mukhopadhyay, Arbor Research Collaborative for Health; Douglas E. Schaubel, University of Michigan; Jeffrey Pearson, Arbor Research Collaborative for Health; Douglas Lehmann, University of Michigan
- 11:50 a.m. **A Comparison of Cross-Sectional and Longitudinal Analyses for Adverse Events Data**—◆ Douglas Morrison, Stanford University; Manisha Desai, Stanford University; Catherine Curtin, Stanford University; Tina Hernandez-Boussard, Stanford University
- 12:05 p.m. **Can Planned Visit Scores Predict Practice Improvements in Patient Experience Outcomes? A Meta-Regression Study**—◆ Gerald Arnold, American Board of Internal Medicine; Rebecca Baranowski, American Board of Internal Medicine; Lauren Duhigg, American Board of Internal Medicine

505 CC-157C

Nonparametric Methods—Contributed

Section on Nonparametric Statistics

Chair(s): Ronald Gangnon, University of Wisconsin

- 10:35 a.m. **A Note on Cumulative Mean Estimation**—◆ Bilin Zeng, California State University, Bakersfield; Zhou Yu, U.S. Census Bureau/University of Wisconsin-Madison; Xuerong Wen, Missouri University of Science & Technology
- 10:50 a.m. **Masking and Swamping Robustness of Leading Nonparametric Outlier Identifiers for Multivariate Data**—◆ Shanshan Wang; Robert Serfling, University of Texas at Dallas
- 11:05 a.m. **On Empirical Likelihood Inference of a Change-Point**—◆ Gang Shen,
- 11:20 a.m. **Optimally Combined Estimation for Tail Quantile**—◆ Kehui Wang, North Carolina State University; Huixia Judy Wang, North Carolina State University
- 11:35 a.m. **The Heavy Tailed Inverse Convex Shape Constraint**—◆ Clifford Anderson-Bergman, University of California, Irvine
- 11:50 a.m. **Jump Detection in Time Series Nonparametric Regression Models: A Polynomial Spline Approach**—◆ Qiongxia Song, University of Texas at Dallas; Yujiao Yang, East China Normal University
- 12:05 p.m. **Optimal Rejection Curves for Exact FDR Control**—

◆ Akim Adekpedjou, Missouri University of Science & Technology; Joshua Habiger, Oklahoma State University

506 CC-212 **■ Analysis of Diagnostic Imaging and Other Medical Data—Contributed**

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences, Section on Statistics in Imaging

Chair(s): John Kornak, University of California, San Francisco

- 10:35 a.m. **Early Discussion of Breast Density and Supplemental Breast Cancer Screening: Is It Possible?—**◆ Steven Schwager, Cornell University
- 10:50 a.m. **On the Use of MRI to Predict Individualized Treatment Strategies for Breast Cancer—**◆ Ying Lu, Palo Alto VA CSPCC/Stanford University; John Kornak, University of California, San Francisco; David Newitt, University of California, San Francisco; Nola Hylton, University of California, San Francisco
- 11:05 a.m. **Testing for Two Signals with Unknown Locations in a Gaussian Random Field: A Monte Carlo Simulation Study with an Application to fMRI—**◆ Pei-Chin Lu, University of Northern Colorado; Khalil Shafie, University of Northern Colorado
- 11:20 a.m. **Simplified Power and Sample-Size Calculations Using Prevalence and Magnitude of Active Peaks—**◆ Joke Durnez, Ghent University; Beatrijs Moerkerke, Ghent University; Thomas E. Nichols, University of Warwick
- 11:35 a.m. **An Analytical Variance Estimator of Partial Area Under the Empirical ROC Curve—**◆ Andriy Bandos, University of Pittsburgh; Ben Guo, University of Pittsburgh; Gur David, University of Pittsburgh
- 11:50 a.m. **Analytic Development of Heterogeneous Patterns—**◆ Hyun Kim, University of California, Los Angeles; Peiyun Lu, University of California, Los Angeles; Eran Barnoy, University of California, Los Angeles; David Gjertson, University of California, Los Angeles
- 12:05 p.m. **A Location-Mixture Autoregressive Model for Online Forecasting of Lung Tumor Motion—**◆ Daniel Cervone, Harvard; Natesh S. Pillai, Harvard; Debdeep Pati, Florida State University; John Henry Lewis, Dana-Farber Cancer Institute/Harvard Medical School; Ross Berbeco, Brigham & Women's Hospital/Harvard Medical School

507 CC-203 **■ ● Experimental Design with Alphabet Optimality—Contributed**

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Barbara Wendelberger, University of Wisconsin

- 10:35 a.m. **Aliasing in Random Field Model for Qualitative Factors with Symmetric Levels—**◆ Ming-Chung Chang; Shao-Wei Cheng, National Tsing Hua University; Ching-Shui Cheng, Academia Sinica
- 10:50 a.m. **Locally D-Optimal Designs for Generalized Linear Models with Group Effects and a Covariate—**◆ Xijue Tan, University of Georgia; John Stufken, University of Georgia
- 11:05 a.m. **Optimal Design for Mixed Effects Models—**◆ Linwei Hu; John Stufken, University of Georgia
- 11:20 a.m. **Investigating Herpes Simplex Virus Type 1 and KB Oral Cancer Using Fractional Factorial Designs for Drug Combination Determination—**◆ Jessica Jaynes,
- 11:35 a.m. **Projection, Search, and Optimality Properties of Fractional Factorial Designs—**◆ Zongpeng Zheng, University of California, Riverside; Subir Ghosh, University of California, Riverside
- 11:50 a.m. **Powerful Supersaturated Designs When Effect Directions Are Known—**◆ Maria Weese; Byran Smucker, Miami University; David Edwards, Virginia Commonwealth University
- 12:05 p.m. **Space-Filling Fractional Factorial Designs—**◆ Hongquan Xu, University of California, Los Angeles; Yong-Dao Zhou, Sichuan University

508 CC-207 **High-Dimensional Data—Contributed**

Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America

Chair(s): Enayetur Raheem, University of Northern Colorado

- 10:35 a.m. **Exploiting Feature Information in Matrix Completion—**◆ Anran Wang, North Carolina State University; Hua Zhou, North Carolina State University; Lexin Li, North Carolina State University
- 10:50 a.m. **A Joint Convex Penalty for Inverse Covariance Matrix Estimation—**◆ Ashwini Maurya, Michigan State University
- 11:05 a.m. **Searching for Local Holes in Multivariate Data—**◆ Woollcott Smith, Temple University
- 11:20 a.m. **Computational Procedure for L1-Based Principal Components—**◆ Robert Pavur, University of North Texas; Constantine Loucopoulos, Northeastern Illinois University; Kellie Keeling, University of Denver

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11:35 a.m. **Strong Rules for Nonconvex Penalties and Their Implications for Efficient Algorithms in High-Dimensional Regression**—◆Sangin Lee, University of Iowa; Patrick Breheny, University of Iowa

11:50 a.m. **Floor Discussion**

509 CC-208 Balanced and Unbalanced Data— Contributed

Section on Statistical Learning and Data Mining

Chair(s): *Tuhin Chattopadhyay, Fortune Institute of International Business*

10:35 a.m. **Copula Correlation: An Equitable and Consistently Estimable Measure for Association**—◆Aidong Ding, Northeastern University; Yi Li, Northeastern University

10:50 a.m. **Managing and Outsizing Big Data in Health Care Application**—◆Maoqing Liu; Nasser Fard, Northeastern University

11:05 a.m. **Fast Algorithms for Logistic Regression with Big Data**—◆HaiYing Wang, University of New Hampshire; Rong Zhu, Chinese Academy of Science; Ping Ma, University of Georgia

11:20 a.m. **The Art of Balancing**—◆Zhen Zhang, C Spire Wireless; Justin Croft, C Spire Wireless; Kendall Churchwell, C Spire Wireless

11:35 a.m. **Classification for Highly Unbalanced Data by Maximizing Area Under Precision-Recall Curve**—◆Lixia Zhang, North Carolina State University; Howard D. Bondell, North Carolina State University

11:50 a.m. **Feature Creation and Model Uncertainty in Observational Medical Data**—◆Rebecca Ferrell, University of Washington; Tyler H. McCormick, University of Washington

12:05 p.m. **Floor Discussion**

510 CC-206B Model Selection and Inference— Contributed

Section on Statistical Learning and Data Mining

Chair(s): *Neil Ericsson,*

10:35 a.m. **Sparse Covariance Matrix Estimation for Compositional Data via a Composition-Adjusted Thresholding**—◆Yuanpei Cao, University of Pennsylvania

10:50 a.m. **Greedy Ridge Estimation for Large Precision Matrix**—◆Shiqiong Huang, Carnegie Mellon; Jiashun Jin, Carnegie Mellon; Zhigang Yao, Swiss

Federal Institute of Technology

11:05 a.m. **Model Selection Based on Quadratic Distances Between Distributions with Application to an HCV Biomarker**—◆Rositsa Dimova, University at Buffalo; Marianthi Markatou, University at Buffalo

11:20 a.m. **Model Selection for High-Dimensional Quantile Regression at Multiple Percentile Levels**—◆Seyoung Park, University of Michigan

11:35 a.m. **Joint Model Selection for Correlated Outcomes**—◆Yunpeng Zhao, George Mason University; Qing Pan, George Washington University

11:50 a.m. **Model Selection and Inference in Developing a Predictive Model for Survival**—◆Hongying Li, University of California, San Diego; Minya Pu, University of California, San Diego; Lei Bao, University of California, San Diego; Loki Natarajan, University of California, San Diego; Karen Messer, University of California, San Diego

12:05 p.m. **A Significance Test in Forward Stepwise Model Selection**—◆Joshua Loftus, Stanford University; Jonathan Taylor, Stanford University

511 CC-151A Inference and Variance Estimation - 2— Contributed

Survey Research Methods Section, Government Statistics Section

Chair(s): *Jill Dever, RTI International*

10:35 a.m. **Descriptive and Analytic Inferences from Input and Output De-Identified Data**—◆Avinash Singh, NORC at the University of Chicago; Yongheng Lin, NORC at the University of Chicago; Joshua Borton, NORC at the University of Chicago

10:50 a.m. **Weighted Least Squares Estimation with Simultaneous Consideration of Variance and Sampling Weights**—◆Hee-Choon Shin, NCHS; Jibum Kim, Sungkyunkwan University

11:05 a.m. **The Backstory of Deff and Deft**—◆Daniel Kasprzyk, NORC at the University of Chicago; Yonghe Michael Yang, NORC at the University of Chicago; Fritz Scheuren, NORC at the University of Chicago

11:20 a.m. **A Design Effect Measure for Calibration Weighting in Cluster Samples**—◆Kimberly Henry, IRS/SOI; Richard Valliant, University of Michigan/University of Maryland

11:35 a.m. **A Coverage Property of Biased Intervals**—◆Alan Dorfman, NCHS

11:50 a.m. **Defining and Updating the National Health Interview Survey Variance Estimation Structure Over a Sample Design Period**—◆Chris Moriarity, NCHS;



Rong Wei, NCHS/CDC

- 12:05 p.m. **Inference for Exponential-Family Random Graph Models Based on Egocentrically Sampled Data**—◆ Pavel N. Krivitsky, University of Wollongong; Martina Morris, University of Washington

- 10:35 a.m. **Statistical Modeling of Epidemics and Contact Networks That Transmit Them**—◆ Jun Yin; Brian J. Smith, University of Iowa

- 10:50 a.m. **Comparison of the Performance of Particle Filter Algorithms Applied to Tracking of a Disease Epidemic**—◆ Daniel Michael Sheinson, University of California, Santa Barbara; Jarad Niemi, Iowa State University; Wendy Meiring, University of California, Santa Barbara

512 **Survey Methods and Estimation - 2—Contributed**

CC-153A

Survey Research Methods Section, Government Statistics Section
Chair(s): Andrew White, NCES/IES

- 11:05 a.m. **Divide-Recombine Prediction for Virginia Lyme Disease Emergence Based on Spatio-Temporal Count Data**—◆ Yuanyuan Duan, Abbie; Jie Li, Virginia Tech; Korine Kolivras, Virginia Tech; Stephen Prisley, Virginia Tech; James Campbell, Virginia Tech; David Gaines, Virginia Department of Health; Yili Hong, Virginia Tech

- 10:35 a.m. **Improving Survey Data by Examining Interviewer-Respondent Interactions: Evidence from the Survey of Consumer Finances**—◆ Kevin Moore, Federal Reserve Board; Jesse Bricker, Federal Reserve Board; John Sabelhaus, Federal Reserve Board

- 11:20 a.m. **Dynamic Model for Detection of Animal Disease Outbreak**—◆ Chellafe Ensoy, Hasselt University; Christel Faes, Hasselt University; Marc Aerts, Hasselt University

- 10:50 a.m. **Investigating Nonresponse Error in Open-Ended Survey Items and Their Potential for Enriching Validity of Closed-Ended Measures**—◆ Ashley Bowers, Indiana University; Stacey Giroux, Indiana University; Denvil Duncan, Indiana University; Venkata Nadella, Indiana University; John D. Graham, Indiana University

- 11:35 a.m. **Predictive Modeling of Cholera Outbreaks in Bangladesh**—◆ Amanda Koepke, University of Washington; Ira Longini, University of Florida; M. Elizabeth Halloran, Fred Hutchinson Cancer Research Center; Jon Wakefield, University of Washington; Vladimir Minin, University of Washington

- 11:05 a.m. **Testing Goodness-of-Fit with Survey Data**—◆ Yan Lu, University of New Mexico; Guoyi Zhang, University of New Mexico

- 11:50 a.m. **Comparison of the Quality of Care in Trauma with Application to the Prospective, Observational, Multi-Center Massive Transfusion Study (PROMMTT)**—◆ Anna Decker, University of California, Berkeley; Alan Hubbard, University of California, Berkeley; Mitchell Cohen, University of California, San Francisco

- 11:20 a.m. **Optimal AK Composite Estimators for the Current Population Survey**—◆ Zhou Yu, U.S. Census Bureau/University of Wisconsin-Madison; Jun Shao, University of Wisconsin-Madison; Yang Cheng, U.S. Census Bureau

- 12:05 p.m. **The Public Health Burden of Influenza: Clustering, Modeling, and Predicting Incidence for Diseases Associated with the Influenza**—◆ Fan Tang, University of Iowa; Joseph E. Cavanaugh, University of Iowa

- 11:35 a.m. **Managing Sample Release in Social and Economic Surveys**—◆ Frank Potter, Mathematica Policy Research

- 11:50 a.m. **Parametric Bootstrap Procedure for Small Area Prediction Variance**—◆ Andreea Erculescu, Iowa State University; Wayne A. Fuller, Iowa State University

- 12:05 p.m. **Iterative Hot-Deck Multiple Imputation with a Distance-Based Donor Method for the Current Population Survey**—◆ Allison Zotti, U.S. Census Bureau; Kelly Mathews, U.S. Census Bureau; T. Trang Nguyen, U.S. Census Bureau

514 **Challenges in Performing Genetic Association Studies Using Nontraditional Sources Such as Electronic Medical Record—Contributed**

CC-209

Section on Statistics in Epidemiology

Chair(s): Sada Nand Dwivedi, All India Institute of Medical Sciences

513 **Innovative Statistical Modeling of Data from Disease Outbreaks and Trauma Centers—Contributed**

CC-211

Section on Statistics in Epidemiology

Chair(s): Usha Govindarajulu, Boston University

- 10:35 a.m. **Secondary Trait Analysis for Case-Control Association Studies in the Presence of Covariates**—

◆ Godwin Yung, Harvard; Xihong Lin, Harvard School of Public Health

10:50 a.m. **Improving the Power of Genetic Association Tests with Imperfect Phenotype Derived from Electronic Medical Records**—◆ Jennifer Sinnott, Harvard; Wei Dai, Harvard; Katherine P. Liao, Brigham & Women's Hospital; Stanley Y. Shaw, Massachusetts General Hospital; Ashwin Ananthakrishnan, Massachusetts General Hospital; Vivian S. Gainer, Partners Healthcare; Elizabeth W. Karlson, Brigham & Women's Hospital; Susanne Churchill, i2b2; Peter Szolovits, Massachusetts Institute of Technology; Shawn Murphy, Partners Healthcare; Isaac Kohane, Harvard Medical School; Robert Plenge, Merck; Tianxi Cai, Harvard

11:05 a.m. **Enhancing Genetic Case-Control Studies Using Sample Surveys**—◆ Parichoy Pal Choudhury, Johns Hopkins Bloomberg School of Public Health; Daniel Scharfstein, Johns Hopkins Bloomberg School of Public Health; Joshua M. Galanter, University of California, San Francisco; Chris R. Gignoux, University of California, San Francisco; Lindsey A. Roth, University of California, San Francisco; Sam S. Oh, University of California, San Francisco; Luisa N. Borrell, Lehmann College; Esteban G. Burchard, University of California, San Francisco; Saunak Sen, University of California, San Francisco

11:20 a.m. **Massive Multiple Testing Does Not Increase Rates of Spurious Findings in Genetic Association Studies**—◆ Dmitri Zaykin, National Institute of Environmental Health Sciences; Olga Vsevolozhskaya, Michigan State University; Chia-Ling Kuo, University of Connecticut; Luda Diatchenko, McGill University

11:35 a.m. **The Generalized Higher Criticism for Testing SNP-Sets in Genetic Association Testing**—◆ Ian Barnett, Harvard; Rajarshi Mukherjee, Harvard; Xihong Lin, Harvard School of Public Health

11:50 a.m. **A Weighted Multivariate Phenotype-Genotype Association Analysis in Genome-Wide Association Studies**—◆ Saonli Basu, University of Minnesota; Debashree Ray, University of Minnesota

12:05 p.m. **Penalized Functional Regression for Next-Generation Sequencing Studies**—◆ Olga Vsevolozhskaya; Qing Lu, Michigan State University; Dmitri Zaykin, National Institute of Environmental Health Sciences

515 **Time Series and Benchmarking—Contributed** **CC-105**

Government Statistics Section

Chair(s): Cynthia Cors,

10:35 a.m. **Examining the Impact of Updating More Months of Concurrent Seasonally Adjusted Industry Estimates in the Current Employment Statistics (CES)**—◆ Brenda Loya, Bureau of Labor Statistics; Patrick Hu, Bureau of Labor Statistics

10:50 a.m. **Incorporating a Birth/Death Adjustment into the CES National Benchmark Revision**—◆ Victoria Battista, Bureau of Labor Statistics

11:05 a.m. **Testing for Serial Dependence in Binomial Time Series Regression**—◆ Jieyi He; William Dunsmuir, University of New South Wales

11:20 a.m. **A Comparison of Regression Models with Adapted Shewhart and CUSUM Chart Algorithms for Aberration Detection in Biosurveillance Systems**—◆ Hong Zhou, CDC; Howard Burkom, Johns Hopkins Applied Physics Laboratory; Carla Winston, Veterans Health Administration; Dey Achintya, CDC; Paul McMurray, CDC; Umed Ajani, CDC

11:35 a.m. **Effect of Benchmarking by Industry and Size Class on National Compensation Survey Estimates**—◆ Christopher Guciaro, BLS

11:50 a.m. **Floor Discussion**

Speed Poster Presentations

10:30 a.m.–11:15 p.m.

516 **CC-Exhibit Hall B2**
Speed Session #6: Statistics in Epidemiology, Part 2—Contributed

Section on Statistics in Epidemiology

Chair(s): William Johnson, Pennington Biomedical Research Center

1 **Multilevel Mediation Analysis, with an Application to Explore Racial Disparity in Physical Activity and Obesity**—◆ Qingzhao Yu; Richard Scribner, LSUHSC; Claudia Leonardi, LSUHSC; Chi Li, LSUHSC; Lu Zhang, LSUHSC; Neal Simonsen,

2 **Meta-Analysis of Depression on the Risk of Coronary Heart Disease in Cohort Studies**—◆ Qing Wu, Mayo Clinic; Juliana Kling, Mayo Clinic; Minako Katayama, Mayo Clinic

3 **Performance of Propensity Scores in the Analysis of Rare Events**—◆ Jessica M. Franklin, Brigham & Women's Hospital/Harvard Medical School; Sebastian



- Schneeweiss, Brigham & Women's Hospital/Harvard Medical School
- 4 **Augmented Estimator for Censored Linear Regression for Case-Cohort Studies**—◆Jon Steingrimsson, Cornell University; Robert Strawderman, University of Rochester
- 5 **Comparison of Power from Area Under the Curve and Mixed Effects Models Methodologies for Profile Analysis**—◆Robbie Beyl, Pennington Biomedical Research Center; Jeff Burton, Pennington Biomedical Research Center; William Johnson, Pennington Biomedical Research Center
- 6 **Bayesian Marginal Structural Models for Analysis of Medication Use Among Critically Ill Older Patients**—◆Terrence Murphy; Katy Araujo, Yale; Margaret A. Pisani, Yale School of Medicine
- 7 **A Marginalized Zero-Inflated Poisson Regression Model with Random Effects**—◆D. Leann Long, West Virginia University; John Preisser, University of North Carolina; Amy Herring, University of North Carolina at Chapel Hill; Carol Golin, University of North Carolina at Chapel Hill
- 8 **Application of Negative Binomial Regression Models for Estimating Influenza-Associated Deaths Using the CDC 122 Cities Mortality Reporting System Data and Final Complete Mortality**—◆Po-Yung Cheng, CDC; Lynnette Brammer, CDC
- 9 **Selecting Spatial Scale of Contextual Covariates to Explain Childhood Obesity**—◆Lauren Grant, Virginia Commonwealth University; David Wheeler, Virginia Commonwealth University; Chris Gennings, Virginia Commonwealth University
- 10 **Validating Patterns for Longitudinal Trial Data**—◆Hua Fang, University of Massachusetts Medical School; Chanpaul Wang, University of Massachusetts Medical School; Zhaoyang Zhang, University of Massachusetts Medical School/Dartmouth; Jingfang Huang, University of Massachusetts Medical School/Dartmouth; Honggang Wang, University of Massachusetts/Dartmouth
- 11 **A Marginalized Zero-Inflated Negative Binomial Regression Model with Overall Exposure Effects**—◆John Preisser, University of North Carolina; Kalyan Das, University of Calcutta; D. Leann Long, West Virginia University; John Stamm, University of North Carolina
- 12 **Penalized Cox Regression Models of Sparse Outcomes**—◆G. Kolm, Christiana Care Health System; Pan Wu, Christiana Care Health System; Claudine Jurkowitz, Christiana Care Health System; Pranav Kansara, Christiana Care Health System
- 13 **Incorporating the Presence of Error-Prone Diagnostic Tests and Self-Reported Outcomes in Time-to-Event Models**—◆Xiangdong Gu; Raji Balasubramanian, University of Massachusetts, Amherst
- 14 **A Bayesian Approach to Joint Modeling of Longitudinal Menstrual Cycle Length and the Probability of Pregnancy**—◆Kirsten J. Lum, Johns Hopkins University/National Institute of Child Health and Human Development; Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development ; Germaine M. Louis, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Thomas Louis, U.S. Census Bureau/Johns Hopkins University
- 15 **Assessing Personal PM2.5 Exposure Prediction Improvement After Addition of Indoor PM2.5 Exposure and Personal Characteristics to Outdoor PM2.5 Exposure Measurements**—◆Cole Brokamp, University of Cincinnati; M. B. Rao, University of Cincinnati; Patrick Ryan, Cincinnati Children's Hospital Medical Center
- 16 **Spatial Optimization with Respect to Extreme Weather and Human Health: A Zoning with Multidimensional Objective for Environmental Studies**—◆Alexander Liss, Tufts University; Elena Naumova, Tufts University
- 17 **On Stepped Wedge Designs for Vaccine Effectiveness Studies Under Complex Transmission Conditions**—◆Sahar Zangeneh, Fred Hutchinson Cancer Research Center; M. Elizabeth Halloran, Fred Hutchinson Cancer Research Center; Ira Longini, University of Florida
- 18 **Using Patient-Reported Outcome Measures and Electronic Health Record Data for Clinical Trial Recruitment**—◆Sandra D. Griffith, Cleveland Clinic; Susannah Rose, Cleveland Clinic
- 19 **Who Wins a Battle Between Efficiency and Accuracy? A Case of Spatial Interpolation for Environmental Applications**—◆Ilya Rozonoyer, Tufts University; Elena Naumova, Tufts University; Alexander Liss, Tufts University
- 20 **Modeling Heat Stroke-Related Hospitalizations in the Elderly Residents in Boston, USA**—Elena Naumova, Tufts University; ◆Ruiruo Wu, Tufts University; Alexander Liss, Tufts University

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CC-Exhibit Hall B2

Contributed Oral Poster Presentations: Government Statistics Section— Contributed

Government Statistics Section

Chair(s): Daniel S. Cooley, Colorado State University

- 18 **Application of Design-Based and Model-Based Inference to Data from the National Health and Nutrition Examination Survey**—◆Margaret Carroll, NCHS/CDC/OSELS
- 19 **Performance Evaluation of New CELB Devices**—◆Morteza Marzjarani; James M. Nance, NMFS SEFSC Galveston Laboratory; Rick A. Hart, NMFS SEFSC Galveston Laboratory; James Primrose, NMFS SEFSC Galveston Laboratory; Jo Anne Williams, NMFS SEFSC Galveston Laboratory
- 20 **A Comparison of Methods for Modeling Cost Data of Antidiabetic Medication**—◆Xinhua Zhao,
- 21 **Quantile-Based Sample Size Planning for Surveillance-Based Prevalence**—◆Clinton Alverson, CDC/ONDIEH/NCBDDD; Adolfo Correa, University of Mississippi Medical Center; Mike Atkinson, CDC/ONDIEH/NCBDDD
- 22 **Education Expenditure Comparison Areas**—◆Satkartar Kinney, NISS
- 23 **Redesigning the Consumer Expenditure Survey: Development, Implementation, and Evaluation**—◆Laura Erhard, Bureau of Labor Statistics; Adam Safir, Bureau of Labor Statistics
- 24 **Estimating the Effect of Initial Expressions of Reluctance and the Risk of First Occurrence of Survey Nonresponse in a Household Panel Survey**—◆Adam Safir, Bureau of Labor Statistics; Lucilla Tan, Bureau of Labor Statistics
- 25 **Assessing the Usefulness of Census Bureau Multi-Establishment Data to Facilitate Linking Firms with Establishments in BLS Microdata**—◆Lowell G. Mason, Bureau of Labor Statistics; Elizabeth Weber Handwerker, BLS
- 26 **Optimization Targeting of the Annual Refiling Survey**—◆Marek W. Kaminski, Bureau of Labor Statistics

518 CC-Exhibit Hall B2 Contributed Oral Poster Presentations: Section on Statistical Education—

Contributed

Section on Statistical Education

Chair(s): Daniel S. Cooley, Colorado State University

- 27 **Student Assessment in Engineering Classes**—◆Julia Norton, California State University, East Bay; Farnaz Ganjezadeh, California State University, East Bay
- 28 **ANOVA and Multiple Tests of Hypotheses Controlling for Family-Wise Error Rate**—◆Marie Kraska, Auburn University
- 29 **Stat Geek Squad: Mentoring Novice AP Statistics Teachers of Underserved Students**—◆Sharon Hessney, Massachusetts Math & Science Initiative
- 30 **Heuristic Biases in an Introductory Statistics Course**—◆Andrew Neath, SIU Edwardsville
- 31 **At What Point Do Students' Attitudes Change?**—◆April Kerby, Winona State University; Jacqueline Wroughton, Northern Kentucky University
- 32 **Classroom Simulation: Distributions of Ties Induced by Rounding Continuous Data**—◆Bruce Trumbo; Eric A. Suess, California State University, East Bay
- 33 **Statistics for Engineers Class Projects: Capstone or Confusion**—◆Charles Smith, North Carolina State University; Kimberly Weems, North Carolina State University; Renee' Moore, North Carolina State University
- 34 **Teaching Hypotheses-Testing Concepts with the Binomial Test and a Pepsi-Coke Challenge**—◆Phyllis Curtiss, Grand Valley State University; John Gabrosek, Grand Valley State University; Kirk Anderson, Grand Valley State University
- 35 **Is This Applied Statistics? A Concept Map**—◆Glenn Johnson, Penn State; Scott Roths, Penn State; James Rosenberger, Penn State; Mosuk Chow, Penn State
- 36 **Teaching About Generalizability in Meta-Analyses**—◆Betsy Becker, Florida State University; Ariel Aloe, University of Northern Iowa; Christopher Thompson, Florida State University
- 37 **Illustrating Discrepancies Between the Bivariate Correlation and Effect-Size Indices Estimated from Regression Results**—◆Ariel Aloe, University of Northern Iowa; Betsy Becker, Florida State University
- 38 **Initiatives in Applied Statistics Graduate Programs at Penn State**—◆Mosuk Chow, Penn State; Linda Clark, Penn State; James Rosenberger, Penn State; Glenn Johnson, Penn State
- 39 **Responsibility in the Conduct of Quantitative**



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Sciences: Preparing Future Practitioners and Certifying Professionals—◆ Rochelle E. Tractenberg, Georgetown University; Kevin T. Fitzgerald, Georgetown University Medical Center

40 **Classroom Demonstrations of Big Data**—◆ Eric A. Suess, California State University, East Bay

41 **Using Electronic Assessments to Inform Student Learning in Introductory Statistics**—◆ Amy Froelich, Iowa State University; Dianne Cook, Iowa State University; James Curro, Iowa State University; Xiaoyue Cheng, Iowa State University

42 **Using the Past to Mold the Future: Results of Surveys of Alumni from an Undergraduate Statistics Program**—◆ Lisa Kay, Eastern Kentucky University; Patti Costello, Eastern Kentucky University

43 **Experiences in Creating an Innovative Online Statistical Concepts Course**—◆ Amanda Ellis, UKY

44 **From Measurement Errors to Normal Distributions: A Brief History and Its Pedagogical Implications**—◆ Ilhan M. Izmirlı, George Mason University

45 **Classroom Activity: Estimating the Proportion of the Earth's Surface That Is Covered by Water**—◆ Paul Stephenson, Grand Valley State University; Laura Kapitula, Grand Valley State University

46 **Evolving a Traditional Business Statistics Course into a General Education Requirement Course**—◆ Cathy Poliak, University of Wisconsin-Milwaukee

519 **Contributed Oral Poster Presentations: Social Statistics Section—Contributed**

CC-Exhibit Hall B2

Social Statistics Section

Chair(s): Daniel S. Cooley, Colorado State University

47 **A Demometric Analysis of Ulpian's Table**—◆ Peter Pflaumer,

48 **A Monte Carlo Investigation into the Performance of Structural Equation Modeling Trees**—◆ Holmes Finch, Ball State University; Brian French, Washington State University

49 **Longitudinal Influences of Neighborhood Socioeconomic Environment on Weight Change Among Normal Weight 18-Year-Olds: An Application of Missing Data Methods in Path Analysis**—◆ Jin-Wen Yang Hsu, Kaiser Permanente; Deborah Rohm Young, Kaiser Permanente; Guangyu Zhang, NCHS/CDC

50 **A Simulation Study of the Independent Means T-Test, Satterthwaite's Approximate T-Test, and the Trimmed T-Test Under Normal and Non-Normal Distributions**—

◆ Anh P. Kellermann, University of South Florida; Diep Thi Nguyen, University of South Florida; Patricia Rodriguez de Gil, University of South Florida; Eun Sook Kim, University of South Florida; Jeffrey D. Kromrey, University of South Florida

51 **Covariate Balance in PS Models: Much Ado About Nothing?**—◆ Jessica Montgomery; Eun Sook Kim, University of South Florida; Jeffrey D. Kromrey, University of South Florida; Rheta E. Lanehart, University of South Florida; Patricia Rodriguez de Gil, University of South Florida; Derrick Saddler, University of South Florida; Yan Wang, University of South Florida

52 **Comparing Students' Performance Profiles Between Performance-Based and Multiple-Choice Tests Using Multivariate Approach**—◆ Weiwei Cui, NISS

520 **Contributed Oral Poster Presentations: Survey Research Methods Section—Contributed**

CC-Exhibit Hall B2

Survey Research Methods Section

Chair(s): Daniel S. Cooley, Colorado State University

Survey Research Methods Section

53 **Three-Stage Optimal Sampling Plans for Group Testing Data**—◆ Osval Antonio Montesinos Lopez, University of Nebraska; Kent M. Eskridge, University of Nebraska-Lincoln

54 **An Alternative to a Standard Crossover Study to Evaluate the Impact of an Assay Change in NHANES**—◆ Maya Sternberg, CDC; Rosemary Schleicher, CDC

55 **Ordered Sample Scatterplots for Displaying Survey Data**—◆ Edward Mulrow, NORC at the University of Chicago; Susan Hinkins, NORC at the University of Chicago; Fritz Scheuren, NORC at the University of Chicago

56 **Interval Estimation of a Finite Population Proportion Using Randomized Response**—◆ Jesse Frey, Villanova University

Section on Bayesian Statistical Science

57 **Bayesian Models for Binary Responses with Markov Dependence**—◆ Michelle Marcovitz, Baylor University; John W. Seaman, Baylor University

Survey Research Methods Section

58 **Experiences with Face-to-Face Surveys in Africa**—



- ◆ Matthias Schonlau, University of Waterloo; Christian Boudreau, University of Waterloo; Peter Driezen, University of Waterloo; Susan Kaai, University of Waterloo; Anne Chiew Kin Quah, University of Waterloo; Mary Thompson, University of Waterloo; Geoffrey Fong, University of Waterloo
- 59 **Impact of Changing the Number of Interview Waves in the NCVS**—◆ Ivan Carrillo-Garcia, RTI International; Marcus Berzofsky, RTI International
- 60 **Project Talent: An Overview of Characteristics and Performance of Students from Immigrant Families**—◆ Zhulin He; Alan F. Karr, NISS; Michael P. Cohen, American Institutes for Research; Deanna Lyter Achorn, American Institutes for Research; Danielle Battle, American Institutes for Research
- 61 **Designing Flexibility for State Samples into the Redesigned 2016 National Health Interview Survey (NHIS)**—◆ Van Parsons, NCHS
- 62 **A Bayesian Approach to Incorporating Uncertainty in Record Linkage**—◆ Nicole Dalzell,
- 63 **Imputation for National Hospital Care Survey**—◆ Diba Khan, NCHS; Iris M. Shimizu, CDC/NCHS; Yulei He, NCHS/CDC; Sharon Liu, NCHS/DHCS; Jin Zhang, NCHS/DHCS; Jianmin Xu, NCHS/DHCS; Bill Cai, NCHS/DHCS; Marian Strazzeri, NCHS/ORM/SRSDS
- 64 **Relative Weight Analysis for HCAHPS Measures with Advanced Modeling**—◆ Wei-Han Chen, PRESSGANNEY; Jenhao Cheng, Press Ganey Associates; Nikolas Matthes, Press Ganey Associates; Dennis Kaldenberg, Press Ganey Associates
- 65 **Analysis of Wait Time in Hospital Emergency Departments**—◆ Bill Cai, NCHS/DHCS
- 66 **A Simplified Approach to Administrative Record Linkage in the Quarterly Census of Employment and Wages**—◆ Justin J. McIllece, Bureau of Labor Statistics

Speaker with Lunch 12:30 p.m.–1:50 p.m.

521 **Health Policy Statistics Section Speaker with Lunch (Fee Event)—Speaker with Lunch**

CC-259B

Health Policy Statistics Section

Organizer(s): Yuanjia Wang, Columbia University

- WL07 **Are Observational Studies Any Good?**—◆ David Madigan, Columbia University

Roundtables with Lunch 12:30 p.m.–1:50 p.m.

522 **Biopharmaceutical Section P.M. Roundtable Discussion (Fee Event)**

CC-Ballroom West

Biopharmaceutical Section

Organizer(s): Gary Aras, Amgen

- WL08 **Statistical Issues in Process Validation of Pharmaceutical Products**—◆ Katherine E.D. Giacoletti, McNeil Consumer Healthcare/Johnson & Johnson; Stan Altan, Janssen

523 **Government Statistics Section P.M. Roundtable Discussion (Fee Event)**

CC-Ballroom West

Government Statistics Section

Organizer(s): Jenny Guarino, USDOT/BTS

- WL09 **NCHS Record Linkages: Issues and Opportunities**—◆ Jennifer Parker, NCHS
- WL10 **Estimating Incidence Risk for Two Complex Sample Surveys: Behavioral Risk Factor Surveillance System (BRFSS) and Asthma Call-Back Survey (ACBS)**—◆ Xiaoting Qin, CDC

524 **Quality and Productivity Section P.M. Roundtable Discussion (Fee Event)**

CC-Ballroom West

Quality and Productivity Section

Organizer(s): Alix Robertson, Sandia National Laboratories

- WL11 **Using Statistical Engineering to Attack Large, Complex, Unstructured Problems**—◆ Roger Hoerl, Union College
- WL12 **Using Split-Plot Designs for Efficient Experimentation**—◆ Brooks Henderson, Stat-Ease

525 **Section for Statistical Programmers and Analysts P.M. Roundtable Discussion (Fee Event)**

CC-Ballroom West

Section for Statistical Programmers and Analysts

Organizer(s): Michael Carniello, Takeda

- WL13 **Real-World Evidence and Clinical Databases: Merging the Information**—◆ Vipin Arora, Eli Lilly and Company

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

526 **CC-Ballroom West**
Section on Bayesian Statistical Science
P.M. Roundtable Discussion (Fee Event)

Section on Bayesian Statistical Science

Organizer(s): *Kate Calder, Ohio State University*

WL14 **Best Practices in Software Engineering for Professional Statisticians**—◆Murray Stokely, Google

527 **CC-Ballroom West**
Section on Physical and Engineering Sciences P.M. Roundtable Discussion (Fee Event)

Section on Physical and Engineering Sciences

Organizer(s): *William Li, University of Minnesota*

WL15 **The Continuing Impact of Spatiotemporal Statistics**—◆Alexander Kolovos, SpaceTimeWorks

528 **CC-Ballroom West**
Section on Statistical Consulting P.M. Roundtable Discussion (Fee Event)

Section on Statistical Consulting

Organizer(s): *Kim Love-Myers, University of Georgia*

WL16 **Building Beneficial Partnerships Between Statistical Consultants and Industry**—◆Edward Jones, Texas A&M

529 **CC-Ballroom West**
Section on Statistical Education P.M. Roundtable Discussion (Fee Event)

Section on Statistical Education

Organizer(s): *Erin Blankenship, University of Nebraska-Lincoln*

WL17 **Visualization: Another V Associated with Big Data**—◆John D. McKenzie Jr., Babson College

WL18 **Ideas for Teaching Statistics from Popular Science Books**—◆Allan Rossman, Cal Poly, San Luis Obispo

530 **CC-Ballroom West**
Section on Teaching of Statistics in the Health Sciences P.M. Roundtable Discussion (Fee Event)

Section on Teaching of Statistics in the Health Sciences

Organizer(s): *Jeff Szychowski, University of Alabama*
WL19 **A New Evidence-Based Practice Basis for Teaching Statistics in Health Science**—◆Deborah Weissman-Miller, Brenau University

531 **CC-Ballroom West**
Survey Research Methods Section P.M. Roundtable Discussion (Fee Event)

Survey Research Methods Section

Organizer(s): *Daniell Toth, Bureau of Labor Statistics*

WL20 **Practical Tools for Designing and Weighting Survey Samples**—◆Jill Dever, RTI International

Invited Sessions 2:00 p.m.–3:50 p.m.

532 **CC-258B**
■ ● Analytical Challenges and Statistical Thinking in Analyzing High-Throughput ‘Omics’ Data—Invited

Caucus for Women in Statistics, International Indian Statistical Association

Organizer(s): *Ji-Hyun Lee, Moffitt Cancer Center & Research Institute*
 Chair(s): *Saonli Basu, University of Minnesota*

2:05 p.m. **Joint Analysis of SNP and Gene Expression/DNA Methylation Data in Genetic Association Studies of Complex Diseases Using Mediation Analysis**—◆Xihong Lin, Harvard School of Public Health; Yen-Tsung Huang, Brown University; Tyler VanderWeele, Harvard

2:30 p.m. **Integrative Statistical Models for High-Throughput Genomic Data**—◆Sunduz Keles, University of Wisconsin-Madison

2:55 p.m. **Improved Protein Inference from Tandem Mass Spectrometry Data**—◆Susmita Datta, University of Louisville; Riten Mitra, University of Louisville

3:15 p.m. **An Empirical Bayesian Approach for Prioritizing Somatic Mutations**—Keegan Korthauer, University of Wisconsin-Madison; ◆Christina Kendziorski, University of Wisconsin-Madison

3:45 p.m. **Floor Discussion**

533 **CC-257B**

Wednesday



■ Advances in Risk Prediction Using Genetic and Genomic Data—Invited

Section on Statistics in Epidemiology

Organizer(s): Huilin Li, New York University

Chair(s): Mengling Liu, New York University

- 2:05 p.m. **Strategies for Building Risk Models Based on Single Nucleotide Polymorphisms (SNPs)**—◆ Mitchell Henry Gail, National Cancer Institute; Ruth Maria Pfeiffer, National Cancer Institute; Jincao Wu, National Cancer Institute
- 2:30 p.m. **Cross-Study Reproducibility of Predictions, with Application to Genomics**—◆ Giovanni Parmigiani, Dana-Farber Cancer Institute
- 2:55 p.m. **The Incremental Value of Percent Mammographic Density and Common Single Nucleotide Polymorphism Genotypes for Predicting Absolute Risk of Breast Cancer**—◆ Jinbo Chen, University of Pennsylvania Perelman School of Medicine; Lu Chen, University of Pennsylvania Perelman School of Medicine; Mitchell Henry Gail, National Cancer Institute
- 3:20 p.m. **A Risk Prediction Model for Smoking Experimentation in Mexican-American Youth**—◆ Sanjay Shete, MD Anderson Cancer Center; Rajesh Talluri, MD Anderson Cancer Center
- 3:45 p.m. **Floor Discussion**

534 **CC-258A**
■ ● Innovative Designs in Vaccine Clinical Trials—Invited

Biopharmaceutical Section

Organizer(s): Robert D. Small, Sanofi Pasteur

Chair(s): Frank Liu, Merck

- 2:05 p.m. **A Two-Stage Sequential Design to Minimize Risk in a Large Vaccine Efficacy Trial**—◆ Ehab Bassily, Sanofi Pasteur
- 2:30 p.m. **Vaccine Efficacy: The Virion's Perspective**—◆ Dean Follmann, NIAID; Chiung-Yu Huang, Johns Hopkins University
- 2:55 p.m. **Improving Early Development of Infectious Disease Treatments and Vaccines via Adaptive Designed Trials**—◆ James A. Bolognese, Cytel
- 3:20 p.m. **Disc: Estelle Russek-Cohen, FDA/CBER**
- 3:45 p.m. **Floor Discussion**

535 **CC-102A**

Model and Variable Selection, and Beyond—Invited

Section on Nonparametric Statistics

Organizer(s): Ingrid Van Keilegom, Université Catholique de Louvain

Chair(s): Terrance Savitsky, Bureau of Labor Statistics

- 2:05 p.m. **Quantile Regression Analysis of High-Dimensional Heterogeneous Data: Recent Developments**—◆ Lan Wang, University of Minnesota; Xuming He, University of Michigan; Grace Hong, Michigan State University; Runze Li, Penn State; Yichao Wu, North Carolina State University; Bo Peng, University of Minnesota; Ben Sherwood, University of Minnesota
- 2:30 p.m. **Graphical Model Estimation via the Focused Information Criterion**—◆ Gerda Claeskens, KU Leuven
- 2:55 p.m. **The Focused Information Criterion for a Mixture Cure Model**—◆ Ingrid Van Keilegom, Université Catholique de Louvain; Gerda Claeskens, KU Leuven; Lore Dirick, Katholieke Universiteit Leuven
- 3:20 p.m. **Disc: Jean Opsomer, Colorado State University**
- 3:45 p.m. **Floor Discussion**

536 **CC-258C**
● Statistics Making an Impact—Invited

Royal Statistical Society, Statistics Without Borders, Conference on Statistical Practice Steering Committee, ASA 175th Anniversary Steering Committee

Organizer(s): Hetan Shah, Royal Statistical Society

Chair(s): Chris Skinner, London School of Economics

- 2:05 p.m. **Statistics Making an Impact**—◆ John Pullinger, Royal Statistical Society
- 2:40 p.m. **The Present and Future of Statistics: Challenges and Opportunities**—◆ Marie Davidian, North Carolina State University
- 3:15 p.m. **Building Bridges Between the Developing and Developed Worlds of Statistics**—◆ Vijay Nair, University of Michigan
- 3:45 p.m. **Floor Discussion**

537 **CC-252B**
■ Recent Developments on

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Longitudinal/Correlated/Clustered Data Analysis with Possibly Missing/Incomplete Observations—Invited

ENAR

Organizer(s): Peisong Han, University of Waterloo

Chair(s): Peisong Han, University of Waterloo

- 2:05 p.m. **A Composite Likelihood Method for Analysis of Clustered Data With/Without Missing Observations**—◆ Wenqing He, University of Western Ontario; Grace Yi, University of Waterloo
- 2:30 p.m. **Efficient Permutation Tests of Interventions in Cluster-Randomized Trials**—Rui Wang, Brigham & Women's Hospital; ◆ Victor DeGruttola, Harvard School of Public Health
- 2:55 p.m. **Estimating Longitudinal Trajectories Nonparametrically with Informative Yet Explainable Dropouts**—◆ Lu Wang, University of Michigan; Xihong Lin, Harvard School of Public Health
- 3:20 p.m. **Missing Not at Random Models for Masked Clinical Trials with Dropouts**—◆ Shan Kang, University of Michigan; Roderick Little, University of Michigan; Nikon Kaciroti, University of Michigan
- 3:45 p.m. **Floor Discussion**

538 CC-104B Penalized Methods for Applications in Health Sciences—Invited

International Indian Statistical Association, Statistics Without Borders

Organizer(s): Ananda Sen, University of Michigan

Chair(s): Purna Mukhopadhyay, Arbor Research Collaborative for Health

- 2:05 p.m. **Kernel Machine Methods with High-Throughput Data**—◆ Debashis Ghosh, Penn State; Xiang Zhan, Penn State; Wen-Yu Hua, Penn State
- 2:30 p.m. **Bayesian Penalized Regression Methods for Matched Case-Control Data**—◆ Jaya Satagopan, Memorial Sloan Kettering Cancer Center; Ananda Sen, University of Michigan ; Qin Zhou, Memorial Sloan Kettering Cancer Center
- 2:55 p.m. **Gateau Differential-Based Boosting for Time-Varying**

Survival Models—◆ Yi Li, University of Michigan; Kevin He, University of Michigan; Ji Zhu, University of Michigan

- 3:20 p.m. **Disc:** Marc Suchard, University of California, Los Angeles
- 3:45 p.m. **Floor Discussion**

539 CC-204A Statistical Analysis of Kepler Data at SAMSI—Invited

Section on Physical and Engineering Sciences

Organizer(s): Ilse C.F. Ipsen, North Carolina State University

Chair(s): Ilse C.F. Ipsen, North Carolina State University

- 2:05 p.m. **Primer to Kepler Transits**—◆ Gutti Jogesh Babu, Penn State
- 2:30 p.m. **Approximate Bayesian Computation for Kepler Data**—◆ Jessi Cisewski, Carnegie Mellon; Megan Shabram, University of Florida; Eric B. Ford, Penn State; Chad Schafer, Carnegie Mellon
- 2:55 p.m. **Bayesian Hierarchical Modeling for Characterizing the Population of Exoplanets Using Kepler Data**—◆ Eric B. Ford, Penn State; Megan Shabram, Penn State; Jessi Cisewski, Carnegie Mellon; Darin Ragozzine, Florida Institute of Technology; Leslie A. Rogers, Caltech
- 3:20 p.m. **Disc:** Merlise A. Clyde, Duke University
- 3:40 p.m. **Floor Discussion**

540 CC-207 Spatial Analysis of Economic and Business Networks—Invited

Business and Economic Statistics Section, Statistics in Business Schools Interest Group

Wednesday



Organizer(s): *Arnab Bhattacharjee, Heriot-Watt University*
 Chair(s): *Arnab Bhattacharjee, Heriot-Watt University*

- 2:05 p.m. **The Empirical Analyses of Network Data Sets—**
◆ Sean Holly, University of Cambridge
- 2:30 p.m. **Business Networks in US Manufacturing—**
◆ Tapabrata Maiti, Michigan State University;
Arnab Bhattacharjee, Heriot-Watt University
- 2:55 p.m. **Dynamic Panel Data Models with Cross-Sectional
Dependence, Sequential Exogeneity, and Time-
Varying Individual Effects—**Guido M. Kuersteiner,
University of Maryland; ◆ Ingmar R. Prucha,
University of Maryland; David M. Drukker,
StataCorp
- 3:20 p.m. **Non-Nested Testing of Spatial Correlation—**Miguel
Delgado, UC3M; ◆ Peter Robinson, LSE
- 3:45 p.m. **Floor Discussion**

541 CC-206A **■ ● Evaluating Quality of Official Statistics—Invited**

Government Statistics Section, Statistics Without Borders
 Organizer(s): *Scott S. Fricker, Bureau of Labor Statistics*
 Chair(s): *Scott S. Fricker, Bureau of Labor Statistics*

- 2:05 p.m. **A System for Managing the Quality of Data Products
in Statistical Organizations—**◆ Paul Biemer, RTI
International
- 2:25 p.m. **Development of a Quality Framework and Quality
Indicators at the Bureau of Labor Statistics—**
◆ Michael Horrigan, Bureau of Labor Statistics;
Polly Phipps, Bureau of Labor Statistics; Scott S.
Fricker, Bureau of Labor Statistics
- 2:50 p.m. **Evaluating Quality of Official Statistics—**◆ Ron S.
Kenett, KPA, Israel and University of Turin
- 3:15 p.m. Disc: Lars Lyberg, Stockholm University
- 3:35 p.m. **Floor Discussion**

542 CC-151B **Statistically and Computationally Efficient Estimation—Invited**

Section on Statistical Computing
 Organizer(s): *Dawn B. Woodard, Cornell University*
 Chair(s): *Natesh S. Pillai, Harvard*

- 2:05 p.m. **Fast Global Convergence of Gradient Methods for
High-Dimensional Statistical Recovery—**◆ Sahand
N. Negahban, Yale; Alekh Agarwal, Microsoft;
Martin Wainwright, University of California,
Berkeley
- 2:30 p.m. **Learning from Heterogeneous Populations—**

- ◆ Philippe Rigollet, Princeton University
- 2:55 p.m. **Efficiency of Markov Chain Monte Carlo for
Parametric Statistical Models—**Natesh S. Pillai,
Harvard; David Dunson, Duke University; ◆ Dawn
B. Woodard, Cornell University
- 3:20 p.m. **Learning Sparsely Used Overcomplete
Dictionaries—**◆ Alekh Agarwal, Microsoft;
Animashree Anandkumar, University of California,
Irvine; Prateek Jain, Microsoft; Praneeth
Netrapalli, University of Texas at Austin; Rashish
Tandon, University of Texas at Austin
- 3:45 p.m. **Floor Discussion**

543 CC-260 **JASA Applications and Case Studies Invited Session—Invited**

JASA, Applications and Case Studies, International Indian Statistical
 Association
 Organizer(s): *Joseph Ibrahim, University of North Carolina*
 Chair(s): *Joseph Ibrahim, University of North Carolina*

- 2:05 p.m. **A Bayesian Nonparametric Modeling Framework
for Developmental Toxicity Studies—**◆ Cassandra
Fronczyk, Rice University; Athanasios Kottas,
University of California, Santa Cruz
- 2:55 p.m. **Sparse Semiparametric Nonlinear Model with
Application to Chromatographic Fingerprints—**
◆ Wensheng Guo, University of Pennsylvania;
Michael R. Wierzbicki, University of Pennsylvania;
Li-bing Guo, Guangdong School of Pharmacology ;
Qing-tao Du, Guangdong School of Pharmacology
- 2:40 p.m. Disc: Pang Du, Virginia Tech
- 3:30 p.m. Disc: David Dunson, Duke University
- 3:45 p.m. **Floor Discussion**

Topic-Contributed Sessions 2:00 p.m.–3:50 p.m.

544 CC-103 **Topics in Semi-Nonparametric Statistics—Topic-Contributed**

IMS
 Organizer(s): *Rui Song, North Carolina State University*
 Chair(s): *Jessie Jeng, North Carolina State University*

- 2:05 p.m. **Nonparametric Independence Screening and
Structural Identification for Ultra-High-Dimensional
Longitudinal Data—**◆ Toshio Honda, Hitotsubashi
University; Ming-Yen Cheng, National Taiwan

University; Jialiang Li, National University of Singapore; Heng Peng, Hong Kong Baptist University

- 2:25 p.m. **Multiclass Distance-Weighted Discrimination for High-Dimensional, Low-Sample Size Data**—◆ Hanwen Huang, University of Georgia; Xingye Qiao, SUNY Binghamton University; Lingsong Zhang, Purdue University
- 2:45 p.m. **Dimension Reduction for Tensor Regression**—◆ Peng Zeng, Auburn University; Wenxuan Zhong, University of Georgia
- 3:05 p.m. **Likelihood Ratio Tests for Multiple Variance Components**—◆ Ana-Maria Staicu, North Carolina State University; Yichi Zhang, North Carolina State University; Arnab Maity, North Carolina State University
- 3:25 p.m. **Generalized P-Value for Two-Sample Functional Data Comparison**—◆ Yixuan Qiu, Purdue University; Lingsong Zhang, Purdue University
- 3:45 p.m. **Floor Discussion**

545 CC-254A Emerging Issues in Risk Modeling: Development, Evaluation, and Application—Topic-Contributed Biometrics Section

Organizer(s): Dandan Liu, Vanderbilt University

Chair(s): Bryan Shepherd, Vanderbilt University

- 2:05 p.m. **Nonparametric Maximum Likelihood Estimators of Time-Dependent Accuracy Measures for Survival Outcome Under Two-Stage Sampling Designs**—◆ Dandan Liu, Vanderbilt University; Tianxi Cai, Harvard; Lok Anna, University of Michigan; Yingye Zheng, Fred Hutchinson Cancer Research Center
- 2:25 p.m. **Assessing Diagnostic Accuracy Improvement for Competing-Risk Censored Outcome**—◆ Haiwen Shi, CDRH/FDA; Yu Cheng, University of Pittsburgh; Jialiang Li, National University of Singapore
- 2:45 p.m. **Developing Electronically Adapted Mortality Risk Score**—◆ Qingxia Chen, Vanderbilt University; Hui Nian, Vanderbilt University; Dandan Liu, Vanderbilt University
- 3:05 p.m. **Time-Dependent Diagnostic Accuracy Analysis with Censored Outcome and Censored Predictor**—◆ Yu Cheng, University of Pittsburgh; Jialiang Li, National University of Singapore
- 3:25 p.m. **On Risk Prediction with Longitudinal Markers**—◆ Yingye Zheng, Fred Hutchinson Cancer Research Center
- 3:45 p.m. **Floor Discussion**

546 CC-252A Recent Advances in Covariate-Adaptive Randomization in Clinical Trials: Statistical, Operational, and Regulatory Aspects—Topic-Contributed Biopharmaceutical Section

Organizer(s): Oleksandr Sverdlov, Novartis

Chair(s): Sue Jane Wang, FDA

- 2:05 p.m. **Statistical Inference Following Covariate-Adaptive Randomization: Recent Advances**—◆ Wei Ma, University of Virginia; Feifang Hu, George Washington University
- 2:25 p.m. **Minimran: a Robust Online System to Implement Minimization in Randomized Clinical Trials**—◆ Lan Xiao, Palo Alto Medical Foundation Research Institute; Jun Ma, Palo Alto Medical Foundation Research Institute
- 2:45 p.m. **Statistical Properties of Covariate-Adaptive Randomization Procedures for Trials with Unequal Treatment Allocation Ratios**—◆ Oleksandr Sverdlov, Novartis; Yiwei Zhang, Novartis
- 3:05 p.m. **The Use of Group Sequential Tests with Designs That Adjust for Imbalances in Prognostic Factors**—◆ Steve Coad,
- 3:25 p.m. Disc: William F. Rosenberger, George Mason University
- 3:45 p.m. **Floor Discussion**

547 CC-157C Statistical Analysis of MRI/fMRI Data—Topic-Contributed

SSC, Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Organizer(s): Elena G. Randou (Rantou), FDA

Chair(s): Ivor Cribben, Alberta School of Business

- 2:05 p.m. **Detection of Unusual Increases in MRI Lesion Counts in Individual Multiple Sclerosis Patients**—◆ Yinshan Zhao, University of British Columbia; Albert John Petkau, University of British Columbia; David Li, University of British Columbia; Andrew Riddehough, University of British Columbia; Anthony Traboulee, University of British Columbia
- 2:25 p.m. **Classification Techniques for Osteoporosis Detection from Analyzing Texture Features on Clinical Brain MRI Data**—◆ Elena G. Randou (Rantou), FDA; Vasiliki N. Ikonomidou, George Mason University; Anuraag Ravikumar, George Mason University
- 2:45 p.m. **A Bayesian General Linear Modeling Approach to**



- fMRI Data Analysis—◆ Ryan Yue, City University of New York
- 3:05 p.m. **Efficient False Discovery Rate Control for fMRI Data**—◆ Ali Arab, Georgetown University
- 3:25 p.m. Disc: Isabella R. Ghement, Ghement Statistical Consulting Company
- 3:45 p.m. **Floor Discussion**

548 CC-157B

■ Survey Methodological Challenges in Measuring the Size and Health Care Expenditures of the Medicaid Population—Topic-Contributed

Health Policy Statistics Section

Organizer(s): Steven R. Machlin, AHRQ

Chair(s): Barbara Carlson, Mathematica Policy Research

- 2:05 p.m. **Medicaid Reporting Errors in Four National Surveys: ACS, CPS, MEPS, and NHIS**—◆ Brett Fried, SHADAC/University of Minnesota; Michel Boudreaux, SHADAC/University of Minnesota; Kathleen Thiede Call, SHADAC/University of Minnesota; Joanna Turner, SHADAC/University of Minnesota
- 2:25 p.m. **Low Income Men, Medicaid, and the Affordable Care Act: Policy Implications**—◆ Steven R. Machlin, AHRQ; Joel W. Cohen, AHRQ; Amy Taylor, AHRQ; Fred Rohde, AHRQ
- 2:45 p.m. **Estimation of Physician Visit and Hospital Care Expenditures for Medicaid Beneficiaries in the Medical Expenditure Panel Survey**—◆ Jeffrey Gonzalez, AHRQ; Lisa Mirel; Steven R. Machlin, AHRQ
- 3:05 p.m. **Enhancing the Medical Expenditure Panel Survey Data on Medicaid Beneficiaries Through Data Linkage**—◆ Lisa Mirel; Jeffrey Gonzalez, AHRQ
- 3:25 p.m. Disc: Christine Cox, Centers for Medicare and Medicaid Services
- 3:45 p.m. **Floor Discussion**

549 CC-203

■ Measuring Physical Activity in Children and Adolescents Using Competing Methodologies: What Works and What Doesn't?—Topic-Contributed

Social Statistics Section, Section on Physical and Engineering Sciences,

Government Statistics Section, Statistics Without Borders
Organizer(s): Nicholas K. Beyler, Mathematica Policy Research
Chair(s): Nancy A. Clusen, Mathematica Policy Research

- 2:05 p.m. **Associations Between Objectively-Measured and Self-Reported Physical Activity Outcomes: Findings from the Randomized Experiment of Playworks**—◆ Nicholas K. Beyler, Mathematica Policy Research; Susanne James-Burdumy, Mathematica Policy Research; Martha Bleeker, Mathematica Policy Research; Jane Fortson, Mathematica Policy Research; Kelley Borradaile, Mathematica Policy Research
- 2:25 p.m. **Methods for Calibration of Self-Report Tools: The Youth Activity Profile**—◆ Pedro F. Saint-Maurice, Iowa State University; Gregory J. Welk, Iowa State University
- 2:45 p.m. **Parent Reports of Physical Activity and Screen Time Behaviors in a Recent National Survey of the Military Population**—◆ Charlotte Cabili, Mathematica Policy Research
- 3:05 p.m. **The Concentration of Physical Activity in Time and Space Among Youth Using Accelerometer Data**—◆ Steven Gortmaker, Harvard School of Public Health; Jessica Barrett, Harvard School of Public Health; Angie Craddock, Harvard School of Public Health
- 3:25 p.m. **Challenges of and Solutions to Collecting Physical Activity Data in Urban Elementary Schools and Afterschool Settings Using the System for Observing Play and Leisure Activity (SOPLAY)**—◆ Kelley Borradaile, Mathematica Policy Research; Martha Bleeker, Mathematica Policy Research; William Reeves, Mathematica Policy Research; Brittany Vas, Mathematica Policy Research; Nicholas K. Beyler, Mathematica Policy Research
- 3:45 p.m. **Floor Discussion**

550 CC-213

■ ● Lessons from Statistics Education: Improving the Impact of Statistical Consulting—Topic-Contributed

Section on Statistical Consulting, Section on Teaching of Statistics in the Health Sciences, Education Workgroup on Undergraduate Curriculum

Guidelines

Organizer(s): Kim Love-Myers, University of Georgia

Chair(s): Kim Love-Myers, University of Georgia

- 2:05 p.m. **What Students Learn and Don't Learn About Inferential Reasoning in Their Introductory Statistics Courses**—◆ Sharon Lane-Getaz, St. Olaf College
- 2:25 p.m. **Everyone Knows What a Histogram Is, or Do They?: How Non-Statisticians Read Histograms**—◆ Jennifer J. Kaplan, University of Georgia; John Gabrosek, Grand Valley State University; Phyllis Curtiss, Grand Valley State University; Christopher J. Malone, Winona State University
- 2:45 p.m. **What Do Students Need to Know to Understand Sampling Distributions, and How Well Do They Know It?**—◆ Tisha Hooks, Winona State University; Michael Posner, Villanova University; Michelle Sisto, International University of Monaco; Dale Berger, Claremont Graduate College
- 3:05 p.m. **Communication in Statistics: Consideration of Lexical Ambiguity or 'I Do Not Think This Word Means What You Think It Means'**—◆ Diane Fisher, University of Louisiana at Lafayette
- 3:25 p.m. Disc: Douglas Curran-Everett, National Jewish Health
- 3:45 p.m. **Floor Discussion**

551 CC-151A **■ ● Parallel Universes in Classification and Clustering—Topic-Contributed**

Section on Statistical Learning and Data Mining

Organizer(s): Alejandro Murua, University of Montreal

Chair(s): Alejandro Murua, University of Montreal

- 2:05 p.m. **Unsupervised Learning: Assessing Cluster Significance Through a Combination of Cross-Validation and Resampling**—◆ Werner Stuetzle, University of Washington
- 2:25 p.m. **Bayesian Inference for Longitudinal Data with Nonparametric Treatment Effects**—◆ Fernando Quintana, Pontificia Universidad Católica de Chile; Peter Mueller, University of Texas at Austin; Gary Rosner, Johns Hopkins University; Michael Maitland, University of Chicago Medical Center
- 2:45 p.m. **Reference Prior Distributions in Bayesian Clustering Problems**—◆ Russell Steele, McGill University
- 3:05 p.m. **Quadric Multi-Class Support Vector Machines**—◆ Nicolas Wicker, Université Lille; Yann Guermeur, CNRS
- 3:25 p.m. Disc: Christian Hennig, University College London

3:45 p.m. **Floor Discussion**

552 CC-104A **■ SBSS Student Travel Award Winners - Session 3—Topic-Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Sudipto Banerjee, University of Minnesota

Chair(s): Peter Thall, MD Anderson Cancer Center

- 2:05 p.m. **Bayesian Multiscale Smoothing of Gaussian Noised Images**—◆ Meng Li; Subhashis Ghosal, North Carolina State University
- 2:25 p.m. **Modeling for Seasonal Marked Point Processes: An Analysis of Evolving Hurricane Occurrences**—◆ Sai Xiao, University of California, Santa Cruz; Athanasios Kottas, University of California, Santa Cruz; Bruno Sanso, University of California, Santa Cruz
- 2:45 p.m. **Bayesian Nonlinear Model Selection for Gene Regulatory Networks**—◆ Yang Ni, Rice University; Francesco Stingo, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 3:05 p.m. **Hierarchical Nearest Neighbor Gaussian Process Models for Massive Geo-Statistical Data Sets**—◆ Abhirup Datta, University of Minnesota; Sudipto Banerjee, University of Minnesota; Andrew Oliver Finley, Michigan State University; Alan Gelfand, Duke University
- 3:25 p.m. **A Bayesian Dimension Reduction Approach for Detection of Multilocus Interaction in Case-Control Studies**—◆ Debashree Ray, University of Minnesota; Xiang Li, University of Minnesota; Wei Pan, University of Minnesota; James S. Pankow, University of Minnesota; Saonli Basu, University of Minnesota
- 3:45 p.m. **Floor Discussion**

553 CC-156A **■ The World of Statistical Analysis Professionals—Topic-Contributed**

Section for Statistical Programmers and Analysts, Section on Physical and Engineering Sciences, Accreditation Committee

Organizer(s): Nancy Wang, Celerion

Chair(s): Nancy Wang, Celerion

- 2:05 p.m. **Minimizing Flight Technical Error for Arrivals at Busy Airports: Why Would We Want to Do Such a Thing?**—◆ Timothy Hall, PQI Consulting
- 2:25 p.m. **Designing, Developing, and Implementing Statistical Web Applications at P&G: Analyzing Data Better, Faster, and Cheaper!**—◆ Joel Chaney,



Procter & Gamble

- 2:45 p.m. **Role of Computational Statistician in Clinical Trial Optimization**—◆Natalie Hall, Eli Lilly and Company
- 3:05 p.m. **A Tale of Working for Two Federal Government Agencies**—◆Mark Otto, U.S. Fish and Wildlife Service
- 3:25 p.m. **Are You Passionate About Statistical Programming?**—◆Steve Yao, Amgen
- 3:45 p.m. **Floor Discussion**

554 CC-153B **■ ● Mental Health Research in the U.S. Department of Veterans Affairs—Topic-Contributed**

Mental Health Statistics Section

Organizer(s): Ying Lu, Palo Alto VA CSPCC/Stanford University

Chair(s): Julia Lin, Palo Alto VA CSPCC

- 2:05 p.m. **Statistical Trade-Off of Using Rescue Medications in Psychiatric Clinical Trials**—◆Zhibao Mi, Department of Veteran Affairs; Julia Lin, Palo Alto VA CSPCC; John H. Krystal, VA Connecticut Healthcare Systems; Karen M. Jones, VA Cooperative Studies Program Coordinating Center; Robert A. Rosenheck, Yale School of Medicine; Mei Chiung Shih, Stanford University School of Medicine; Kousick Kousick Biswas, VA Cooperative Studies Program Coordinating Center; Joseph F. Collins, VA Cooperative Studies Program Coordinating Center; Robert A. Lew, VA Cooperative Studies Program Coordinating Center; Ying Lu, Palo Alto VA CSPCC/Stanford University
- 2:25 p.m. **Adjustment to the Proportion of Suicides to Incorporate Suicide Attempts**—◆David Lawrence, Department of Veteran Affairs
- 2:45 p.m. **Statistical Strategies for Psychiatric Genetic Studies with Limited Sample Sizes**—◆Laura Lazzeroni, Stanford University
- 3:05 p.m. **A Robust Diagnostic Test for PTSD Using Tensor Regression on Synchronous Neural Interactions**—◆Ilana Belitskaya-Lévy, Palo Alto VA CSPCC; Ying Lu, Palo Alto VA CSPCC/Stanford University; Lexin Li, North Carolina State University; Apostolos Georgopoulos, Minneapolis VA Health Care System; Brian Engdahl, Minneapolis VA Health Care System; Lisa James, Minneapolis VA Health Care System
- 3:25 p.m. Disc: Xin M. Tu, University of Rochester
- 3:45 p.m. **Floor Discussion**

555 CC-156C **Section on Statistics and the Environment Student Award Papers—Topic-Contributed**

Section on Statistics and the Environment

Organizer(s): Elizabeth Mannshardt, North Carolina State University

Chair(s): Elizabeth Mannshardt, North Carolina State University

- 2:05 p.m. **Fast Dimension-Reduced Climate Model Calibration**—◆Won Chang, Penn State; Murali Haran, Penn State; Klaus Keller, Penn State; Roman Olson, University of New South Wales
- 2:25 p.m. **Data Mining for Extreme Behavior with Application to Ground Level Ozone**—◆Brook T. Russell, Colorado State University; Daniel S. Cooley, Colorado State University; William C. Porter, Massachusetts Institute of Technology; Colette L. Heald, Massachusetts Institute of Technology; Brian Reich, North Carolina State University
- 2:45 p.m. **Flexible Integro-Difference Equation Modeling for Spatio-Temporal Data**—◆Robert Richardson; Athanasios Kottas, University of California, Santa Cruz; Bruno Sanso, University of California, Santa Cruz
- 3:05 p.m. Disc: Emily Griffith, NCSU
- 3:25 p.m. Disc: Jay Ver Hoef, NOAA
- 3:45 p.m. **Floor Discussion**

Topic-Contributed Panels 2:00 p.m.–3:50 p.m.

556 CC-204B **■ ● The Global Impact of Statistics Without Borders and StatCom: Can We Make It Enduring?—Topic-Contributed**

Survey Research Methods Section, Statistics Without Borders

Organizer(s): Asaph Chun, U.S. Census Bureau; Eric Vance, LISA-Virginia Tech

Chair(s): Asaph Chun, U.S. Census Bureau

- Panelists:**
- ◆James J. Cochran, Louisiana Tech University
 - ◆Cathy Furlong, Statistics Without Borders
 - ◆Nilupa S. Gunaratna, Harvard School of Public Health
 - ◆Steve Pierson, ASA
 - ◆Ian Crandell, Virginia Tech
- 3:45 p.m. **Floor Discussion**

557 **CC-212**
DataFest: A (Competitive) Celebration of Data—Topic-Contributed

Section on Statistical Education, Education Workgroup on Undergraduate Curriculum Guidelines, Statistics in Business Schools Interest Group

Organizer(s): Mine Cetinkaya-Rundel, Duke University
Chair(s): Mine Cetinkaya-Rundel, Duke University

- Panelists:**
- ◆ Johanna Hardin, Pomona College
 - ◆ Robert Gould, University of California, Los Angeles
 - ◆ Herle McGowan, North Carolina State University
 - ◆ Andrew Bray, University of Massachusetts, Amherst

 3:45 p.m. **Floor Discussion**

Contributed Sessions 2:00 p.m.—3:50 p.m.

558 **CC-101**
● Computing and Random Fields—Contributed

IMS

Chair(s): Gourab Mukherjee, University of Southern California

- 2:05 p.m. **Double-Bootstrap Methods That Use a Single Double-Bootstrap Simulation**—◆ Jinyuan Chang; Peter Hall, University of Melbourne
- 2:20 p.m. **Regeneration-Based Adaptation for Variable-at-a-Time MCMC**—◆ Ronald Neath, Hunter College
- 2:35 p.m. **An Empirical Likelihood Based EM Algorithm for the Inference of Proportional Hazard Models with Multivariate Random Effects**—◆ Jiayin Zheng, Peking University/University of Washington; Junshan Shen, Peking University; Shuyuan He, Capital Normal University; Xiao-Hua Andrew Zhou, University of Washington
- 2:50 p.m. **The Mean Euler Characteristic and Excursion Probability of Gaussian Random Fields with Stationary Increments**—◆ Yimin Xiao, Michigan State University ; Dan Cheng,
- 3:05 p.m. **On Estimation of Basic Neighborhood of Markov Random Fields**—◆ Zsolt Talata, University of Kansas

 3:20 p.m. **A Test for Stationarity for Irregularly Spaced Spatial Random Field**—◆ Soutir Bandyopadhyay, Lehigh University; Suhasini Subba Rao, Texas A&M

 3:35 p.m. **ROP: Matrix Recovery via Rank-One Projections**—◆ Anru Zhang, University of Pennsylvania; Tony Cai, University of Pennsylvania

559 **CC-102B**
Estimation and Inference for Correlated Data—Contributed

International Chinese Statistical Association

Chair(s): Jing Qian, University of Massachusetts

 2:05 p.m. **Sure Based Banding/Tapering Parameter Choice for the Regularized Estimation of Large Covariance Matrices**—◆ Danning Li; Hui Zou, University of Minnesota

 2:20 p.m. **Variance Estimation of Maximum Composite Likelihood Estimator Under Hidden Markov Models**—◆ Yi Huang, University of British Columbia; Jiahua Chen, University of British Columbia

 2:35 p.m. **Modeling Disability Data in Small Areas**—◆ Jiashen You, U.S. Census Bureau; Gauri Datta, U.S. Census Bureau; Jerry Maples, U.S. Census Bureau

 2:50 p.m. **Regression Analysis of Longitudinal Data with Informative Observation Times**—◆ Yang Li, University of North Carolina at Charlotte; HaiYing Wang, University of New Hampshire; Tony Sun, University of Missouri; Xin He, University of Maryland

 3:05 p.m. **Testing Equality of Proportions for Correlated Binary Data in Ophthalmologic Studies**—◆ Chang-Xing Ma, University at Buffalo

 3:20 p.m. **A Latent-Class Mixture Model for Incomplete Data with Applications to a Trauma Transfusion Study**—◆ Mohammad Hossein Rahbar, University of Texas Health Science Center at Houston; Jing Ning, MD Anderson Cancer Center; Sangbum Choi, University of Texas at Houston; Jin Piao, University of Texas at Houston; Chuan Hong, University of Texas School of Public Health; Hanwen Huang, University of Georgia; Deborah J. del Junco, University of Texas Health Science Center at Houston; Erin E. Fox, University of Texas Health Science Center at Houston; John B. Holcomb, University of Texas Health Science Center at Houston

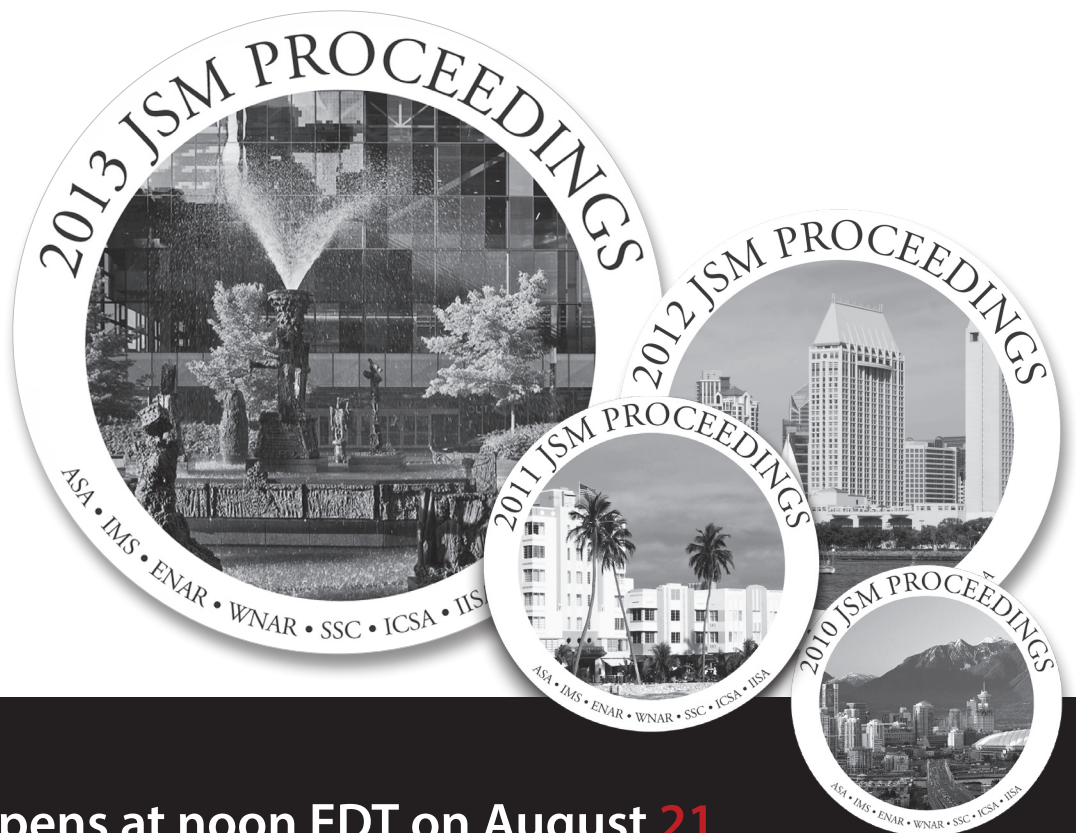
 3:35 p.m. **Floor Discussion**

JSM PROCEEDINGS

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Submission site opens at noon EDT on August 21

560 CC-105 Isolated Statisticians—Contributed

Isolated Statisticians, Statistics Without Borders

Chair(s): Trijya Singh, Le Moyne College

- 2:05 p.m. **Asymptotic Distribution in Moment Structure Analysis Under a Weaker Mode of Convergence and a Weaker Pitman Drift Assumption**—◆ Hao Wu, Boston College
- 2:20 p.m. **What Is Statistics?**—◆ Shriniwas Katti, University of Missouri
- 2:35 p.m. **Covariance Matrix Regression Models**—◆ Tao Zou, Peking University; Wei Lan, Southwestern University of Finance and Economics, China
- 2:50 p.m. **Generalized Models for Spatial Regression**—◆ Matthieu Wilhelm, Universite de Neuch, tel; Laura Maria Sangalli, Politecnico di Milano
- 3:05 p.m. **Efficient Weighted Dirichlet Process Mixture for Semiparametric Regression**—◆ Peng Sun, Virginia Tech
- 3:20 p.m. **Generalized Functional Concurrent Model**—◆ Janet Kim, North Carolina State University; Arnab Maity, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 3:35 p.m. **Floor Discussion**

561 CC-255 Classification and Diagnostic Accuracy—Contributed

Biometrics Section, Section on Medical Devices and Diagnostics

Chair(s): Yi-Hui Zhou, North Carolina State University

- 2:05 p.m. **Planning of Prostate Cancer Biopsies and Interpretation of Biopsy Results Using Rules Based on Gland Volume and Number of Positive Cores**—◆ Gerald Ogola, Baylor Health Care System; Robert Serfling, University of Texas at Dallas
- 2:20 p.m. **Comparison of Parametric and Empirical Estimators of Misclassification Rates in Discriminant Analysis**—◆ Alice Hinton; Haikady Nagaraja, Ohio State University
- 2:35 p.m. **Within-Cluster Resampling Methods for Clustered ROC Data**—◆ Zhuang Miao; Liansheng Larry Tang, George Mason University
- 2:50 p.m. **Optimizing Sequential Testing Performance Using**

Classification Trees—◆ Christine Schubert Kabban, Air Force Institute of Technology; Brandon Greenwell, AFIT

- 3:05 p.m. **Nonparametric Inferences on a Novel Measure of Diagnostic Accuracy for Diagnosing Incipient Diseases**—◆ Chengjie Xiong, Washington University in St. Louis; Jingqin Luo, Washington University in St. Louis
- 3:20 p.m. **Incorporating Diagnostic Accuracy into the Estimation of Discrete Survival Function with Lost-to-Follow-Up**—◆ Abidemi Adeniji, Boehringer Ingelheim; Abdus Wahed, University of Pittsburgh
- 3:35 p.m. **Methods for Covariate Adjustment in Combing Multiple Markers**—◆ Soyoung Kim, Fred Hutchinson Cancer Research Center; Ying Huang, Fred Hutchinson Cancer Research Center

562 CC-254B Joint Modeling—Contributed

Biometrics Section

Chair(s): Wenlei Liu, Pfizer

- 2:05 p.m. **Joint Estimation of Multiple Disease-Specific Sensitivities and Specificities via Crossed Random Effects Models for Correlated Reader-Based Diagnostic Data**—◆ Alex de Leon, University of Calgary; Niroshan Withanage, Sabaragamuwa University of Sri Lanka; Christopher Rudnisky, University of Alberta
- 2:20 p.m. **A Latent-Class Joint Mixture Model for Defining Severe Hemorrhage in Trauma Patients**—◆ Sangbum Choi, University of Texas at Houston; Mohammad Hossein Rahbar, University of Texas Health Science Center at Houston; Jing Ning, MD Anderson Cancer Center; Jin Piao, University of Texas at Houston; Chuan Hong, University of Texas School of Public Health; Deborah J. del Junco, University of Texas Health Science Center at Houston; Erin E. Fox, University of Texas Health Science Center at Houston; John B. Holcomb, University of Texas Health Science Center at Houston
- 2:35 p.m. **Joint Structure Selection and Estimation in the Time-Varying Coefficient Cox Model**—◆ Wei Xiao, North Carolina State University; Wenbin Lu, North Carolina State University; Hao (Helen) Zhang, University of Arizona
- 2:50 p.m. **Nonparametric Joint Estimation of Multiple Bivariate Densities of Protein Backbone Angles Using Spherical Spline**—◆ Seyed Morteza Najibi, Marquette University; Mehdi Maadooliat,



- 3:05 p.m. Marquette University; Mohammad Reza Faghihi, Shahid Beheshti University
Models for Correlated Mixed Discrete and Continuous Random Variables in Clinical Trials—◆Sergei Leonov, AstraZeneca; Bahjat Qaqish, University of North Carolina at Chapel Hill
- 3:20 p.m. **Joint Models of Longitudinal Outcomes and Informative Time**—◆Jangdong Seo, University of Northern Colorado; Khalil Shafie, University of Northern Colorado
- 3:35 p.m. **Joint Modeling of Longitudinal Outcomes and Discrete Survival Times Using a Copula**—◆Shuling Liu, Emory University; Amita K. Manatunga, Emory University; Limin Peng, Emory University

563 **CC-259A**
■ Multiplicity Adjustment Methods 2—Contributed
 Biopharmaceutical Section
Chair(s): Barbara Tilley, University of Texas

- 2:05 p.m. **Selective Sign-Determining Multiple Confidence Intervals**—◆Asaf Weinstein, University of Pennsylvania; Daniel Yekutieli, Tel Aviv University
- 2:20 p.m. **A Comparison of Multiple Testing Procedures That Compare Two Interventions with Respect to Two Time-to-Event Outcomes in Clinical Trials**—◆Yuki Ando, Pharmaceuticals & Medical Devices Agency; Toshimitsu Hamasaki, Osaka University Graduate School of Medicine; Scott R. Evans, Harvard School of Public Health; Koko Asakura, Osaka University; Yuko Ohno, Osaka University Graduate School of Medicine
- 2:35 p.m. **Mixture Procedures Using Weighted Multiple Testing Procedures**—◆Kentaro Sakamaki,
- 2:50 p.m. **Recovery of a Treatment Effect from Pre-Specified Subgroups**—◆Jitendra Ganju, Gilead; Kefei Zhou, Amgen; Yunzhi Lin, AbbVie
- 3:05 p.m. **Multiple Outcomes with Latent Variable Approach**—◆Kathy Liu, Santen; Yang Yang, Santen; Wei Liu, Santen

- 3:20 p.m. **A Bayesian Procedure to Control Family-Wise Error Rate**—◆Zijiang Yang, Merck; Yanping Liu, Temple University
- 3:35 p.m. **Finding Drug Targets in Small Sample GWAS**—◆Knut M. Wittkowski, Rockefeller University; Benedetta Bigio, Rockefeller University

564 **CC-257A**
■ Modeling, Simulations, Predictions, and Pro for Labeling—Contributed
 Biopharmaceutical Section
Chair(s): Chul Ahn, FDA-CDRH

- 2:05 p.m. **Using Simulation to Compare Performance of Various Variable Selection Methods on Disease Risk Scores, Propensity Scores, and Log-Binomial Regression**—◆In-Lu Amy Liu, Kaiser Permanente; Jiaxiao Shi, Kaiser Permanente; Wansu Chen, Kaiser Permanente
- 2:20 p.m. **Have Biostatisticians Ceded the High Ground to Modelers, and Can We Get It Back?**—◆David Raunig, ICON Medical Imaging
- 2:35 p.m. **Residual Weighted Learning for Estimating Individualized Treatment Rules**—◆Xin Zhou, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill
- 2:50 p.m. **Comparisons of Various Techniques in Propensity Score Estimation Using Simulation**—◆Jiaxiao Shi, Kaiser Permanente; Wansu Chen, Kaiser Permanente
- 3:05 p.m. **Predicting Subject-Specific Outcome via an Optimal Stratification Procedure with Baseline Covariates**—◆Florence Yong, Harvard; Lu Tian, Stanford University; Sheng Yu, Harvard; Lee Jen Wei, Harvard
- 3:20 p.m. **Designing Confirmatory Study Using Historical Data on Short-Term and Long-Term Endpoints**—◆Jiang Qian, AbbVie; Qin Qin, AbbVie; Xuan Liu, AbbVie
- 3:35 p.m. **Patient-Reported Outcomes: Statistical Considerations in Seeking a Labeling Claim**—◆Isaac Nuamah, Janssen

565 **CC-104C**
■ Advances in Bayesian Computation—Contributed
 Section on Bayesian Statistical Science, International Society for Bayesian

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Analysis (ISBA)

Chair(s): Margaret Short, University of Alaska Fairbanks

- 2:05 p.m. **Approximate Bayesian Computation for Smoothing**—◆ James Martin, University College London
- 2:20 p.m. **Efficient and Flexible Hierarchical Algorithms Using the Nimble Software Package**—◆ Daniel Turek, University of California, Berkeley
- 2:35 p.m. **Bayesian Model Selection Under Progressive Type-I Interval Censoring**—◆ Yu-Jau Lin, Chung Yuan Christian University; Yuhlong Lio, University of South Dakota
- 2:50 p.m. **Exact Bayesian Inference in Spatiotemporal Cox Processes Driven by Multivariate Gaussian Processes**—◆ Flavio Bamberra Gonçalves, Universidade Federal de Minas Gerais; Dani Gamerman, Universidade Federal do Rio de Janeiro
- 3:05 p.m. **Framework for Harnessing the Power of Diverse Information Sources**—◆ Ville Satopää, University of Helsinki
- 3:20 p.m. **Floor Discussion**

566 CC-153C **Lifetime Data and Dose-Response Data: Theory and Applications—Contributed**

Section on Risk Analysis

Chair(s): Thao Duong, Donald Bren School of Information and Computer Science

- 2:05 p.m. **Detection of Multiple Change-Points in Hazard Models**—◆ Wei Zhang, Cornell University; Lianfen Qian, Florida Atlantic University; Yunxia Li, Financial Institute of Zhejiang
- 2:20 p.m. **Nonparametric Bayes Estimation of Reliability of a Coherent System**—◆ A.K.M. Rahman, University of South Carolina; Edsel A. Pena, University of South Carolina
- 2:35 p.m. **Applying Data Clustering and Data Reduction Methods in High-Dimensional Survival Data Analysis**—◆ Keivan Sadeghzadeh, Northeastern University; Nasser Fard, Northeastern University
- 2:50 p.m. **Competing Events Modeling and Simulation: a Potential Approach to Benefit Risk Assessment**—◆ Eric Frimpong, FDA; Victor Crentsil, FDA
- 3:05 p.m. **Assessing Time-Varying Crash Effect in Semiparametric Recurrent Events Model**—◆ Chen Chen, Virginia Tech; Feng Guo, Virginia Tech
- 3:20 p.m. **Breaking the Same Board Twice: The Magic of**

Statistics!—◆ Yanling Cai, University of British Columbia; James V. Zidek, University of British Columbia

- 3:35 p.m. **The Fractional Poisson: a Simple Dose-Response Model**—◆ Michael Messner, USEPA

567 CC-208 **Various Topics in Statistics Education—Contributed**

Section on Statistical Education

Chair(s): Jessica Chapman, St. Lawrence University

- 2:05 p.m. **Creating, Deploying, and Assessing Online Homework in Introductory Statistics and Mathematics Classes**—◆ Karen Santoro, Central Connecticut State University; Roger Bilisoly, Central Connecticut State University
- 2:20 p.m. **Peer Assessment Increases Student Learning**—◆ Dennis Sun, Stanford University
- 2:35 p.m. **Using Calibrated Peer Review in Introductory Statistics Courses**—◆ Melissa Pittard, University of Kentucky; William Rayens, University of Kentucky
- 2:50 p.m. **Characterizing Professors and Courses Based on Student Perceptions**—◆ Leo Upchurch, Tuskegee University; Fan Wu, Tuskegee University
- 3:05 p.m. **Conditions and Consequences**—◆ W. Robert Stephenson, Iowa State University
- 3:20 p.m. **Statistical Graphics Recommendations for the ASA/NCTM Annual Poster Competition and Project Competition**—◆ Richard Heiberger, Temple University; Naomi Robbins, NBR; J. rgen Symanzik, Utah State University
- 3:35 p.m. **Teaching Ethics in Statistical Consulting**—◆ Alan Elliott, Southern Methodist University; Lynne



Stokes, Southern Methodist University

568 **CC-152**
Network Communities—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Shawn Mankad,

- 2:05 p.m. **Monte Carlo Algorithms for Identifying Densely Connected Subgraphs**—◆Jingfei Zhang; Yuguo Chen, University of Illinois at Urbana-Champaign
- 2:20 p.m. **Reciprocal Attachment Models for Generating Graphs**—◆Amy Wagaman, Amherst College
- 2:35 p.m. **Detecting Overlapping Communities in Networks with Spectral Methods**—◆Yuan Zhang, University of Michigan; Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan
- 2:50 p.m. **Optimization via Low-Rank Approximation with Application to Network Community Detection**—◆Can Le, University of Michigan; Elizaveta Levina, University of Michigan; Roman Vershynin, University of Michigan
- 3:05 p.m. **Measuring Influence in Social Networks Through Information Diffusion Modeling**—◆Donggeng Xia; George Michailidis, University of Michigan
- 3:20 p.m. **Monitoring Dynamic Patterns of Information Diffusion in Social Media: A Multiresolution Approach with Twitter Data**—◆Hechao Sun,
- 3:35 p.m. **Link Prediction Using Network Topology and Node Covariates**—◆Bopeng Li; Ambuj Tewari, University of Michigan

569 **CC-156B**
Biological Networks—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Feng Dai, Yale Center for Analytical Sciences

- 2:05 p.m. **Discovery of Perturbations in Multi-Attribute Biological Networks**—◆Paula J. Griffin, Boston University School of Public Health; Eric Kolaczyk, Boston University
- 2:20 p.m. **Additive ODE Models for Reconstructing Biological Networks**—◆James Henderson, University of Michigan; George Michailidis, University of Michigan
- 2:35 p.m. **New Graphical Approach for Visualization of EMR Data with Application to Biomarker Studies**—

◆Christine Duarte, Maine Medical Center; Ivette Emery, MMCRI; Andrew Prueser, MMCRI; Volkhard Lindner, MMCRI

- 2:50 p.m. **New Bayesian Artificial Neural Network Method for Modeling Survival Data of Competing Risks**—◆Taysseer Sharaf, USF; Chris P. Tsokos, University of South Florida
- 3:05 p.m. **A Graph Inference Case Study: The C. Elegans Neural Network**—◆Li Chen, Johns Hopkins University; Carey Priebe, Johns Hopkins University; Joshua Vogelstein, Duke University
- 3:20 p.m. **Bayesian Network Modeling of Cardiovascular Risk in a High-Risk Population**—◆Peter Salzman, University of Rochester Medical Center; James P. Corsetti, University of Rochester Medical Center; Charles E. Sparks, University of Rochester Medical Center
- 3:35 p.m. **Estimation of Temporally Correlated Directed Graphs to Describe Neural Connectivity and Its Dynamics**—◆Catherine Stamouli, Harvard Medical School; Bernard Chang, Harvard Medical School

570 **CC-153A**
Strategies and Examples for Teaching Statistics in Health Science—Contributed

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education, Statistics Without Borders

Chair(s): Jacqueline Milton, Boston University

- 2:05 p.m. **Developing a Case-Based Curriculum to Teach Biostatistics and Epidemiology to Clinicians**—◆Angie Mae Rodday, Tufts Medical Center; Jessica K. Paulus, Tufts Medical Center
- 2:20 p.m. **An Interesting Example for an Introductory Biostatistics Course: Simpson's Paradox**—◆Harry Norton, Carolinas Medical Center; William Anderson, Carolinas Medical Center; Megan Templin, Carolinas Medical Center; George Divine, Henry Ford Hospital
- 2:35 p.m. **Teaching Meta-Analysis: Concepts, Controversies, and Resources**—◆Deborah Dawson, University of Iowa
- 2:50 p.m. **Teaching Command-Based Statistical Programs in Courses in Biostatistics**—◆Susanne Rosthøj, University of Copenhagen
- 3:05 p.m. **Teaching of Multiple Regression Should Reflect the**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- 3:20 p.m. **Way it Works**—◆David Hoaglin,
A Simple Data Set Useful for Introducing Sequential Bayesian Estimation and Hierarchical Models—
 ◆Thomas Bradstreet
- 3:35 p.m. **Floor Discussion**

571 **Small Area Estimation—Contributed** CC-209

Survey Research Methods Section, Government Statistics Section
 Chair(s): *Jeri Metzger Mulrow, NSF*

- 2:05 p.m. **Small Area Estimation of Complex Parameters Under Unit-Level Models with Skew-Normal Errors**—
 ◆Mamadou Diallo, Westat; J. N. K. Rao, Carleton University
- 2:20 p.m. **Small Area Estimation for the Tobacco-Use Supplement to the Current Population Survey**—
 ◆Benmei Liu, National Cancer Institute; Aaron J. Giliary, U.S. Census Bureau
- 2:35 p.m. **Small Area Estimation Methods for Binary Variables in the Behavioral Risk Factor Surveillance System**—
 ◆Neung Ha, SAMSI
- 2:50 p.m. **Small Area Estimation for the National Survey of College Graduates New Cohort**—◆Michael Larsen, George Washington University; Benjamin M. Reist, U.S. Census Bureau
- 3:05 p.m. **Accessing Data from the Census Bureau API**—◆Alex Shum, Iowa State University; Heike Hofmann, Iowa State University
- 3:20 p.m. **An Objective Stepwise Bayes Approach to Small Area Estimation**—◆Yanping Qu, FDA; Glen Meeden, University of Minnesota; Bo Zhang, Oregon State University
- 3:35 p.m. **Log-Linear Models for Prediction in Surveys**—
 ◆Yves Thibaudeau, U.S. Census Bureau; Eric Slud, U.S. Census Bureau

572 **Working with Imperfect Data—Contributed** CC-211

Survey Research Methods Section, Government Statistics Section
 Chair(s): *Sahar Zangeneh, Fred Hutchinson Cancer Research Center*

- 2:05 p.m. **Evaluating a New Approach for Estimating the Number of U.S. Farms with Adjustment for Misclassification**—◆Denise Abreu, USDA/NASS; Stephen Busselberg, USDA/NASS; Andrea C. Lamas, USDA/NASS; Wendy Barboza, USDA/NASS; Linda J. Young, USDA/NASS

- 2:20 p.m. **Comparison of Alternative Imputation Methods in the National Teacher and Principal Survey**—◆Sarah Dial; Jacob Enriquez, U.S. Census Bureau; Bonnie Moore, U.S. Census Bureau; Svetlana Mosina, U.S. Census Bureau; Robyn Sirkis, U.S. Census Bureau
- 2:35 p.m. **Edit and Imputation Processing for Ethnocultural Variables: The Experience of the 2011 Canadian National Household Survey**—◆Sean Crowe, Statistics Canada; Chunxiao (William) Liu, Statistics Canada
- 2:50 p.m. **Estimating Characteristics of Strip Shopping Center Buildings in the 2012 CBECS**—◆Jay Olsen, EIA
- 3:05 p.m. **Longitudinal Assessment of Measurement Error on the Consumer Expenditure Interview Survey: 1996–2010**—◆Brian Meekins, Bureau of Labor Statistics
- 3:20 p.m. **Unresolved Matched Records in Capture-Recapture Methodology**—◆Andrea C. Lamas, USDA/NASS; Linda J. Young, USDA/NASS; Denise Abreu, USDA/NASS; Daniel Adrian, USDA/NASS
- 3:35 p.m. **Dirty and Unknown: Statistical Editing and Imputation in the SCF**—◆Arthur Kennickell, Federal Reserve Board

573 **Analysis of Baseball, Basketball, and Cricket Data—Contributed** CC-206B

Section on Statistics in Sports
 Chair(s): *Michael Rutter, Penn State*

- 2:05 p.m. **Beyond Runs Expectancy**—◆Jim Albert, Bowling Green State University
- 2:20 p.m. **Logistic Regression–Based Simulation of Major League Baseball Seasons**—◆Richard Auer, Loyola University Maryland; Claire Marie Reynolds, Loyola University Maryland
- 2:35 p.m. **Bringing the Heat**—◆Jared Cross, Hunter College; Dana Sylvan, Hunter College
- 2:50 p.m. **The 20/30 Game Winner: An Endangered/Extinct Species?**—◆John Daniels, Central Michigan University
- 3:05 p.m. **Advanced Metrics in Twenty20 Cricket**—◆Gamage Harsha Perera, Simon Fraser University; Tim Swartz, Simon Fraser University; Jack Davis, Simon Fraser University
- 3:20 p.m. **Coach’s Intuition and Analytics**—◆Jack Follis, University of St. Thomas; Henry Foust, University of St. Thomas; Todd Smith, University of St. Thomas; Lukas Simon, Baylor College of Medicine
- 3:35 p.m. **Estimating NBA Player Contribution with Regularized Logistic Regression**—◆Sameer



Deshpande, Wharton School

574
Interesting Implementations of Network Sampling and Bayesian Regression—Contributed

Section on Statistics in Epidemiology, International Society for Bayesian Analysis (ISBA)

Chair(s): Makram Talih, NCHS

- 2:05 p.m. **Saddlepoint Confidence Intervals for Directly Standardized Rates**—◆ Pasan Edirisinghe, Missouri University of Science & Technology; Robert Paige, Missouri University of Science & Technology
- 2:20 p.m. **Probabilities of Causation with Two Variables: Bounds and Sensitivity Analysis**—◆ Takahiro Hayashi; Manabu Kuroki, Institute of Statistical Mathematics
- 2:35 p.m. **Bayesian Additive Regression Trees Estimation for the Global Vector-Borne Disease Movement**—◆ Xiao Wu, University of Florida; Michael Daniels, University of Texas at Austin; Zhuojie Huang, Penn State; Liang Mao, University of Florida; Andrew Tatem, University of Southampton
- 2:50 p.m. **Semiparametric Efficient Estimation of the Proportion in Favor of Treatment**—◆ Alexander Luedtke, University of California, Berkeley; Daniel Rubin, FDA; Mark J. van der Laan, University of California, Berkeley
- 3:05 p.m. **On the Performance of a Large Sample Statistical Test for Equality of Distribution Percentiles Across Multiple Populations**—◆ Lei Zhang, Mississippi State Department of Health; Robbie Beyl, Pennington Biomedical Research Center; Jeff Burton, Pennington Biomedical Research Center; Hongmei Han, Pennington Biomedical Research Center; William Johnson, Pennington Biomedical Research Center
- 3:20 p.m. **Analysis of Mixed Symptomatic and Asymptomatic Data Using a Current Status Design**—◆ Victor Giancarlo Sal Y Rosas, Pontificia Universidad Católica del Perú; James Hughes, University of Washington
- 3:35 p.m. **Edge Sampling Probabilities in Respondent-Driven Sampling**—◆ Miles Ott, Carleton College; Krista J. Gile, University of Massachusetts, Amherst; Joseph Hogan, Brown University; Matthew T. Harrison, Brown University

CC-251

575 **CC-157A**
Phenomenological and Mechanistic Models for Temporal Environmental Processes—Contributed

Section on Statistics and the Environment

Chair(s): Colin Rundell, Duke University

- 2:05 p.m. **Calibration of an Ecosystem Model**—◆ Xian He; Hao Zhang, Purdue University; Qianlai Zhuang, Purdue University
- 2:20 p.m. **Forecasting Nonstationary Energy Time Series**—◆ Marina Knight, University of York; Rebecca Killick, Lancaster University; Guy Nason, University of Bristol; Idris Eckley, Lancaster University
- 2:35 p.m. **Time-Frequency Functional Models for Categorical Time Series**—◆ Yuelei Sui; Scott Holan, University of Missouri; Christopher K. Wikle, University of Missouri
- 2:50 p.m. **A Monte Carlo Approximation of Model Error**—◆ Staci White, Ohio State University; Radu Herbei, Ohio State University
- 3:05 p.m. **Partitioning Uncertainties in Climate Change Model Ensembles**—◆ Stacey Alexeeff, NCAR; Stephan R. Sain, NCAR; Claudia Tebaldi, NCAR
- 3:20 p.m. **Hurst Exponent Estimation for Irregularly Sampled Processes Using Wavelet Lifting**—◆ Matthew Nunes, Lancaster University; Marina Knight, University of York; Guy Nason, University of Bristol
- 3:35 p.m. **Floor Discussion**

Invited Session 4:00 p.m.—5:50 p.m.

576 **CC-Ballroom East**
COPSS Awards and Fisher Lecture—Invited

ASA, Committee of Presidents of Statistical Societies, ENAR, IMS, International Chinese Statistical Association, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society, SSC, WNAS, Section on Physical and Engineering Sciences, Statistics Without Borders, Committee on Professional Ethics

Chair(s): Terence P. Speed, University of California, Berkeley

- 4:05 p.m. **Positive Definite Functions, Reproducing Kernel Hilbert Spaces, and All That**—◆ Grace Wahba, University of Wisconsin-Madison
- 5:45 p.m. **Floor Discussion**



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

GENERAL PROGRAM SCHEDULE



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

THURSDAY, AUGUST 7

JSM Hours

7:00 a.m.–10:30 a.m. CC-256

Speaker Management Room

7:30 a.m.–10:30 a.m. CC-Southeast Lobby B2, Level 1
Cyber Center, Sponsored by IBM

7:30 a.m.–10:30 a.m. CC-Southeast Lobby B2, Level 1
ASA Membership/Help Desk/Press Desk

7:30 a.m.–10:30 a.m. CC-Southeast Lobby B2, Level 1
JSM Main Registration

Committee/Business Meetings & Other Activities

8:00 a.m.–9:30 a.m. CC-153B

Council of Sections Response Meeting (Closed)

Chair(s): John Czajka, Mathematica Policy Research

9:30 a.m.–10:30 a.m. CC-153B

Council of Sections Governing Board Debriefing Meeting (Closed)

Chair(s): John Czajka, Mathematica Policy Research

Special Presentation 8:30 a.m.–10:20 a.m.

577 CC-258C

Introductory Overview Lecture: Astrostatistics—Invited

ASA, ENAR, IMS, SSC, WNAR, International Chinese Statistical Association, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society, Royal Statistical Society, Statistics Without Borders

Organizer(s): Chad Schafer, Carnegie Mellon

Chair(s): Ethan Anderes, University of California, Davis

8:35 a.m. **A Framework for Statistical Inference in Astronomy—◆Chad Schafer, Carnegie Mellon**

9:20 a.m. **Big Data and Complex Modeling Challenges in Astronomy and Solar Physics—◆David Van Dyk, Imperial College London**

10:05 a.m. **Floor Discussion**

Invited Sessions 8:30 a.m.–10:20 a.m.

578 CC-258B

Recent Advances in Statistical Genomics—Invited

WNAR, Section on Physical and Engineering Sciences, Mental Health Statistics Section

Organizer(s): Hui Jiang, University of Michigan

Chair(s): Hui Jiang, University of Michigan

8:35 a.m. **Clustering mRNA-Seq Samples for Alternative Splicing Detection—◆Elizabeth Purdom, University of California, Berkeley; Marla Johnson, University of California, Berkeley**

9:00 a.m. **Characterizing Cell Heterogeneity Using Single-Cell Genomics—◆Raphael Gottardo, Fred Hutchinson Cancer Research Center**

9:25 a.m. **Lessons from a Large-Scale Translational Genomics Study—◆Wing Hung Wong, Stanford University**

9:50 a.m. **Some Issues in Association Testing with Rare Variants—◆Wei Pan, University of Minnesota**

10:15 a.m. **Floor Discussion**

579 CC-251

JCGS Highlights: Computational Innovations for Analyzing Big Data—Invited

JCGS—Journal of Computational and Graphical Statistics

Organizer(s): Thomas C.M. Lee, University of California, Davis

Chair(s): Jan Hannig, University of North Carolina at Chapel Hill

8:35 a.m. **Functional Data Analysis of Tree Data Objects—◆J.**

Thursday



- S. Marron, University of North Carolina
- 9:00 a.m. **Variable Selection Diagnostics Measures for High-Dimensional Regression**—◆Yuhong Yang, University of Minnesota; Ying Nan, University of Minnesota
- 9:25 a.m. **Pathwise Calibrated Active Shooting Algorithm with Application to Semiparametric Graph Estimation**—Tuo Zhao, Johns Hopkins University; ◆Han Liu, Princeton University
- 9:50 a.m. Disc: Thomas C.M. Lee, University of California, Davis
- 10:15 a.m. **Floor Discussion**

- 8:35 a.m. **On Benefits and Limitations of Social Media for Early Outbreak Detection**—◆Elena Naumova, Tufts University; Marwah Soliman, University of Texas at Dallas
- 9:00 a.m. **Tracking Infectious Diseases Outbreaks with Networks-Based Models**—◆Lilia Leticia Ramirez Ramirez, Instituto Tecnológico Autónomo de México; Yulia R. Gel, University of Waterloo; Mark Dredze, Johns Hopkins University; Octavio Gutierrez-Garcia, Instituto Tecnológico Autónomo de México
- 9:25 a.m. **Simplification of Agent-Based Epidemic Models**—◆Georgiy Bobashev, RTI International; Daniel Heard, Duke University; Robert J. Morris, RTI International
- 9:50 a.m. **Tracking Epidemics with Google Flu Trends Data and a State-Space SEIR Model**—◆Vanja Dukic, University of Colorado at Boulder; Hedibert Lopes, University of Chicago; Nicholas Polson, Booth School of Business
- 10:15 a.m. **Floor Discussion**

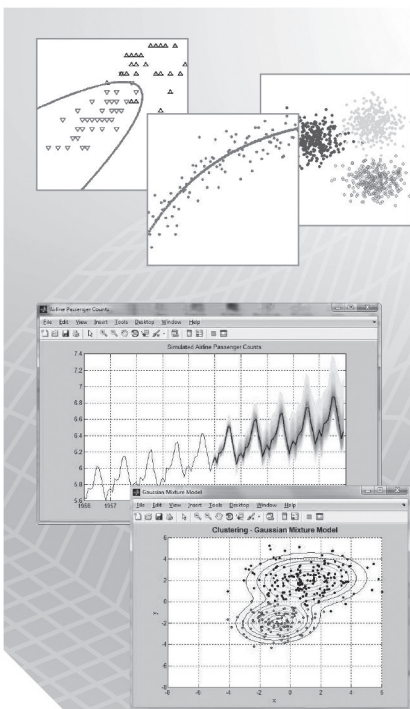
580 **Modern Methods for Modeling and Forecasting of Infectious Diseases: From Visualization to Random Networks and Social Media—Invited**

CC-259A

Section on Statistics in Epidemiology

Organizer(s): Elena Naumova, Tufts University; Yulia R. Gel, University of Waterloo

Chair(s): Yulia R. Gel, University of Waterloo



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- Data analytics
- Computer vision
- Computational finance
- Computational biology

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- Machine learning
- Multicore and multiprocessor support
- Repeated measures and mixed-effects models

Attend Activity #60

"Computational Issues with Big Data: Applications and Methodologies," Sunday, August 3, 4:00–5:50 p.m., Room CC-103

Get Online Resources

Machine learning: mathworks.com/jsm-machine-learning

Classroom resources and tutorials: mathworks.com/jsm-academia

Product trial: mathworks.com/jsm-trial

Booth #605



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

581 **CC-156A**

■ Frontiers of Computer Experiments: Big Data, Calibration, and Validation—Invited

Section on Physical and Engineering Sciences, Section on Statistical Computing, Quality and Productivity Section

Organizer(s): Benjamin A. Haaland, Duke-NUS Graduate Medical School

Chair(s): Rui Tuo, Chinese Academy of Science

- 8:35 a.m. **OEM Algorithm for Big Data**—◆Peter Qian, University of Wisconsin-Madison; Shifeng Xiong, Chinese Academy of Science; Bin Dai, Tower Research Capital
- 9:00 a.m. **Calibration, Error, and Extrapolative Predictions with Computational Models**—◆David W. Higdon, Los Alamos National Laboratory
- 9:25 a.m. **Massively Parallel Approximate Gaussian Process Regression**—◆Jarad Niemi, Iowa State University; Robert B. Gramacy, University of Chicago; Robin Weiss, University of Chicago
- 9:50 a.m. **Joint Modeling of Point and Integral Responses in Computer Experiments**—◆Heng Su, Georgia Institute of Technology; Rui Tuo, Chinese Academy of Science; C. F. Jeff Wu, Georgia Institute of Technology
- 10:15 a.m. **Floor Discussion**

582 **CC-104B**

■ ● Modern Nonparametrics and Recent Development: Beyond Statistics—Invited

Section on Nonparametric Statistics

Organizer(s): Jiayang Sun, Case Western Reserve University

Chair(s): Jiayang Sun, Case Western Reserve University

- 8:35 a.m. **Fast Covariance Estimation for High-Dimensional Functional Data**—◆David Ruppert, Cornell University; Ciprian Crainiceanu, Johns Hopkins University; Vadim Zipunnikov, Johns Hopkins University; Luo Xiao, Johns Hopkins University
- 9:00 a.m. **MrNMF and SrNMF: Recent Development in Robust Non-Negative Matrix Factorization Procedures**—◆Yifan Xu, Case Western Reserve University; Jiayang Sun, Case Western Reserve University; Kenneth K. Lopiano, SAMSI; S. Stanley Young,

NISS

- 9:25 a.m. **Marginal Screening and Outperforming Bonferroni**—◆Ian Wray McKeague, Columbia University; Min Qian, Columbia University
- 9:55 a.m. **Disc: Lingsong Zhang, Purdue University**
- 10:15 a.m. **Floor Discussion**

583 **CC-104C**

■ Bayesian Analysis for Extreme Values—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Benjamin A. Shaby, Penn State

Chair(s): Benjamin A. Shaby, Penn State

- 8:35 a.m. **Bayesian Point Process Modeling for Extreme Value Analysis, with an Application to Systemic Risk Assessment in Correlated Financial Markets**—◆Athanasios Kottas, University of California, Santa Cruz; Abel Rodriguez, University of California, Santa Cruz; Ziwei Wang, Ask.com
- 9:00 a.m. **Spatiotemporal Modeling of Extreme Events**—◆Brian Reich, North Carolina State University; Sam Morris, North Carolina State University
- 9:25 a.m. **Bayesian Semiparametrics for Modeling the Clustering of Extreme Values**—◆Thomas Lugrin, EPFL; Jonathan Tawn, Lancaster University; Anthony Davison, EPFL
- 9:50 a.m. **Dirichlet Mixtures for Multivariate Extremes: Re-Parametrization and Bayesian Inference with Censored Data**—◆Anne Sabourin, Telecom ParisTech; Philippe Naveau, Laboratoire des Sciences du Climat et de l'Environnement; Benjamin Renard, Irstea
- 10:15 a.m. **Floor Discussion**

584 **CC-104A**

● Copulas: Past, Present, and Future—Invited

IMS

Organizer(s): Elif Fidan Acar, University of Manitoba

Chair(s): Claudia Czado, Munich University of Technology

- 8:35 a.m. **Structure Learning in BBNs Using Regular Vines**—Kjersti Aas, Norwegian Computing Center; Ingrid Hobæk Haff, Norwegian Computing Center;



- Arnoldo Frigessi, University of Oslo/Norwegian Computing Center
- 9:00 a.m. **Copulas in Machine Learning**—◆ Yaniv Tenzer, Hebrew University; Gal Elidan, Hebrew University
- 9:25 a.m. **Time-Varying Systemic Risk: Evidence from a Dynamic Copula Model of CDS Spreads**—◆ Dong Hwan Oh, Duke University; Andrew Patton, Duke University
- 9:50 a.m. **Conditional Copula Models with Multiple Covariates**—◆ Elif Fidan Acar, University of Manitoba
- 10:15 a.m. **Floor Discussion**

585 CC-206A **● Innovative Uses of Response Rates for Survey Management—Invited**

Government Statistics Section, Statistics Without Borders
Organizer(s): Jenny Thompson, U.S. Census Bureau
Chair(s): Jenny Thompson, U.S. Census Bureau

- 8:35 a.m. **Innovative Uses of Response Rates for Survey Management**—◆ Amar Mann, Bureau of Labor Statistics; Tian Luo, Bureau of Labor Statistics
- 9:00 a.m. **Regression Tree Models for Analyzing Survey Response**—◆ Daniell Toth, Bureau of Labor Statistics; Polly Phipps, Bureau of Labor Statistics
- 9:25 a.m. **Response Rates as Process Control Tools: Creative Usage of Existing Performance Measures**—◆ Broderick Oliver, U.S. Census Bureau; Yarissa Gonzalez, U.S. Census Bureau; Jenny Thompson, U.S. Census Bureau
- 9:50 a.m. **Disc:** Emilia Peytcheva, RTI International
- 10:10 a.m. **Floor Discussion**

586 CC-151B **■ ● Challenges and Solutions in Developing and Disseminating Flexible Software for Hierarchical Modeling—Invited**

Section on Statistical Computing
Organizer(s): Christopher J. Paciorek, University of California
Chair(s): Christopher J. Paciorek, University of California

- 8:35 a.m. **Fitting Bayesian Hierarchical Models in Python with PyMC**—◆ Christopher Fonnesbeck, Vanderbilt University; John Salvatier, Amazon.com; Thomas

- Wiecki, Brown University
- 8:55 a.m. **Stan: HMC and Nuts for Hierarchical Modeling**—◆ Bob Carpenter, Columbia University
- 9:15 a.m. **Toward INLA 2: The Dream of Flexible Modeling, Scalable Computing, and User-Friendly Fast Approximate Inference for Latent Gaussian Models**—◆ Daniel Simpson, NTNU; Håvard Rue, NTNU; Thiago Martins, NTNU
- 9:35 a.m. **Beyond the Black Box: Flexible Programming of Hierarchical Modeling Algorithms for BUGS-Compatible Models Using NIMBLE**—◆ Perry de de Valpine, University of California, Berkeley; Daniel Turek, University of California, Berkeley; Christopher J. Paciorek, University of California; Rastislav Bodik, University of California, Berkeley; Duncan Temple Lang, University of California
- 9:55 a.m. **Disc:** Roger D. Peng, Johns Hopkins Bloomberg School of Public Health
- 10:15 a.m. **Floor Discussion**

Invited Panel 8:30 a.m.–10:20 a.m.

587 CC-260 **■ ● Personalized Medicine: Better Treatment for the Patient or the Right Patient for the Treatment?—Invited**

ENAR, International Indian Statistical Association
Organizer(s): Olga V. Marchenko, Quintiles
Chair(s): Olga V. Marchenko, Quintiles

- Panelists:** ◆ Eric B. Laber, North Carolina State University
 ◆ Martin Posch, Medical University of Vienna
 ◆ Stephen J. Ruberg, Eli Lilly and Company
 ◆ Sandeep Menon, Pfizer
 ◆ Ilya Lipkovich, Quintiles
 ◆ Alex Dmitrienko, Quintiles

- 10:15 a.m. **Floor Discussion**

Topic-Contributed Sessions 8:30 a.m.–10:20 a.m.

588 CC-257B **■ ● Innovations in Statistics for Big Data from the Next Generation—Topic-Contributed**

Biometrics Section

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Organizer(s): Sherri Rose, Harvard Medical School

Chair(s): Hilary Parker, Etsy

- 8:35 a.m. **Cer with Ever-Increasing Amounts of Administrative Data: Bayesian Methods for Confounding Uncertainty and Heterogeneous Treatment Effects**—◆Corwin Zigler, Harvard School of Public Health
- 8:55 a.m. **Convex Biclustering**—◆Eric Chi, Rice University; Genevera Allen, Rice University/Baylor College of Medicine; Richard G. Baraniuk, Rice University
- 9:15 a.m. **Machine Learning for Effect Estimation in International Health**—◆Sherri Rose, Harvard Medical School
- 9:35 a.m. **Challenges in Statistical Analysis of High-Dimensional Brain Imaging Data**—◆Ani Eloyan, Johns Hopkins University
- 9:55 a.m. Disc: Sean Taylor, Facebook
- 10:15 a.m. **Floor Discussion**

589 CC-157A

■ ● **New Methods of Modeling Count Data and Its Impact on the Future Analysis of Health Data—Topic-Contributed**

Health Policy Statistics Section, Mental Health Statistics Section, Statistics Without Borders

Organizer(s): Joseph M. Hilbe, Arizona State University

Chair(s): Justine Shults, University of Pennsylvania

- 8:35 a.m. **A Multivariate Negative Binomial Regression Model**—◆Felix Famoye, Central Michigan University
- 8:55 a.m. **Modeling Counts via the Conway-Maxwell-Poisson Distribution: For the Health of It!**—◆Kimberly Sellers, Georgetown University
- 9:15 a.m. **Mean and Variance Modeling Using Extended Poisson Process Models**—◆David Smith, Truven Health Analytics
- 9:35 a.m. **Regression Models for Heaped Data**—◆James Hardin, University of South Carolina; Tammy Harris, University of South Carolina; James Hussey, University of South Carolina; Alexander McLain, University of South Carolina
- 9:55 a.m. **Models for Analyzing Count Data with a Lot of Zeros**—Dominique Lord, Texas A&M; ◆Srinivas Reddy Geedipally, Texas A&M Transportation Institute
- 10:15 a.m. **Floor Discussion**

590 CC-206B

■ **The Graphical Modeling and Longitudinal Analysis of fMRI Data—Topic-Contributed**

Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Organizer(s): Ivor Cribben, Alberta School of Business

Chair(s): Martin Lindquist, Johns Hopkins Bloomberg School of Public Health

- 8:35 a.m. **Time-Varying Connectivity Models for Brain Imaging Data**—◆Ivor Cribben, Alberta School of Business; Yi Yu, University of Cambridge
- 8:55 a.m. **Functional Connectivity Analysis for Longitudinal fMRI**—◆Mark Joseph Fiecas, University of Warwick; Ivor Cribben, Alberta School of Business
- 9:15 a.m. **Longitudinal Spatio-Spectral Analysis of Resting-State fMRI**—◆Hakmook Kang, Vanderbilt University
- 9:35 a.m. **Multiscale Adaptive Generalized Estimating Equations for Longitudinal Neuroimaging Data**—◆Yimei Li, St. Jude Children's Research Hospital; John H. Gilmore, University of North Carolina at Chapel Hill; Dinggang Shen, University of North Carolina at Chapel Hill; Martin Styner, University of North Carolina at Chapel Hill; Weili Lin, University of North Carolina at Chapel Hill; Hongtu Zhu, University of North Carolina at Chapel Hill
- 9:55 a.m. **A Two-Part Mixed-Effects Modeling Framework for Analyzing Whole-Brain Network Data**—◆Sean Simpson, Wake Forest School of Medicine
- 10:15 a.m. **Floor Discussion**

591 CC-258A

● **Clinical Trials: Innovative Design and Analysis Ideas for Improving Efficiency—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Donna L. Kowalski, Astellas

Chair(s): Donna L. Kowalski, Astellas

- 8:35 a.m. **A Simulation Study of Sample Size Re-estimation**—◆Mike Smith, Pfizer
- 8:55 a.m. **Sample Size Re-Estimation Using Re-Sampling to Correct for Initial Trial Assumptions**—◆Jeff Maca, Quintiles



- 9:15 a.m. **Incorporation of Clinical Meaningfulness into the Analysis of a Continuous Variable to Improve Efficiency**—◆ Qi Jiang, Amgen; Steven Snapinn, Amgen
- 9:35 a.m. **More Powerful Analyzes of Crossover Trials with Baseline Measurements**—◆ Devan V. Mehrotra, Merck
- 9:55 a.m. **Clinical Trials: Innovative Design and Analysis Ideas for Improving Efficiency**—◆ Yi Tsong, FDA
- 10:15 a.m. **Floor Discussion**

- Chen, Bureau of Economic Analysis; Tommaso Di Fonzo, University of Padova; Marco Marini, International Monetary Fund
- 9:35 a.m. **Extended Yule-Walker Identification of a VARMA Model Using Single- or Mixed-Frequency Data**—◆ Peter Zadrozny, Bureau of Labor Statistics
- 9:55 a.m. **A Study of Diagnostics for Detecting Seasonality and Residual Seasonality**—◆ David Findley, U.S. Census Bureau; Demetra Lytras, U.S. Census Bureau
- 10:15 a.m. **Floor Discussion**

592 CC-254B

■ Design and Analysis of Large Outcomes Trials—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Charlie Cao, Takeda

Chair(s): Ming-Xiu Hu, Takeda

- 8:35 a.m. **Predicting the Probability of Success in a Cardiovascular Outcome Study**—◆ Cong Han, Takeda
- 8:55 a.m. **Big Data Tool for Estimating Baseline Event Rates in Clinical Trials**—◆ Roshan Shah, Evidera
- 9:15 a.m. **Adaptive Switching from Noninferiority to Superiority in Cardiovascular Outcome Trials**—◆ Lingyun Liu, Cytel
- 9:35 a.m. **A Case Study: Examine Trial**—◆ Charlie Cao, Takeda; Hung Lam, Takeda; Craig Wilson, Takeda; Anthony Edmonds, Takeda
- 9:55 a.m. **Disc: James Neaton, University of Minnesota**
- 10:15 a.m. **Floor Discussion**

593 CC-153A

■ Advances in Time Series Analysis and Benchmarking Techniques—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Gian Luigi Mazzi, Eurostat

Chair(s): Dominique Ladiray, INSEE

- 8:35 a.m. **Wavelet Benchmarking with Seasonal Adjustment**—◆ Homesh Sayal, University of Cambridge; John Aston, University of Cambridge; Duncan Elliott, Office of National Statistics; Hernando Ombao, University of California, Irvine
- 8:55 a.m. **Seasonal Adjustments in Nonparametric Price Transmission Analysis**—◆ Tatyana Krivobokova,
- 9:15 a.m. **The Statistical Reconciliation of Time Series of Accounts After a Benchmark Revision**—◆ Baoline

594 CC-153C

■ Recent Advances in Statistical Process Control and Monitoring Research—Topic-Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Subhabrata Chakraborti, University of Alabama

Chair(s): Subhabrata Chakraborti, University of Alabama

- 8:35 a.m. **On the Statistical Design of One-Sided Cusum Charts for Zero-Inflated Binomial Processes**—◆ Athanasios Rakitzis, University of Nantes; Petros Maravelakis, University of Piraeus; Philippe Castagliola, University of Nantes
- 8:55 a.m. **A Change Point Method for Monitoring Generalized Linear Profiles in Phase I**—◆ Arthur Yeh, Bowling Green State University
- 9:15 a.m. **Detecting Changes in Resilience and/or Level of Coordination in Terrorist Groups**—◆ Vasanthan Raghavan, Qualcomm Flarion Technologies
- 9:35 a.m. **Distribution-Free Phase II EWMA Control Chart Based on Lepage Statistic**—◆ Amitava Mukherjee, Indian Institute of Management, Udaipur; Shovan Chowdhury, IIM Kozhikode
- 9:55 a.m. **A New Control Chart for Multivariate Poisson Processes**—◆ Eugenio Epprecht, PUC-Rio; Francisco Aparisi, Universidad Politecnica de Valencia; Sandra Garcia-Bustos, Escuela Superior Polit cnica del Litoral
- 10:15 a.m. **Floor Discussion**

595 CC-213

■ ● Study Milestone Timeline

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Projection in Multi-Center Trials: Bayesian and Frequentist Approaches with Real-Life Applications—Topic-Contributed

Korean International Statistical Society, International Society for Bayesian Analysis (ISBA)

Organizer(s): Sunhee Ro, Onyx Pharmaceuticals

Chair(s): Biao Xing, Onyx Pharmaceuticals

- 8:35 a.m. **Approaches for Patient Recruitment Modeling and Simulation**—◆ Weili He, Merck
- 8:55 a.m. **Bayesian Enrollment Timeline Projection**—
◆ Anthiyur Kannappan, Cytel; Suresh Ankolekar, Maastricht School of Management; Nitin Patel, Cytel; Pralay Senchaudhuri, Cytel
- 9:15 a.m. **Bayesian Clinical Events Timeline Projection**—
◆ Suresh Ankolekar, Maastricht School of Management; Anthiyur Kannappan, Cytel; Nitin Patel, Cytel; Pralay Senchaudhuri, Cytel
- 9:35 a.m. **Sample Size Re-Estimation in Multi-Center Oncology Trials with Time-to-Event Endpoint Using Bayesian Enrollment Timeline Projection and Clinical Event Prediction**—◆ Sunhee Ro, Onyx Pharmaceuticals; Mihaela Obreja, Onyx Pharmaceuticals; Anthiyur Kannappan, Cytel
- 9:55 a.m. Disc: Daniel F. Heitjan, University of Pennsylvania
- 10:15 a.m. **Floor Discussion**

596 **Recent Advances in Big Data Analysis Using Cloud Computing**—Topic-Contributed

CC-252A

Biometrics Section

Organizer(s): Peng Wei, University of Texas School of Public Health

Chair(s): Yijuan Hu, Emory University

- 8:35 a.m. **New Sparse Canonic Correlation Analysis for Construction of Co-Association Networks with Ngs Data by Cloud Computing**—◆ Momiao Xiong, University of Texas Health Science Center at Houston; Jin Yu, University of Texas School of Public Health
- 8:55 a.m. **Image Rna-Seq Data Analysis in Clouds**—◆ Junhai Jiang, UTSPH; Nan Lin, UTSPH; Momiao Xiong, University of Texas Health Science Center at Houston
- 9:15 a.m. **Cloud-Scale Alignment of NGS Short Reads**—◆ Hao Xiong,
- 9:35 a.m. **A Split-and-Merge Bayesian Variable Selection Approach for Ultra-High-Dimensional Regression**—
◆ Faming Liang, Texas A&M; Qifan Song, Texas A&M
- 9:55 a.m. Disc: Peng Wei, University of Texas School of Public Health
- 10:15 a.m. **Floor Discussion**

597 **Using Address-Based Frames for Area Probability Sampling**—Topic-Contributed

CC-204A

Survey Research Methods Section, Government Statistics Section

Organizer(s): Jennifer Kali, Westat

Chair(s): Mansour Fahimi, GfK

- 8:35 a.m. **Address-Based Sampling Frames for Beginners**—
◆ Sylvia Dohrmann, Westat; Jill Montaquila, Westat; Trent D. Buskirk, Marketing Systems Group; Ashley Hyon, Marketing Systems Group
- 8:55 a.m. **Handling Frame Problems with Address-Based Sampling and In-Person Household Surveys**—
◆ Graham Kalton, Westat; Richard Sigman, Westat
- 9:15 a.m. **Experiences with the Use of Address-Based Sampling in Two In-Person National Household Surveys**—◆ Jennifer Kali, Westat; Richard Sigman, Westat; Weijia Ren, Westat; Yumiko Sugawara, Westat; Michael Jones, Westat; Adam Chu, Westat
- 9:35 a.m. **Examining the Threshold: Experiences in Evaluating the DSF When Listing May or May Not Be Necessary**—◆ Katie Dekker, NORC at the University of Chicago; Ned English, NORC at the University of Chicago; Colm O'Muircheartaigh, University of Chicago
- 9:55 a.m. **ABS and Demographic Flags: Examining the Implications for Using Auxiliary Frame Information**—◆ Jamie Ridenhour, RTI International; Joseph P. McMichael, RTI International; Jill Dever, RTI International; Rachel Harter, RTI International
- 10:15 a.m. **Floor Discussion**

598 **Social Statistics Section Student Paper Competition**—Topic-Contributed

CC-203

Social Statistics Section

Organizer(s): Michael Sinclair, Mathematica Policy Research

Chair(s): Barbara Downs, U.S. Census Bureau

- 8:35 a.m. **Estimating Causal Effects Using Stratification and Weighting Propensity Score Estimators with Complex Survey Data**—◆ Robert Ashmead, Ohio State University; Bo Lu, Ohio State University
- 8:55 a.m. **Detecting Duplicate Homicide Records Using a Bayesian Partitioning Model**—◆ Mauricio Sadinle, Carnegie Mellon
- 9:15 a.m. **Testing for Phase Capacity in Surveys with Multiple Waves of Nonrespondent Follow-Up**—◆ Taylor Lewis, University of Maryland
- 9:35 a.m. **Likelihood-Based Inference with Missing Data Under Missing-at-Random**—◆ Shu Yang, Iowa State University; Jae-Kwang Kim, Iowa State University



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

9:55 a.m. Disc: Michael Sinclair, Mathematica Policy Research

◆ Freda Cooner, FDA/CDER

◆ Matthew D. Davis, Clinical Theorem

9:55 a.m. Floor Discussion

10:15 a.m. Floor Discussion

Topic-Contributed Panels 8:30 a.m.–10:20 a.m.

599 CC-204B

■ ● Can Mentoring Enrich Professional Experience for Young Statisticians? An ASA Perspective—Topic-Contributed

Committee on Applied Statisticians, Section on Teaching of Statistics in the Health Sciences, Statistics Without Borders, Accreditation Committee

Organizer(s): Amarjot Kaur, Merck

Chair(s): Richard Morris, Social & Scientific Systems

- Panelists: ◆ David Morganstein, Westat
 ◆ Sydeaka Watson, University of Chicago
 ◆ Emily Olsen, CDC
 ◆ Amarjot Kaur, Merck
 ◆ Denise Bradford, Northrop Grumman

10:15 a.m. Floor Discussion

600 CC-212

■ ● Building Programs in Business Analytics—Topic-Contributed

Section on Statistical Education, Statistics in Business Schools Interest Group

Organizer(s): J. Keith Ord, Georgetown University

Chair(s): George Recck, Babson College

- Panelists: ◆ Harry Chernoff, New York University
 ◆ Kellie Keeling, University of Denver
 ◆ David Levine, Baruch College
 ◆ Alan Montgomery, Carnegie Mellon
 ◆ J. Keith Ord, Georgetown University

10:15 a.m. Floor Discussion

601 CC-102A

■ ● Resources and Recommendations for Novice Bayesian Statisticians Working in the Pharmaceutical Industry—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Fanni Natanegara, Eli Lilly and Company

Chair(s): Andrew Oliver Finley, Michigan State University

- Panelists: ◆ Cory Heilmann, Eli Lilly and Company
 ◆ Stacy Lindborg, Biogen Idec

Contributed Sessions 8:30 a.m.–10:20 a.m.

602 CC-105

● Distribution Theory—Contributed

IMS

Chair(s): Philip Ernst, Wharton School

- 8:35 a.m. On All of the Possible Extensions of a Two-Dimensional Semi-Copula—◆ Francois Perron, Universite de Montreal
- 8:50 a.m. Spiked Models in Multivariate Analysis: James' Five-Fold Way—Iain Johnstone, Stanford University; ◆ Prathapa Dharmawansa, Stanford University
- 9:05 a.m. The Compounding Method for Finding Bivariate Noncentral Chi-Square and F Distributions—◆ Johannes Ferreira, University of Pretoria; Andriette Bekker, University of Pretoria; Mohammad Arashi, Shahrood University
- 9:20 a.m. A Multivariate Extension of the Skew-Unimodal Distributions with Mode-Preserving Property—◆ Toshihiro Abe, Tokyo University of Science; Hironori Fujisawa, Institute of Statistical Mathematics; Toshikazu Yamaguchi, Tokyo University of Science
- 9:35 a.m. Estimating the Parameters of Unified Skew Normal Distribution Using Weighted Moments—◆ Mohammad Aziz, University of Wisconsin-Eau Claire
- 9:50 a.m. Generalized Bimatrix Variate Beta Distribution: Emanating from a Sequential Process—◆ Andriette Bekker, University of Pretoria; Karien Adamski, University of Pretoria; Schalk Human, University of Pretoria; JJJ Roux, University of Pretoria
- 10:05 a.m. Joint Distribution of the Discrete Random Set Vectors and Bivariate CAR Models—◆ Zheng Wei, New Mexico State University; Tonghui Wang, New Mexico State University

603 **CC-255**
Biomarker-Disease and Gene-Disease Association Studies—Contributed

Biometrics Section

Chair(s): Pilar Lim, Janssen

8:35 a.m. **Gene-Disease Associations via Sparse Simultaneous Signal Detection**—◆ Sihai Dave Zhao, University of Illinois at Urbana-Champaign; Tony Cai, University of Pennsylvania; Hao Li, University of California, San Francisco; Hongzhe Li, University of Pennsylvania

8:50 a.m. **Blocking and Randomization to Improve Molecular Biomarker Discovery**—◆ Li-Xuan Qin, Memorial Sloan Kettering Cancer Center; Qin Zhou, Memorial Sloan Kettering Cancer Center; Jaya Satagopan, Memorial Sloan Kettering Cancer Center; Colin Begg, Memorial Sloan Kettering Cancer Center; Douglas Levine, Memorial Sloan Kettering Cancer Center

9:05 a.m. **Genetic and Smoking-Related Associations with DNA Methylation in Current and Former Smokers from the COPD Gene Study**—◆ Weiliang Qiu, Brigham & Women's Hospital/Harvard; Michael H. Cho, Harvard Medical School; Emily Wan, Harvard Medical School; Jarrett Morrow, Brigham & Women's Hospital/Harvard Medical School; James Crapo, National Jewish Health; Edwin K. Silverman, Harvard Medical School; Dawn L. DeMeo, Harvard Medical School

9:20 a.m. **Zero-Inflated Poisson Regression for Identification of Essential Genes with Tn-Seq Data**—◆ Fangfang Liu, Iowa State University; Chong Wang, Iowa State University; Peng Liu, Iowa State University

9:35 a.m. **Inter-Lab Calibration of Biomarker Data with Censoring**—◆ Shizhe Chen, University of Washington; Yunda Huang, Fred Hutchinson Cancer Research Center; Xiao-Hua Andrew Zhou, University of Washington

9:50 a.m. **Weighted Analyses of Randomized Clinical Trials with Treatment Noncompliance and Biomarker Information Collected from a Cohort Subsample**—◆ Shuli Li; Robert J. Gray, Dana-Farber Cancer Institute

10:05 a.m. **An HMRP-Based Bayesian Method for Chromatin Interaction Calling from Hi-C Data**—◆ Zheng Xu, University of North Carolina at Chapel Hill; Guosheng Zhang, University of North Carolina at Chapel Hill; Fulai Jin, University of California, San Diego; Ming Hu, New York University; Yun Li, University of North Carolina at Chapel Hill

604 **CC-257A**
Censored Data and Informative Cluster Size—Contributed

Biometrics Section

Chair(s): Yan Wang, University of California, Los Angeles

8:35 a.m. **Quantile Regression Models for Interval Censored Data**—◆ Fang-Shu Ou, University of North Carolina at Chapel Hill; Donglin Zeng, University of North Carolina at Chapel Hill; Jianwen Cai, University of North Carolina at Chapel Hill

8:50 a.m. **Threshold Regression with Censored Covariates**—◆ Jing Qian, University of Massachusetts; Folefac Atem, Harvard; Rebecca Betensky, Harvard

9:05 a.m. **Simultaneous Confidence Bands from Two-Sample Censored Data**—◆ Sundarraman Subramanian, New Jersey Institute of Technology; Nubyra Ahmed, New Jersey Institute of Technology

9:20 a.m. **Semiparametric Inference of Untyped Variants on Right-Censored Outcomes**—◆ Zhiguo Li, Duke University; Yu Jiang, Duke University; Janice McCarthy, Duke University; Andrew Allen, Duke University; Kouros Owzar, Duke University

9:35 a.m. **Selecting Marker Interaction Using Maximum Entropy Conditional Probability Models for Partially Censored Survival Outcomes**—◆ Aotian Yang; Qing Pan, George Washington University

9:50 a.m. **Using Covariates to Model Repeated Clustered Data with Informative Cluster Sizes**—◆ Ana Maria Iosif, University of California, Davis

10:05 a.m. **Stacked Survival Models for Weighted Methods with Censoring**—◆ Kyle D. Rudser, University of Minnesota; Andrew Wey, University of Minnesota; John Connett, University of Minnesota

605 **CC-254A**
Adaptive Designs for Clinical Trials and Observational Studies—Contributed

Biopharmaceutical Section

Chair(s): Eva Miller, Quality Data Services

8:35 a.m. **Interim Sample Size Recalculation for Observational Studies**—◆ Sergey Tarima, Medical College of Wisconsin; Peng He, Medical College of Wisconsin; Tao Wang, Medical College of Wisconsin; Aniko Szabo, Medical College of Wisconsin

8:50 a.m. **Case Study: Application of Adaptive Enrichment Design with Co-Primary Endpoints in the Command Clinical Trial for Treatment of Mesothelioma**—◆ Robin Bliss, Veristat; John Balser, Veristat; Joanna Horobin, Verastem; Mitchell Keegan, Verastem

9:05 a.m. **An Adaptive Group-Sequential Test Without Predetermination of Total and Group Sample Sizes**—◆ Kosuke Kashiwabara, University of Tokyo; Yutaka Matsuyama, University of Tokyo

9:20 a.m. **Two-Stage Adaptive-Optimal Design with Fixed First-Stage Sample Size**—◆ Nancy Flournoy,



University of Missouri; Adam Lane, Cincinnati Children's Hospital Medical Center

9:35 a.m. **Effect of Sample Size Re-Estimation in Adaptive Clinical Trials for Alzheimer's Disease and MCL**—
◆Guoqiao Wang, University of Alabama at Birmingham; Richard Kennedy, University of Alabama at Birmingham; Lon Schneider, University of Southern California Keck School of Medicine; Gary Cutter, University of Alabama at Birmingham

9:50 a.m. **Design Considerations in Phase IIa and IIb for a Symptomatic Alzheimer's Treatment**—
◆Christopher Assaid, Merck; James Kost, Merck; Jang-Ho Cha, Merck; Ying Zhang, Merck

10:05 a.m. **Design Optimizations and Implementation for Adaptive Clinical Trials: A Case Study for Cancer**—
◆Qiming Liao, GlaxoSmithKline

606 **CC-252B**
■ Biomarkers and Endpoint Validation 2—Contributed

Biopharmaceutical Section

Chair(s): Theresa Ashton, GlaxoSmithKline

8:35 a.m. **Testing Strategies for Trial Designs with Prognostic Biomarkers**—◆Chris Holland, Amgen; Catherine Jia, Amgen; Alicia Zhang, Amgen

8:50 a.m. **Accounting for Biomarker-Based Subpopulation Selection in Phase II Trials in POS Computations**—
◆Guochen Song, Quintiles; Ilya Lipkovich, Quintiles; Alex Dmitrienko, Quintiles

9:05 a.m. **Identifying Metabolic Signatures for Chronic Kidney Disease in Type II Diabetic Patients**—◆Minya Pu, University of California, San Diego; Youyi Zhang, University of California, San Diego; Rintaro Saito, University of California, San Diego; Kumar Sharma, University of California, San Diego; Loki Natarajan, University of California, San Diego

9:20 a.m. **Statistical Methodology for Multiclass Classifications Applications to Dementia**—◆Hong Li, Rush UMC; Sue Leurgans, Rush UMC

9:35 a.m. **Detecting Treatment Pathway Interaction in Small Clinical Studies**—◆Jia Kang, Merck

9:50 a.m. **Meta-STEPP: Subpopulation Treatment Effect Pattern Plot for Meta-Analysis**—◆Victoria Wang, Dana-Farber Cancer Institute; Bernard F. Cole, University of Vermont; Marco Bonetti, Bocconi University; Richard D. Gelber, Harvard School of Public Health/Dana-Farber Cancer Institute

10:05 a.m. **Proving Beyond a Shadow of a Doubt: Can It Be Done with Statistics?**—◆Oliver Bautista, Merck

607 **CC-156B**
■ New Models for Spatial and Demographic Longitudinal Data—Contributed

Business and Economic Statistics Section

Chair(s): Jose Faias, Catolica Lisbon SBE

8:35 a.m. **Quantifying Causal Effects for Continuous Treatments via a Mixed Model Generalized Propensity Score Estimator**—◆Daniel Graham, Imperial College London; David Stephens, McGill University; Emma McCoy, Imperial College London

8:50 a.m. **Groupwise Semiparametric Modeling: An LVME Approach**—◆Song Song, University of Alabama; Lixing Zhu, Hong Kong Baptist University

9:05 a.m. **Bias Reduction in Nonlinear and Dynamic Panels in the Presence of Cross-Section Dependence, with a GARCH Panel Application**—◆Cavit Pakel, Bilkent University

9:20 a.m. **The Effect of Spatial Aggregation on STAR and GSTAR Models**—◆Andrew Gehman; William W.S. Wei, Temple University

9:35 a.m. **Spatio-Temporal Modeling and Spatial Clustering of Curves: A Bayesian Approach Applied to Portuguese Regional Fertility Rates**—◆Arnab Bhattacharjee, Heriot-Watt University; Tapabrata Maiti, Michigan State University; Eduardo Castro, Aveiro University; Zhen Zhang, Michigan State University

9:50 a.m. **A Common-Correlated Effects Approach to Testing Slope Homogeneity in Cointegrated Panels**—
◆Mohitosh Kejriwal, Purdue University

10:05 a.m. **Maximum Likelihood Estimation for Stochastic Differential Equations Using Sequential Kriging-Based Optimization**—◆Grant Schneider,

608 **CC-103**
■ Bayesian Modeling for Longitudinal, Survival, and Spatial Data—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Paola Sebastiani, Boston University

8:35 a.m. **Bayesian Hierarchical Modeling of Multi-Site Longitudinal Data: A Study of Horseshoe Crab Spawning Activity in the Delaware Bay from 1999 to 2012**—◆Penelope S. Pooler, SUNY Upstate Medical University; David R. Smith, USGS; Eric P. Smith, Virginia Tech

8:50 a.m. **Joint Modeling of Longitudinal Zero Inflated Count and Survival Data**—◆Huirong Zhu; Sheng Luo, University of Texas Health Science Center at

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

- Houston; Stacia M. DeSantis, University of Texas Health Science Center at Houston
- 9:05 a.m. **Modeling Non-Gaussian Longitudinal Data Using Bayesian Copula Methods**—◆ Zhiguang Xu; Steven N. MacEachern, Ohio State University; Xinyi Xu, Ohio State University
- 9:20 a.m. **Bayesian Modeling of Spatial Ancestry Mapping**—◆ Kaustubh Adhikari; Andres Ruiz-Linares, University College London
- 9:32 a.m. **A Spatial Copula Approach to Fully Bayesian Nonparametric Survival Analysis**—◆ Haiming Zhou; Timothy Hanson, University of South Carolina; Roland Knapp, University of California
- 9:50 a.m. **Bayesian Cholesky Factor Models for Spatial Data**—◆ Joon Jin Song, Baylor University; Keunbaik Lee, Sungkyunkwan University
- 10:05 a.m. **Floor Discussion**

- 9:35 a.m. **The Impact of Imperfect Matching on Causal Inferences**—◆ Colin Fogarty, Wharton School; Dylan Small, University of Pennsylvania
- 9:50 a.m. **A Bayesian Up-and-Down Design for Clinical Trials with Multiple Adverse Events in Opposite Directions**—◆ Yiyi Chen, Oregon Health & Science University; Zunqiu Chen, Oregon Health & Science University; Matthew Halsey, Oregon Health & Science University
- 10:05 a.m. **Power Computations for Intervention Analysis Applied to Health Care Data**—◆ Robert Wharton, Fordham University

609 CC-157B **Recent Developments in Causal Inference—Contributed**

Health Policy Statistics Section

Chair(s): Frank Yoon, Mathematica Policy Research

- 8:35 a.m. **Bias in Estimating the Causal Hazard Ratio Using Two-Stage Instrumental Variable Methods**—◆ Fei Wan, University of Pennsylvania; Dylan Small, University of Pennsylvania; Justin E. Bekelman, University of Pennsylvania; Nandita Mitra, University of Pennsylvania
- 8:50 a.m. **Accounting for Unmeasured Confounding and Censoring in Comparative Effectiveness Research Involving Survival-Time Outcomes**—◆ James O'Malley, Dartmouth; Jaeun Choi, Harvard Medical School
- 9:05 a.m. **Large, Sparse Optimal Matching with Refined Covariate Balance in an Observational Study of the Health Outcomes Produced by New Surgeons**—◆ Sam Pimentel, University of Pennsylvania; Rachel R. Kelz, University of Pennsylvania; Jeffrey H. Silber, University of Pennsylvania; Paul R. Rosenbaum, Wharton School
- 9:20 a.m. **An Empirical Assessment of the Sensitivity and Robustness of Propensity Score Estimation to Unobserved Covariates**—◆ Wei Pan, Duke University

610 CC-101 **Nonparametric Methods—Contributed**

Section on Nonparametric Statistics

Chair(s): Zhu Ming, AbbVie

- 8:35 a.m. **Empirical Likelihood Ratio Confidence Interval Estimation of Best Linear Combination of Biomarkers**—◆ Xiwei Chen; Albert Vexler, University at Buffalo; Marianthi Markatou, University at Buffalo
- 8:50 a.m. **Nonparametric Spherical Regression Using Diffeomorphic Mappings**—◆ Michael Rosenthal, Florida State University; Wei Wu, Florida State University; Eric Klassen, Florida State University; Anuj Srivastava, Florida State University
- 9:05 a.m. **On Bandwidth Selection for Multivariate Kernel Deconvolution**—◆ Guillermo Basulto-Elias, Iowa State University; Daniel Nordman, Iowa State University; Alicia Carriquiry, Iowa State University
- 9:20 a.m. **Nonparametric Estimation for Mixture of Functional Linear Models**—◆ Mian Huang, Shanghai University of Finance and Economics
- 9:35 a.m. **Adaptive and Efficient Parametric Regression in Semi-Supervised Settings**—◆ Abhishek Chakraborty, Harvard; Tianxi Cai, Harvard
- 9:50 a.m. **A New Semiparametric Approach to Finite Mixture of Regressions Using Penalized Regression via Fusion**—◆ Erin Austin, University of Minnesota; Wei Pan, University of Minnesota; Xiaotong Shen, University of Minnesota



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Thursday



10:05 a.m. **Kernels in the Space of Phylogenetic Trees—**
◆Grady Weyenberg, University of Kentucky

611 CC-207

■ Analysis of Diagnostic Sequencing and Related Data—Contributed

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences

Chair(s): Peter Lam, Boston Scientific

8:35 a.m. **Statistical Issues in Cervical Screening Cytology Device Evaluation—**◆Kyungsook Kim, FDA; Meijuan Li, FDA/CDRH

8:50 a.m. **Clinical Pathoscope: Rapid Alignment and Filtration for Accurate Pathogen Identification in Clinical Samples Using Unassembled Sequencing Data—**
◆Joseph Perez-Rogers, Boston University; Allyson Byrd, Boston University; W. Evan Johnson, Boston University School of Medicine

9:05 a.m. **Cross-Platform Gene Signature Development—**
◆Prasad Patil, Johns Hopkins University

9:20 a.m. **Statistical Scores for Rare Variant Calls in Ultra-Deep Sequencing—**◆Wei-Min Liu, Roche Molecular Systems

9:35 a.m. **Statistical Analysis of Copy Number Variation with Sequencing Data—**◆Bipasa Biswas, CDRH/FDA; Yinglei Lai, George Washington University

9:50 a.m. **Modeling Receiver Operating Characteristics Curve Using Mixture of Skew-T Distributions—**◆Amay Cheam, University of Guelph

10:05 a.m. **Semiparametric Covariate-Specific ROC Curve Estimation Under Test-Dependent Sampling—**
◆Bethany Horton, University of North Carolina at Chapel Hill; Haibo Zhou, University of North Carolina at Chapel Hill

612 CC-151A

■ Risk Analysis Applications—Contributed

Section on Risk Analysis

Chair(s): Wensong Wu, Florida International University

8:35 a.m. **Construction and External Validation of Risk Models for Violent Offending: Statistical Methodology and Empirical Findings Using Paper Instrument for Violence (PIV)—**◆Constantinos Kallis, Queen Mary University of London; Laura J.W. Bui, Queen Mary University of London; Jeremy Weir Coid, Queen Mary University of London

8:50 a.m. **On the Performance of Preliminary Ridge Regression Estimator Under the BLINEX Loss Function—**◆Judy Kleyn, University of Pretoria; Andriette Bekker, University of Pretoria; Sollie Millard, University of Pretoria; Mohammad Arashi, Shahrood University

9:05 a.m. **Optimizing Inter-Regional Blood Transfers in a Stock-and-Flow Simulation Model of the U.S. Blood Supply—**◆Arianna Simonetti, FDA/CBER; Hussein Ezzeldin, FDA/CBER; Richard Forshee, FDA

9:20 a.m. **Applying Survival Analyses Techniques to Educational Accountability—**◆Ji Zeng, Michigan Department of Education; Joseph A. Martineau, Michigan Department of Education

9:35 a.m. **Probabilistic Maximum-Value Wind Prediction for Offshore Environments—**◆Andrea Staid, Johns Hopkins University; Pierre Pinson, Technical University of Denmark; Seth Guikema, Johns Hopkins University

9:50 a.m. **Predictive Modeling for Observational Studies with Adjustment of Selection Bias—**◆Zugui Zhang, Christiana Care Health System

10:05 a.m. **Bayesian Estimate of Strength Analysis for Downton's Bivariate Exponential Distribution Under Type II Censoring—**◆Yuhlong Lio, University of South Dakota; Yu-Jau Lin, Chung Yuan Christian University; Hon Keung Tony Ng, Southern Methodist University

613 CC-102B

Section on Statistical Computing, International Society for Bayesian Analysis (ISBA)

Chair(s): Catherine Durso, University of Denver

8:35 a.m. **Geometric Ergodicity of Bayesian Scale-Usage Models—**◆Andrew Olsen; Radu Herbei, Ohio State University

8:50 a.m. **Zipf's Law and Latent Dirichlet Allocation—**
◆Thomas Jones, Institute for Defense Analyses

9:05 a.m. **A New Calling Procedure for Illumina Beadarray Data—**◆Gengxin Li,

9:20 a.m. **An Online Change-Point Detection Method for CNV Study Using Short Sequencing Reads—**◆Jie Chen, University of Missouri-Kansas City; Ayten Yigiter, University of Hacettepe

9:35 a.m. **Clustering Methods for Interval-Valued Data—**
◆Yi Chen, University of Georgia; Lynne Billard, University of Georgia

9:50 a.m. **Large Cluster Approximation to the Information Matrix Using Complete Data—**◆Andrew Raim, University of Maryland Baltimore County; Nagaraj Neerchal, University of Maryland Baltimore County

10:05 a.m. Floor Discussion

614 CC-152

■ Clustering and Filtering—Contributed

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Section on Statistical Learning and Data Mining

Chair(s): Patrick Breheny, University of Iowa

- 8:35 a.m. **Transelliptical Topic Modeling with Application to Genomics Data**—◆Xingyuan Fang, Princeton University; Han Liu, Princeton University
- 8:50 a.m. **Model-Based Biclustering of Clickstream Data**—◆Volodymyr Melnykov, University of Alabama
- 9:05 a.m. **Implementation of Deep Neural Networks via CUDA GPUs: An Application in Large-Scale Image Classification**—◆Junjing Lin, University of California, Santa Barbara; Carrie Segal, University of California, Santa Barbara; Sreenivasa Rao Jammalamadaka, University of California, Santa Barbara
- 9:20 a.m. **Mixtures of Multiple Scaled Generalized Hyperbolic Distributions**—◆Cristina Tortora, University of Guelph; Ryan P. Browne, University of Guelph; Paul D. McNicholas, University of Guelph; Brian Franczak, University of Guelph
- 9:35 a.m. **Biclustering via Sparse Clustering**—◆Eric Bair, University of North Carolina at Chapel Hill; Qian Liu, University of North Carolina at Chapel Hill; Guanhua Chen, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill
- 9:50 a.m. **Using Genetic Algorithms to Improve the Results of the EM Algorithm for Finite Mixture Models**—◆Sachith Abeysundara; Byungtae Seo, Sungkyunkwan University
- 10:05 a.m. **Non-Specific Filtering of Beta-Distributed Data**—◆Xinhui Wang; Peter W. Laird, USC Keck School of Medicine; Toshinori Hinoue, University of Southern California; Susan Groshen, University of Southern California; Kim Siegmund, University of Southern California Keck School of Medicine

615 **Model-Assisted Estimation - 1—Contributed** CC-209

Survey Research Methods Section

Chair(s): Michael Elliott, University of Michigan

- 8:35 a.m. **Semiparametric Generalized Linear Mixed Model for Localized Health Estimates**—◆Yueyan Wang, University of California, Los Angeles; Hongjian Yu, University of California, Los Angeles; Pan Wang, University of California, Los Angeles; Jean Opsomer, Colorado State University; David Grant, University of California, Los Angeles Center for Health Policy Research; Ninez Ponce, University of California, Los Angeles

- 8:50 a.m. **Analyzing Open-Ended Survey Questions Using Unsupervised Learning Methods**—◆Fang Wang, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago
- 9:05 a.m. **Model-Based Estimation in Official Statistics: Applying Small Area Estimation to the Dutch National Crime Victimization Survey**—◆Elke Moons, Statistics Netherlands
- 9:20 a.m. **Research on Rotation Design and Estimation in the Current Population Survey**—◆Yuan Li, George Washington University; Michael Larsen, George Washington University
- 9:35 a.m. **Multilevel Regression and Poststratification for Small Area Estimation of Population Health Outcomes: Validation and Application**—◆Xingyou Zhang, CDC; James B. Holt, CDC; Shumei Yun, Missouri Department of Health and Senior Services; Hua Lu, CDC; Kurt Greenlund, CDC; Janet B. Croft, CDC
- 9:50 a.m. **Survey Estimators That Respect Natural Orderings**—◆Jiwen Wu; Jean Opsomer, Colorado State University; Mary Meyer, Colorado State University
- 10:05 a.m. **Modeling Compositional Time Series from the Brazilian Labour Force Survey**—◆Denise Silva, ENCE; Eduardo Santiago Rosseti, ENCE

616 **Sampling and Field Issues—Contributed** CC-211

Survey Research Methods Section, Government Statistics Section

Chair(s): Shelton M. Jones, RTI International

- 8:35 a.m. **Using the National Provider Identification File as the Sampling Frame for a Physician Survey**—◆Jay Clark, Westat; Ralph Digaetano, Westat
- 8:50 a.m. **Defining the Optimal Incentive Amount: Does Money Talk?**—◆Dhuly Chowdhury, RTI International; Bridget Kelly, RTI International; Lauren McCormack, RTI International; Marjorie Margolis, RTI International; Patricia LeBaron, RTI International
- 9:05 a.m. **Response Times in Different Sections of a Survey Questionnaire: A Hierarchical Bayesian Analysis of Multivariate Survival Data**—◆Hiroaki Minato, U.S. Energy Information Administration
- 9:20 a.m. **Contacting Strategies and Incentives During the Field Period: Evidence from the Survey of Consumer Finances**—◆Jesse Bricker, Federal Reserve Board; Micah R. Sjoblom, NORC at the University of Chicago; Richard Windle, Federal Reserve Board
- 9:35 a.m. **Analyzing Potential Mode and Respondent Fatigue Effects in the National Crime Victimization Survey**—◆George Couzens, RTI International; Christopher Krebs, RTI International; Marcus Berzofsky, RTI International
- 9:50 a.m. **An Investigation of Interviewer Effects on**



Measurement Error—◆Denize Barbosa, University of Southampton; Gabriele Durrant, University of Southampton; Peter Smith, University of Southampton

10:05 a.m. **A Simple Method of Exact Optimal Sample Allocation Under Stratification with Any Mixed Constraint Patterns**—◆Tommy Wright, U.S. Census Bureau

617 **Statistical Methods for Questions in Football—Contributed** **CC-156C**

Section on Statistics in Sports

Chair(s): Gilbert W. Fellingham, Brigham Young University

8:35 a.m. **Modeling NFL Field Goal Attempt Outcomes in a Bayesian Framework Using Informative Missingness**—◆Dennis Lock, Iowa State University

8:50 a.m. **Who's on First: Simulating the Canadian Football League Regular Season**—◆Keith Willoughby, University of Saskatchewan

9:05 a.m. **Choosing Most Popular NFL Games in a Local TV Market**—◆Scott Grimshaw, Brigham Young University; Scott Burwell, FOX 13 Television

9:20 a.m. **Rank-Adapted Singular Value Decomposition**—◆Kathleen Campbell, Temple University

9:35 a.m. **Quantifying Bias in Models for Probability Estimation**—◆Thomas Flowerdew, STOR-i

9:50 a.m. **Statistically Enhanced Performance in Salary Cap Fantasy Football**—◆Elizabeth G. Hill, Medical University of South Carolina; Robert Hill, South Carolina College of Pharmacy

10:05 a.m. **Association of Domed Stadium to Winning NFL Games**—◆Masaru Teramoto, Drexel University; Chad L. Cross, Crossroads Wellness

618 **CC-208**

● Inventive Statistical Methods for Genetic Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Umut Ozbek, Icahn School of Medicine at Mount Sinai

8:35 a.m. **Measuring Correlation of Evolution Rates Across Multiple Loci: Inference from Large-Scale Sequencing for Infectious Disease Surveillance**—◆Max Tolkoﬀ, University of California, Los Angeles; Marc Suchard, University of California, Los Angeles

8:50 a.m. **Test for Rare Variants by Environment Interactions**—◆Xinyi Lin, Harvard School of Public Health; Seunggeun Lee, University of Michigan; Michael Wu, Fred Hutchinson Cancer Research Center; Chaolong Wang, Harvard School of Public Health; Han Chen, Harvard School of Public Health; Zilin Li, Harvard; Xihong Lin, Harvard School of Public Health

9:05 a.m. **Statistical Methods for Heritability Estimation and Genetic Risk Prediction with Application to Addiction Phenotypes**—◆Yue-Ming Chen; Peng Wei, University of Texas School of Public Health

9:20 a.m. **Diffusion Models for Phylogenetic Trait Evolution**—◆Mandev Gill, University of California, Los Angeles; Marc Suchard, University of California, Los Angeles

9:35 a.m. **Powerful Haplotype Testing by Means of Hierarchical Linkage Disequilibrium in Genetic Association Studies**—◆Stefan Boehringer, Leiden University Medical Center; Brunilda Balliu, Leiden University Medical Center

9:50 a.m. **Fitting Multi-Type Branching Process Models to Panel Data**—◆Jason Xu; Vladimir Minin, University of Washington; Peter Guttorp, University of Washington

10:05 a.m. **Set-Based Gene-Environment Interaction Tests with Adaptive Filtering**—◆Qianying Liu, University of Chicago; Lin Chen, University of Chicago; Dan Nicolae, University of Chicago

619 **Environmental Statistical Methods: Water and Forests—Contributed** **CC-157C**

Section on Statistics and the Environment

Chair(s): Kathryn Irvine, U.S. Geological Survey

8:35 a.m. **White Christmas Becoming Rarer in Southern Parts of Sweden?**—◆Jesper Ryden, Uppsala University

8:50 a.m. **Estimation of Glacier Retreat from Landsat Images**—◆Armin Schwartzman, North Carolina State

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University; Joseph Usset, North Carolina State University; Arnab Maity, North Carolina State University; Ana-Maria Staicu, North Carolina State University

- 9:05 a.m. **Standard Error Estimation for Mixed Flood Distributions with Historic Maxima**—◆John Grego, University of South Carolina; Phil Yates, St. Michael's College; Kaiwen Mai, University of South Carolina
- 9:20 a.m. **Predicting Dangerous E. Coli Levels at Erie, Pennsylvania, Beaches with Random Forests in R**—◆Michael Rutter, Penn State
- 9:35 a.m. **Regression Estimation of Trends in Temperature When Time and Date of Sampling Are Haphazard**—◆Brian R. Gray, U.S. Geological Survey; Yulia R. Gel, University of Waterloo; Vyacheslav Lyubchich, University of Waterloo
- 9:50 a.m. **The Mann-Kendall Test and Adjustments/ Alternatives Under Complex Residual Assumptions and Small Sample Sizes**—◆Charlotte Wickham, Oregon State University
- 10:05 a.m. **Comparing Sampling Strategies for Estimating Age Characteristics of a Forest**—◆Brent Burch, Northern Arizona University; Andrew J. Sanchez Meador, Northern Arizona University

Construction of Sampling Designs—◆J. N. K. Rao, Carleton University

12:15 p.m. **Floor Discussion**

621 **CC-157B**
■ ● Collaboration: Getting in Step with Statistical Innovation—Invited

SPAIG Committee, Government Statistics Section, Conference on Statistical Practice Steering Committee

Organizer(s): Mani Lakshminarayanan, Merck

Chair(s): Barry Nussbaum, U.S. Environmental Protection Agency

- 10:35 a.m. **Why an Innovative Core and Academe-Industry-Government Partnerships Are Critical to the Success of the Pharmaceutical Industry**—◆Christy Chuang-Stein, Pfizer
- 11:00 a.m. **Statistical Methodology Collaborations with Pharmaceuticals: Solving Important and Cutting Edge Applied Problems in Biomedical Research**—◆Joseph Ibrahim, University of North Carolina
- 11:25 a.m. **Statistical Collaboration Benefits Regulatory Policy**—◆Lisa LaVange, FDA
- 11:50 a.m. **Disc: Joseph Heyse, Merck**
- 12:10 p.m. **Floor Discussion**

Invited Sessions 10:30 a.m.–12:20 p.m.

620 **CC-156C**
● Memorial Session: Damaraju Raghavarao—Invited

Memorial, International Indian Statistical Association

Organizer(s): Sanat K. Sarkar, Temple University

Chair(s): Stan Altan, Janssen

- 10:35 a.m. **Conjoint and Discrete Choice Experiments**—◆Angela Dean, University of Southampton
- 11:00 a.m. **When Should One Run a Crossover Design and Why?**—◆Sam Hedayat, University of Illinois at Chicago; Wei Zheng, Indiana University-Purdue University Indianapolis
- 11:25 a.m. **Minimal Second-Order Saturated Designs**—◆Ching-Shui Cheng, Academia Sinica
- 11:50 a.m. **Impact of Raghavarao's Contributions to the**

622 **CC-251**
■ Recent Advances in Lifetime Data Analysis—Invited

ENAR

Organizer(s): Mei-Ling Ting Lee, University of Maryland

Chair(s): Mei-Ling Ting Lee, University of Maryland

- 10:35 a.m. **On Regression Models When the Predictor Is Subject to Censoring**—◆David Oakes, University of Rochester
- 11:00 a.m. **Robust Survival Prediction via Linear Transformation Models**—◆David Harrington, Harvard; Keith Betts, Analysis Group
- 11:25 a.m. **Competing Models for Competing Risks**—◆John D. Kalbfleisch, University of Michigan; Yining Ye, Amgen; Douglas E. Schaebel, University of Michigan
- 11:50 a.m. **Partly Conditional Regression to Inform Treatment Assignment Strategies**—◆Douglas E. Schaebel, University of Michigan; Xu Shu, University of Michigan; John D. Kalbfleisch, University of Michigan
- 12:15 p.m. **Floor Discussion**

623 **CC-157C**



● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

■ ● Statistics for Wind Energy—Invited

Section on Statistics and the Environment

Organizer(s): Marc G. Genton, King Abdullah University of Science and Technology

Chair(s): Marc G. Genton, King Abdullah University of Science and Technology

- 10:35 a.m. **Statistical Identification of Local and Regional Wind Regimes**—◆ Amanda S. Hering, Colorado School of Mines; Karen Kazor, Colorado School of Mines
- 11:00 a.m. **Probabilistic Forecasting of Wind Power Ramps Using Autoregressive Logit Models**—◆ James W. Taylor, University of Oxford
- 11:25 a.m. **Improving Wind Speed and Direction Forecasts by Combining Process and Stochastic Spatio-Temporal Models**—◆ Petrutza Caragea, Iowa State University; Lisa Bramer, PNNL; Mark Kaiser, Iowa State University
- 11:50 a.m. **Evaluating the Impacts of Climate Change on Diurnal Wind Power Cycles Using Multiple Regional Climate Models**—◆ Scott D. Goddard, Texas A&M; Marc G. Genton, King Abdullah University of Science and Technology; Amanda S. Hering, Colorado School of Mines; Stephan R. Sain, NCAR
- 12:15 p.m. **Floor Discussion**

624

■ ● Human Rights Violations: How Do We Begin Counting the Dead?—Invited

CC-206A

Social Statistics Section, Statistics Without Borders, Scientific and Public Affairs Advisory Committee, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Megan Price, Human Rights Data Analysis Group

Chair(s): Megan Price, Human Rights Data Analysis Group

- 10:35 a.m. **The Seventh Sense: Bayesian and Frequentist Applications to Human Rights Violations**—◆ Rebecca C. Steorts, Carnegie Mellon
- 10:55 a.m. **Bayesian Multiple-Recapture Estimation of Casualties in Armed Conflicts Using Nonparametric Mixtures**—◆ Daniel Manrique-Vallier, Indiana University
- 11:15 a.m. **Disc: Patrick Ball, Human Rights Data Analysis Group**
- 11:35 a.m. **Disc: Stephen Fienberg, Carnegie Mellon**
- 11:55 a.m. **Disc: Jay C. Aronson, Carnegie Mellon**
- 12:15 p.m. **Floor Discussion**

625

■ Heart Failure Trials: Novel

CC-260

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Estimands and Methodologies to Evaluate Therapies Based on the Totality of Evidence—Invited

Biopharmaceutical Section

Organizer(s): Byron Jones, Novartis

Chair(s): Mouna Akacha, Novartis

- 10:35 a.m. **Model-Based and Robust Methods for Analysis of Recurrent Hospitalization in Cardiovascular Trials—**◆Richard J. Cook, University of Waterloo
- 10:55 a.m. **Application of Recurrent Events Methodology in Cardiovascular Trials—**◆Lee Jen Wei, Harvard; Scott D. Solomon, Harvard Medical School
- 11:25 a.m. **The Totality of Evidence: Is More the Same as Better?—**◆Bruce Binkowitz, Merck; Uma Kher, Merck
- 11:45 a.m. **Recurrent or Multiple Event Analyses in Cardiovascular Trials: Regulatory Experiences—**◆H.M. James Hung, FDA
- 12:05 p.m. **Floor Discussion**

626 CC-156B Statistical Inference for Economic Time Series—Invited

Business and Economic Statistics Section

Organizer(s): Xiaofeng Shao, University of Illinois at Urbana-Champaign

Chair(s): Ting Zhang, Boston University

- 10:35 a.m. **Fixed-B Asymptotics for Blockwise Empirical Likelihood—**◆Xianyang Zhang, University of Missouri-Columbia; Xiaofeng Shao, University of Illinois at Urbana-Champaign
- 11:00 a.m. **Copula Models with Filtered Time Series—**◆Zhijie Xiao, Boston College
- 11:25 a.m. **Fast Estimation of Time Series with Multiple Spectral Peaks—**◆Tucker Sprague McElroy, U.S. Census Bureau
- 11:50 a.m. **A Family of Likelihood Ratio-Based Tests for Markov Regime Switching—**Zhongjun Qu, Boston University; ◆Fan Zhuo, Boston University
- 12:15 p.m. **Floor Discussion**

627 CC-213 The SAMSI Program on Computational Methods in Social Sciences—Invited

Statistical and Applied Mathematical Sciences Institute, Section on Statistical Computing, International Chinese Statistical Association, Committee on Gay and Lesbian Concerns in Statistics

Organizer(s): Richard L. Smith, SAMSI

Chair(s): Jerome P. Reiter, Duke University

- 10:35 a.m. **Inference from Link-Tracing Network Samples—**◆Krista J. Gile, University of Massachusetts, Amherst
- 10:55 a.m. **Feasibility Analysis Framework for Respondent-Driven Sampling Based on Egocentric Social Network Data and Chain-Referral Attitudes—**◆Elena A. Erosheva, University of Washington; Krista J. Gile, University of Massachusetts, Amherst; Mark S. Handcock, University of California, Los Angeles; Karen Fredriksen-Goldsen, University of Washington
- 11:15 a.m. **Private Analysis of Social Networks—**◆Aleksandra Slavkovic, Penn State; Vishesh Karwa, Penn State
- 11:35 a.m. **Weight Smoothing in Sample Surveys—**◆Malay Ghosh, University of Florida
- 11:55 a.m. **Disc:** Richard L. Smith, SAMSI
- 12:15 p.m. **Floor Discussion**

628 CC-252A Recent Development in Variable Selection Methods—Invited

Biometrics Section, Mental Health Statistics Section

Organizer(s): Zhangsheng Yu, Indiana University School of Medicine

Chair(s): Wanzhu Tu, Indiana University School of Medicine

- 10:35 a.m. **Simultaneous Variable Selection for Joint Models of Longitudinal and Survival Outcomes—**◆Zangdong He, Indiana University Fairbanks School of Public Health; Wanzhu Tu, Indiana University School of Medicine; Sijian Wang, University of Wisconsin; Haoda Fu, Eli Lilly and Company; Zhangsheng Yu, Indiana University School of Medicine
- 11:00 a.m. **Structure Discovery for Joint Models Through Variable Selection Approaches—**Zangdong He, Indiana University Fairbanks School of Public Health; Wanzhu Tu, Indiana University School of Medicine; ◆Zhangsheng Yu, Indiana University School of Medicine
- 11:25 a.m. **Weak Signal Inference in Model Selection—**◆Annie Qu, University of Illinois at Urbana-Champaign; Peibei Shi, University of Illinois at Urbana-Champaign
- 11:50 a.m. **Component Selection and Estimation for Functional Additive Models—**◆Hao (Helen) Zhang, University of Arizona; Hongxiao Zhu, Virginia Tech; Fang Yao, University of Toronto
- 12:15 p.m. **Floor Discussion**

629 CC-157A New Development in the Propensity Score Methods: Addressing



the Pressing Practical Issues—Invited

Health Policy Statistics Section, Statistics Without Borders

Organizer(s): Yi Huang, University of Maryland Baltimore County

Chair(s): Jing Cheng, University of California, San Francisco

- 10:35 a.m. **Bayesian Latent Propensity Score Approach for Average Causal Effect Estimation Allowing Covariate Measurement Error**—◆ Yi Huang, University of Maryland Baltimore County; Elande Baro, University of Maryland Baltimore County; Anindya Roy, University of Maryland Baltimore County
- 11:00 a.m. **A Weighting Analogue to Pair Matching in Propensity Score Analysis**—◆ Liang Li, MD Anderson Cancer Center; Tom Greene, University of Utah
- 11:25 a.m. **Covariate Balancing Propensity Score for General Treatment Regimes**—◆ Kosuke Imai, Princeton University; Marc Ratkovic, Princeton University; Christian Fong, Princeton University
- 11:50 a.m. **Propensity Score Analysis with Partially Missing Covariates**—◆ Bo Lu, Ohio State University; Robert Ashmead, Ohio State University
Disc: Dylan Small, University of Pennsylvania
- 12:15 p.m. **Floor Discussion**

Topic-Contributed Sessions

10:30 a.m.–12:20 p.m.

630 CC-208 ■ ● Challenges and Innovative Solutions for Time-Dependent Survival Analysis—Topic-Contributed

Section on Statistics in Epidemiology

Organizer(s): Li Qin, Yale

Chair(s): Li Qin, Yale

- 10:35 a.m. **Simultaneous Modeling of Proportional Subdistribution Hazards of Competing Risks**—◆ Bingqing Zhou,
- 10:55 a.m. **Modeling the Type and Timing of Consecutive Events: Application to Predicting Preterm Birth in Repeated Pregnancies**—◆ Joanna Shih, National Cancer Institute; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Pauline Mendola, National Institute of Child Health and Human Development; Katherine Laughon, National Institute of Child Health and Human Development
- 11:15 a.m. **Joint Analysis of Survival and Longitudinal Data Subject to Left-Censoring and Non-Ignorable Missing**—◆ Abdus Sattar; Sanjoy Sinha, Carleton University; Xiaofeng Wang, Cleveland Clinic

Lerner Research Institute; Yehua Li, Iowa State University

- 11:35 a.m. **Model Selection in Competing Risk Settings**—◆ Ruth Maria Pfeiffer, National Cancer Institute; Stephanie Kovalchik, RAND Corporation
- 11:55 a.m. **Marginal Structural Model vs. Time-Dependent Propensity Score Method in the Survival Analysis**—◆ Haiqun Lin, Yale; Robert A. Rosenheck, Yale School of Medicine
- 12:15 p.m. **Floor Discussion**

631 CC-254A ■ ● Evidential Approaches to Multiplicity of Hypothesis Testing—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Pilar Lim, Janssen

Chair(s): Rosanne Lane, Janssen

- 10:35 a.m. **Fisherian Evidential Approach to Testing Multiple Hypotheses**—◆ Haiyan Xu, Johnson & Johnson
- 10:55 a.m. **Multiple Comparisons, fMRI Imaging, and One Brave (But Dead) Atlantic Salmon**—◆ Jeffrey Blume, Vanderbilt University; Hakmook Kang, Vanderbilt University
- 11:15 a.m. **Disc: Allan Sampson, University of Pittsburgh**
- 11:35 a.m. **Floor Discussion**

632 CC-254B ■ ● Biomarkers in Clinical Trials and the Regulatory Environment—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Lixia Pei, Janssen

Chair(s): Thian Kheoh, Janssen

- 10:35 a.m. **Biomarker-Based Clinical Trials: an Overview**—◆ Daniel Sargent, Mayo Clinic
- 10:55 a.m. **Biomarker Driven Population Enrichment for Adaptive Oncology Trials**—◆ Cyrus Mehta, Cytel
- 11:15 a.m. **Immunobridging Formula for Predicting Vaccine Efficacy, Accounting for Baseline Covariates, Post-Baseline Biomarker Surrogate Endpoints, and Geno/Serotypes of Circulating Pathogens**—◆ Peter Gilbert, Fred Hutchinson Cancer Research Center
- 11:35 a.m. **Implementation of NGS Genomics Data in Oncology Clinical Trials: Analytical Issues and Lessons**

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Learned—◆Ray Liu, Takeda; Feng Gao, Takeda; Jacob Zhang, Takeda
 11:55 a.m. Disc: Rajeshwari Sridhara, FDA
 12:15 p.m. Floor Discussion

◆Alexander Measure,
 11:55 a.m. Disc: Philip Daher, Federal Reserve Board
 12:15 p.m. Floor Discussion

633 **CC-209**
■ ● Analyzing Linked Data: Challenges, Solutions, and Potential Opportunities—Topic-Contributed

Survey Research Methods Section, Government Statistics Section
 Organizer(s): Yulei He, NCHS/CDC
 Chair(s): Jennifer Parker, NCHS

10:35 a.m. **A Comparison Study of Weighting Adjustment and Multiple Imputation for Missingness Due to Nonlinkage: A Study of the National Health Interview Survey Linked to Medicare Data Files—**
 ◆Guangyu Zhang, NCHS/CDC; Nathaniel Schenker, ASA President; Jennifer Parker, NCHS
 10:55 a.m. **Can We Avoid Problems with Movers? Some Analytical Issues with National Data Linked with State-Level Data—**
 ◆Yulei He, NCHS/CDC; Eric A. Miller, NCHS; Dean Judson, NCHS; Jennifer Parker, NCHS
 11:15 a.m. **Data Analysis Using NHIS-EPA-Linked Files: Issues with Using Incomplete Linkage—**
 ◆Rong Wei, NCHS/CDC; Van Parsons, NCHS; Jennifer Parker, NCHS; Yulei He, NCHS/CDC
 11:35 a.m. **Evaluating Record Linkage Quality in the NCHS Linked Mortality Files—**
 ◆Dean Judson, NCHS; Jennifer Parker, NCHS; Eric A. Miller, NCHS
 11:55 a.m. Disc: Michael Davern, NORC at the University of Chicago
 12:15 p.m. Floor Discussion

634 **CC-206B**
■ ● Applications of Text Analysis in the U.S. Government—Topic-Contributed

Government Statistics Section, Statistics Without Borders
 Organizer(s): Wendy Martinez, Bureau of Labor Statistics
 Chair(s): John Eltinge, Bureau of Labor Statistics

10:35 a.m. **Tracking Disease Outbreaks Using Twitter—**
 ◆David Marchette, Naval Surface Warfare Center; Elizabeth Hohman, Naval Surface Warfare Center
 10:55 a.m. **Topics in Time: Exploring Trends in Accident Reports Using Document Clustering—**
 ◆Wendy Martinez, Bureau of Labor Statistics
 11:15 a.m. **Prediction of Differential Capability for Breakthrough via Network Dynamic Analysis—**
 ◆Jeffrey Solka, Naval Surface Warfare Center; Dan Parks, NSWCCD; Richard Tatum, NSWPCPD
 11:35 a.m. **Automated Coding of Worker Injury Narratives—**

635 **CC-104A**
● Extreme Value Analysis of Random Fields and Applications—Topic-Contributed

IMS
 Organizer(s): Yimin Xiao, Michigan State University
 Chair(s): Yimin Xiao, Michigan State University

10:35 a.m. **Extreme Analysis of Exponential Integrals of Gaussian Random Fields—**
 ◆Jingchen Liu, Columbia University; Gongjun Xu, University of Minnesota, Twin Cities
 10:55 a.m. **Representation Results of Intrinsic Location Functionals—**
 ◆Yi Shen, University of Waterloo
 11:15 a.m. **Excursion Probability of Smooth Multivariate Gaussian Random Fields—**
 ◆Dan Cheng; Yimin Xiao, Michigan State University
 11:35 a.m. **Max-Stable Processes on River Networks—**
 ◆Sebastian Engelke, Université de Lausanne/... cole Polytechnique Fédérale de Lausanne; Peiman Asadi, Université de Lausanne; Anthony Davison, EPFL
 11:55 a.m. **Tail Probability of Extremes of Bivariate Isotropic Gaussian Random Fields—**
 ◆Yuzhen Zhou, Michigan State University; Yimin Xiao, Michigan State University
 12:15 p.m. Floor Discussion

636 **CC-103**
■ ● Bayesian Dose-Finding Methods in Oncology Trials with Focus on Two-Parameter Logistic Regression Model-Based Approach: Overview, Practical Considerations for Implementation,



and Application Examples—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Sunhee Ro, Onyx Pharmaceuticals

Chair(s): Sunhee Ro, Onyx Pharmaceuticals

- 10:35 a.m. **Bayesian Dose Finding in Combination Drug Dose Escalation Using One Dimensional Approach—**◆Ying Yuan, MD Anderson Cancer Center
- 10:55 a.m. **Bayesian Dose Escalation in Oncology Phase I Trials: Overview, Regulatory Implications, and S/Ws—**◆Shibao Feng, Onyx Pharmaceuticals; Tom Parke, Tessella
- 11:15 a.m. **Bayesian Two-Parameter Logistic Regression Model-Based Method for Single Dose-Finding Trial—**◆Olivia Liao, Onyx Pharmaceuticals; Vlad Dragalin, Aptiv Solutions
- 11:35 a.m. **Evaluation of Bayesian Logistic Regression Model and 3+3 in a Dose Escalation Study for Combination Drugs: A Simulation Study—**◆Muhtarjan Osman, Onyx Pharmaceuticals; Yijing Shen, Genentech; Vlad Dragalin, Aptiv Solutions
- 11:55 a.m. Disc: Kristine Broglio, Berry Consultants
- 12:15 p.m. **Floor Discussion**

637 CC-207
■ Statistical Issues in Medical Device and Diagnostic Trials—Topic-Contributed

Section on Medical Devices and Diagnostics, Section on Physical and Engineering Sciences

Organizer(s): Scott William Miller, Clinipace Worldwide

Chair(s): Richard Kotz, FDA/CDRH

- 10:35 a.m. **Statistical Issues in Developing Predictive Biomarkers in Drug Clinical Trials—**◆Nusrat Rabbee,
- 10:55 a.m. **Receiver Operating Characteristic Curve Method for Evaluating Surrogate Endpoints in a Left Ventricular Assist Device (LVAD) Trial—**◆Hong Wang, HeartWare; Kevin Najarian, HeartWare
- 11:15 a.m. **Coefficient of Variation (Cv) - What Does it Measure in a Quantitative Polymerase Chain Reaction (Qpcr) Assay?—**◆Jeng Mah, Beckman Coulter
- 11:35 a.m. **Some Notes on Adaptive Design in Survival Analysis—**◆Jin Wang, Abbott Vascular; Xiaolu Su, Abbott Vascular
- 11:55 a.m. **The Impact of (Not) Stratifying Analyses by Site When Randomization Was Stratified—**◆John Seaman, Alcon; Brian Wiens, Alcon
- 12:15 p.m. **Floor Discussion**

638 CC-101
■ Biosignatures: Topics in Predicting Scalar Outcomes Using Complex Data—Topic-Contributed

Section on Nonparametric Statistics

Organizer(s): R. Todd Ogden, Columbia University

Chair(s): Fabian Scheipl,

- 10:35 a.m. **Selecting Treatment Based on Generated Effect Modifiers—**◆Eva Petkova, New York University School of Medicine; Thaddeus Tarpey, Wright State University; R. Todd Ogden, Columbia University; Zhe Su, New York University
- 10:55 a.m. **A Paradoxical Result in Regression Estimation Arising from Constructing Moderators of Treatment Response—**◆Thaddeus Tarpey, Wright State University; R. Todd Ogden, Columbia University; Eva Petkova, New York University School of Medicine
- 11:15 a.m. **Developing and Understanding Functional Modifiers of Treatment Effect with Applications to Psychiatric Clinical Trials—**◆Adam Ciarleglio, New York University School of Medicine; Eva Petkova, New York University School of Medicine; R. Todd Ogden, Columbia University; Thaddeus Tarpey, Wright State University
- 11:35 a.m. **Functional Linear Regression Model with Scalar on Image Predictors—**◆Yihong Zhao, New York University; R. Todd Ogden, Columbia University; Huaihou Chen, New York University
- 11:55 a.m. **Scalar-on-Function Regression with Measurement Error in the Functional Regressors—**◆Xiao Chen, Columbia University; R. Todd Ogden, Columbia University
- 12:15 p.m. **Floor Discussion**

639 CC-152
■ Innovative Bayesian Methodologies and Their Application—Topic-Contributed

Section on Statistical Learning and Data Mining, Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Sanjib Basu, Northern Illinois University

Chair(s): Abhirup Datta, University of Minnesota

- 10:35 a.m. **On Empirical Likelihood-Based Methods in ABC—**◆Sanjay Chaudhuri, National University of Singapore; David Nott, National University of Singapore; Pham Thi Kim Cuc, National University of Singapore
- 10:55 a.m. **Bayesian Design and Analysis of Composite Endpoints in Clinical Trials with Multiple Dependent Binary Outcomes—**◆Boris Zaslavsky, FDA/CBER/OBE
- 11:15 a.m. **Some Aspects of the Bayesian Three-Arm**

Noninferiority Trial Design—◆ Samiran Ghosh, Wayne State University; Santu Ghosh, Wayne State University School of Medicine

11:35 a.m. **A Semiparametric Bayesian Approach to Destructive Weighted Poisson Cure Rate Model**—◆ Arpita Chatterjee, Georgia Southern University; Narayanaswamy Balakrishnan, McMaster University

11:55 a.m. **Bayesian Cure Rate Models and Model Selection**—◆ Sanjib Basu, Northern Illinois University

12:15 p.m. **Floor Discussion**

640 **CC-151B**
■ ● A New Age of Data Mining in the High-Performance World—Topic-Contributed

Section on Statistical Computing, Statistical Learning and Data Mining Section, Interface Foundation of North America

Organizer(s): Ruiwen Zhang, SAS Institute

Chair(s): Ruiwen Zhang, SAS Institute

10:35 a.m. **Big Data Meets Text Mining**—◆ Zheng Zhao, SAS Institute; James Cox, SAS Institute; Russell Albright, SAS Institute

10:55 a.m. **Classification Using a Bayesian Network in SAS/Æ Enterprise Miner**—◆ Yongqiao Xiao, SAS Institute; Taiyeong Lee, SAS Institute; Jared Dean, SAS Institute

11:15 a.m. **Forest Finesse**—◆ Padraic Neville, SAS Institute; Pei-Yi Tan, SAS Institute

11:35 a.m. **Introducing a High-Performance SAS Procedure for Quantile Regression**—◆ Yonggang Yao, SAS Institute

11:55 a.m. Disc: Jared Dean, SAS Institute

12:15 p.m. **Floor Discussion**

Topic-Contributed Panel 10:30 a.m.–12:20 p.m.

641 **CC-102A**

■ ● Collaborative Statisticians Advancing Their Careers in an Academic Setting—Topic-Contributed

Section on Statistical Consulting, Statistics Without Borders, Accreditation Committee

Organizer(s): Julia L. Sharp, Clemson University

Chair(s): Alexandra Hanlon, University of Pennsylvania

Panelists: ◆ Julia L. Sharp, Clemson University

◆ Chris Franck, Virginia Tech

◆ Ronald Gagnon, University of Wisconsin-Madison

◆ Alix I. Gitelman, Oregon State University

◆ Sharina Person, University of Massachusetts Medical School

◆ Denise Scholtens, Northwestern University Feinberg School of Medicine

12:15 p.m. **Floor Discussion**

Contributed Sessions 10:30 a.m.–12:20 p.m.

642 **CC-105**
■ Applications—Contributed

IMS

Chair(s): Zsolt Talata, University of Kansas

10:35 a.m. **Information Gathering in Bayesian Networks with an Application to Petroleum Prospecting**—◆ Marie Lilleborge, Norwegian Computing Center; Ragnar Hauge, Norwegian Computing Center; Jo Eidsvik, Norwegian University of Science and Technology

10:50 a.m. **Statistical Identification of Evolving Drug Resistance in Anti-Cancer Therapies**—◆ Xin Cao; Anand Vidyashankar, George Mason University

11:05 a.m. **A Statistical Procedure to Evaluate the Most Accurate Animal Model of Human Disease**—◆ Cuilan Gao, University of Tennessee at Chattanooga; Behrouz Shamsaei, University of Tennessee at Chattanooga; Stanley Pounds, St. Jude Children's Research Hospital

11:20 a.m. **ED Discharge with Pneumonia: Factors Associated with ED Return and Inpatient Admission**—◆ Zehua



Liu, HHC; Shunsuke Ito, HHC; Madeline Vossbrinck, HHC; Raymond Gregory, HHC; Van Dunn, HHC; Ronald B. Low, HHC

11:35 a.m. **Universally Optimal fMRI Designs for Comparing Hemodynamic Response Functions**—◆Ming-Hung Kao, Arizona State University

11:50 a.m. **Multiple Collection Estimation of Population Size: A Generalization of 'Capture-Recapture'**—◆Philip Ernst, Wharton School; Lawrence Brown, Wharton School

12:05 p.m. **Statistics Applied to Anglo-Saxon Measurements and Locations**—◆Wilfrid Kendall, University of Warwick; Giacomo Zanella, University of Warwick

Chair(s): Sihai Dave Zhao, University of Illinois at Urbana-Champaign

10:35 a.m. **Comparative Predicted Probabilities Based on Retrospective Data with Binary Links**—◆Di Fang, Arizona State University; Jeffrey Wilson, Arizona State University

10:50 a.m. **Pairwise Comparisons for Multivariate Ordered Categorical Responses**—◆Mei Wah Lee, Chinese University of Hong Kong; Siu Hung Cheung, Chinese University of Hong Kong; Wai Yin Poon, Chinese University of Hong Kong

11:05 a.m. **Exact Tests of Monotone Dose-Response for Binary Outcomes**—◆William Brady, Roswell Park Cancer Institute; Gregory Wilding, Roswell Park Cancer Institute

11:20 a.m. **Comparing Dependent Association Measures for Categorical Data**—◆Klaus Kähler Holst, University of Copenhagen; Esben Budtz-Jørgensen, University of Copenhagen

11:35 a.m. **A Note on the Kappa Statistic for Clustered Dichotomous Data**—◆Ming Zhou, Bristol-Myers Squibb; Zhao Yang, UCB BioSciences

11:50 a.m. **Sequential Inference on a Measure of Reduction for Two Binomial Proportions**—◆Hokwon Cho, University of Nevada, Las Vegas; Zhou Wang, University of Nevada, Las Vegas

12:05 p.m. **Inference of Infectious Causes Using Bayesian Mixture Model with Application to Childhood Pneumonia Etiology Studies**—◆Zhenke Wu, Johns Hopkins University; Scott Zeger, Johns Hopkins University

643 CC-102B Small Sample Property and Statistical Inference—Contributed

International Chinese Statistical Association, Statistics Without Borders
Chair(s): Dandan Liu, Vanderbilt University

10:35 a.m. **Bias-Corrected Estimators of Scalar Skew Normal**—◆Guoyi Zhang, University of New Mexico; Rong Liu, University of Toledo

10:50 a.m. **Small Sample Inference for Gamma Parameters: One- and Two-Sample Problems**—◆Kalimuthu Krishnamoorthy, University of Louisiana at Lafayette; Luis Leon Novelo, University of Louisiana at Lafayette

11:05 a.m. **Improved Small Sample Inference for the Generalized Pareto Distribution Through a Monte Carlo Adjustment to the Signed Root of the Log-Likelihood Ratio Statistic**—◆David Smith, Tennessee Tech University

11:20 a.m. **Quantifying the Probability That a Follow-Up Experiment Will Falsify a Scientific Claim**—◆Douglas Hayden, Massachusetts General Hospital; Brian Healy, Massachusetts General Hospital; Mark Kon, Boston University

11:35 a.m. **Statistical Methods in Data Harmonization**—◆Yan Wang, University of California, Los Angeles; Honghu Liu, University of California, Los Angeles

11:50 a.m. **Long-Term Effects of Periodic Cancer Screening for Aged People with a Screening History**—◆Dongfeng Wu, University of Louisville

12:05 p.m. Floor Discussion

644 CC-255 Categorical Data—Contributed

Biometrics Section

645 CC-257A Correlated Data Analysis—Contributed

Biometrics Section

Chair(s): Ran Tao,

10:35 a.m. **Testing for Association with Multiple Traits in Generalized Estimation Equation, with Application to Neuroimaging Data**—◆Yiwei Zhang, Novartis; Zhiyuan Xu, University of Minnesota; Wei Pan, University of Minnesota; Xiaotong Shen, University of Minnesota

10:50 a.m. **GEE-Type Inference for Clustered Zero-Inflated Negative Binomial Regression with Application to Dental Caries**—◆Maiying Kong, University of Louisville; Somnath Datta, University of Louisville

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

11:05 a.m. **Alternative Procedures for Shelf Life Estimation Utilizing Mixed Models**—◆Michelle Quinlan, Novartis; Walt Stroup, University of Nebraska-Lincoln; Dave Christopher, Merck

11:20 a.m. **Analyzing Ratios of Prevalence and Incidence Estimators in Multilevel Mixed Effects Models**—◆William Johnson, Pennington Biomedical Research Center; Jeff Burton, Pennington Biomedical Research Center; Robbie Beyl, Pennington Biomedical Research Center; Hongmei Han, Pennington Biomedical Research Center

11:35 a.m. **Inverse Estimation with Random Coefficient Models and Its Implementation in R**—◆Brandon Greenwell, AFIT; Christine Schubert Kabban, Air Force Institute of Technology

11:50 a.m. **Estimating Random Coefficients Models Given Covariates Having Ignorable Missing Values and Random Effects**—◆Yongyun Shin, Virginia Commonwealth University

12:05 p.m. **Flexible Multivariate Methods for Binary-Event or Ordinal Composite Endpoints**—◆Edward Mascha, Cleveland Clinic

646 **■ Missing Data Methods 2—Contributed**

CC-252B

Biopharmaceutical Section

Chair(s): Jingjing Gao, AbbVie

10:35 a.m. **A Hybrid Approach of Handling Missing Data That Combined Nonresponder Imputation with Multiple Imputation or Pattern Mixture Model**—◆Bidan Huang, AbbVie; Yiran Bonnie Hu, AbbVie; Lei Shu, AbbVie; Qian Zhou, AbbVie

10:50 a.m. **An Application of the Best Linear Unbiased Estimators (BLUE) for Missing Biomarkers Values in the Analysis of Repeated Measurements in Oncology Clinical Trials**—◆Santosh Sutradhar, Novartis; D. Das Purkayastha, Novartis

11:05 a.m. **Recent Development of Missing Data Imputation for Longitudinal Binary Outcomes**—◆Huyuan Yang, Takeda; Serap Sankoh, Takeda; Jing Xu, Takeda; Ming-Xiu Hu, Takeda

11:20 a.m. **Assessment of Drug Effects in Cancer Xenograft Models with Multiple Tumor Outcomes**—◆Elande Baro, University of Maryland Baltimore County

11:35 a.m. **Planning Sample Size Using MMRM in Presence of Missing Data**—◆Tao Song, Spectrum Pharmaceutical; Ying Zhu, Biogen Idec; Pamela Hsu, Spectrum Pharmaceutical; Gajanan Bhat, Spectrum Pharmaceutical

11:50 a.m. **Statistical Techniques for Comparing Immune Response in Trivalent Vaccines with Quadrivalent Vaccines**—◆Ayca Ozol-Godfrey, Sanofi Pasteur; Robert D. Small, Sanofi Pasteur

12:05 p.m. **Assessing the Impact of Nonproportional Hazards on Estimation of Treatment Effects of Progression-**

Free Survival—◆Adam Boyd, Array BioPharma; David Raunig, ICON Medical Imaging

647 **■ Business Mobility, Income Inequality, and Dynamic Models—Contributed**

CC-153A

Business and Economic Statistics Section, Statistics Without Borders

Chair(s): Douglas McManus, Freddie Mac

10:35 a.m. **Calibration of a Telecommunications Service Delivery Model Using Dynamic Linear Models**—◆Mark Bell; Matthew Nunes, Lancaster University; David Worthington, Lancaster University; Peter Neal, Lancaster University; Kjeld Jensen, BT Technology, Service, and Operations

10:50 a.m. **Foreign Ownership Business Affected Employment? Some Evidences for Italy Using a Panel Dynamic Model**—◆Matilde Bini, Universita Europea di Roma; Leopoldo Nascia, European University of Rome; Alessandro Zeli, Italian National Statistical Institute

11:05 a.m. **Reanalysis of Income Inequality in the United States from 1967–2012 with a Semi-Robust Version Gini-Type Index Indicates a Greater Rate of Increase in Inequality During the Period**—◆Joseph Gastwirth, George Washington University

11:20 a.m. **The Nexus of Population, Governance, and Economic Growth: A Macroeconomic Perspective in Asia**—◆Ashraf Ahmed, Morgan State University; Muhammad G. Quibria, Morgan State University

11:35 a.m. **The Advantages of Using Group Means in Estimating the Lorenz Curve and Gini Index from Grouped Data**—◆Merritt Lyon, Compass Lexecon; Li Cheung, George Washington University; Brian Dumbacher, George Washington University; Joseph Gastwirth, George Washington University

11:50 a.m. **A Class of Advanced Probabilistic and Time Series Models for Assessing Economic/Business Mobility**—◆Silvey Shamsi, Jahangirnagar University; Mian Arif Shams Adnan, Jahangirnagar University; M. Shamsuddin, Uttara University

12:05 p.m. **A Dynamic Correlation Analysis of CPI Subcomponents Using Continuous Wavelet Transforms**—◆David Doorn, West Chester University of Pennsylvania

648 **■ Targeted Address Canvassing and Coverage—Contributed**

CC-204B

Government Statistics Section, Section on Statistics in Marketing

Chair(s): Kennon R. Copeland, NORC at the University of Chicago



- 10:35 a.m. **An Overview of Census Bureau Efforts to Assess Address List Coverage and Quality**—◆ Robin A. Pennington, U.S. Census Bureau; Kevin M. Shaw, U.S. Census Bureau; Michael R. Ratcliffe, U.S. Census Bureau
- 10:50 a.m. **Designing an Adaptable Database for Model-Based Research**—◆ Mary Pritts, U.S. Census Bureau; Nancy Johnson, U.S. Census Bureau
- 11:05 a.m. **Recent Advancements in the Use of Statistical Modeling for Targeting Specific Geographic Areas for Address Canvassing in the 2020 Census**—◆ Christine Gibson Tomaszewski, U.S. Census Bureau; John Luthor Boies, U.S. Census Bureau
- 11:20 a.m. **Fielding a Targeted Address Canvassing Operation: Alternative Approaches to Moving from Predictive Statistical Modeling to a Cost-Effective Address Canvassing Field Operation**—◆ John Luthor Boies, U.S. Census Bureau; Christine Gibson Tomaszewski, U.S. Census Bureau
- 11:35 a.m. **Zero-Inflated Regression Modeling for Coverage Errors of the Master Address File**—◆ Derek Young, U.S. Census Bureau
- 11:50 a.m. **An Assessment of Historical Demographic Analysis Estimates for the Black Male Birth Cohorts of 1935 to 1939**—◆ Kirsten West,
- 12:05 p.m. **Covariates of Dissonance Between Self-Reported and Registered Housing Characteristics, as Revealed by Record Linkage**—◆ W. Kingkade, U.S. Census Bureau

649 ■ ● Reliability: How to Test?—Contributed

CC-156A

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Brian Weaver, Los Alamos National Laboratory

- 10:35 a.m. **Revisiting Drenick's Failure Law of Complex Equipment**—◆ David Collins, Los Alamos National Laboratory; Aparna Huzurbazar, Los Alamos National Laboratory
- 10:50 a.m. **Time and Cost Constrained Optimal Designs of Constant-Stress and Step-Stress ALT**—◆ David Han, University of Texas at San Antonio
- 11:05 a.m. **Planning Fatigue Tests for Polymer Composites**—◆ Caleb King, Virginia Tech; Yili Hong, Virginia

Tech; Stephanie DeHart, DuPont; Patrick DeFeo, DuPont

- 11:20 a.m. **Continuous Mixtures of Exponentials and IFR Gammas Having Bathtub-Shaped Failure Rates**—◆ Jie Wang; Henry W. Block, University of Pittsburgh; Naftali A. Langberg, University of Haifa; Thomas H. Savits, University of Pittsburgh
- 11:35 a.m. **ML vs. MRR: Weibull Parameter Estimation for Making Decisions**—◆ Andrew Robinson, University of Melbourne; Nicholas Armstrong, Defence Science and Technology Organisation
- 11:50 a.m. **Reliability Block Diagram: Simulate or Calculate?**—◆ Rajneesh Rajneesh, SAS Institute; Peng Liu, SAS Institute
- 12:05 p.m. **A Robust Time Series Classification Method for Vibration-Based Damage Detection**—◆ Lei Jin, Texas A&M

650 ■ ● Miscellaneous Computing—Contributed

CC-151A

Section on Statistical Computing

Chair(s): Jane L. Harvill, Baylor University

- 10:35 a.m. **Block Parameter Orthogonalization in Maximum Likelihood Estimation**—◆ John Kwagyan, Howard University
- 10:50 a.m. **Examining Missing Data Mechanisms via Homogeneity of Parameters, Homogeneity of Distributions, and Multivariate Normality**—◆ Mortaza Jamshidian, California State University, Fullerton; Ke Hai Yuan, University of Notre Dame
- 11:05 a.m. **Method-of-Moment Estimators for Multi-Level Multivariate Models**—◆ Michael Anderson, University of Texas at San Antonio; Anuradha Roy, University of Texas at San Antonio
- 11:20 a.m. **The Impact of Ignoring Clustering Effect in Three-Level Data**—◆ Tina Cunningham, Eastern Virginia Medical School; Bob E. Johnson, Vanderbilt University School of Medicine
- 11:35 a.m. **Monte Carlo Likelihood Approximation for Generalized Linear Mixed Models**—◆ Christina Knudson; Charles Geyer, University of Minnesota; Galin Jones, University of Minnesota
- 11:50 a.m. **Identifying Patterns in Financial Time Series**—◆ James Shine; James E. Gentle, George Mason University; Charles Perry, U.S. Department of Agriculture (retired)

651 ■ ● The Next Generation of the Statistics

CC-212

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

‘Classroom’—Contributed

Section on Statistical Education, Section on Physical and Engineering Sciences, Statistics Without Borders, Statistics in Business Schools Interest Group

Chair(s): Zenaida Mateo, University of Manitoba

- 10:35 a.m. **Inversion Experiences: Flipping a Large Conceptual Statistics Class**—◆William Rayens, University of Kentucky
- 10:50 a.m. **SAS: a Flipped Class Approach**—◆Kendra Schmid, University of Nebraska Medical Center; Lynette M. Smith, University of Nebraska Medical Center; Elizabeth R. Lyden, University of Nebraska Medical Center
- 11:05 a.m. **A Successful Experiment with a Flipped Pedagogy for Engineering Statistics: Advantages and Drawbacks**—◆Marc Bourdeau, Ecole Polytechnique
- 11:20 a.m. **Teaching to the Masses**—◆Mine Cetinkaya-Rundel, Duke University
- 11:35 a.m. **Comparison of Learning Outcomes from Traditional and Randomization-Based Inference Curricula in a Designed Experiment**—◆Karsten Maurer, Iowa State University; Dennis Lock, Iowa State University
- 11:50 a.m. **Simulation, Randomization, and/or Resampling: How Much Is Really Necessary?**—◆Christopher J. Malone, Winona State University; Tisha Hooks, Winona State University
- 12:05 p.m. **One Crank or Two?**—◆Kari Lock Morgan, Duke University

652 Multidimensional Statistical Inference—Contributed

Section on Statistical Learning and Data Mining

Chair(s): Marie Kraska, Auburn University

- 10:35 a.m. **Joint Adaptive Gaussian Graphical Method for Unbalanced Multi-Classes**—◆Liang Shan, Virginia Tech; Inyoung Kim, Virginia Tech
- 10:50 a.m. **A Review on Combining Statistical Procedures in High-Dimensional Data Analysis**—◆Yanjia Yu, University of Minnesota, Twin Cities
- 11:05 a.m. **RF Classification for ‘Omics’ Data**—◆Umashanger Thayasivam, Rowan University
- 11:20 a.m. **High-Dimensional Multivariate Additive Regression**—◆Rodrigue Ngueyep Tzoumpe, Georgia Institute of Technology; Nicoleta Serban,

Georgia Institute of Technology

- 11:35 a.m. **Multivariate Regression with Block-Structured Predictors with an Application to Eye-Tracking Data Analysis**—◆Saier Ye; Lisha Chen, Yale; Katarzyna Chawarska, Yale School of Medicine
- 11:50 a.m. **Poisson Regression Models for Safety Analysis**—◆Rama Sastry,
- 12:05 p.m. **Frequentist Model Averaging: A General Framework and Theories**—◆Priyam Mitra; Ming Xie, Rutgers University; Hua Liang, George Washington University

653 Model-Assisted Estimation - 2—Contributed

CC-211

Survey Research Methods Section, Government Statistics Section

Chair(s): Frances Chevarley, AHRQ

- 10:35 a.m. **Classification Error in Measuring Sexual Victimization Among Inmates: The National Inmate Survey**—◆Marcus Berzofsky, RTI International; Paul Biemer, RTI International; Susan Edwards, RTI International
- 10:50 a.m. **An Imputation Model Database and Its Relevance to Analysis**—◆Glynis Ewing, RTI International; Peter Frechtel, RTI International; Kristen Gullede, RTI International; Susan Edwards, RTI International; Jonaki Bose, SAMHSA
- 11:05 a.m. **An Application of Calibrated Bayes Methods to Estimate Vaccination Coverage Rates from the NIS**—◆Meena Khare, NCHS/CDC/DHHS; Philip J. Smith, CDC; Alena Maze, NCHS
- 11:20 a.m. **On Estimating Mean Squared Prediction Error of Small Area Estimators in Basic Area Level Model with Unknown Sampling Variance by Parametric Bootstrap**—◆Abhishek Nandy, University of Minnesota; Snigdhanu Chatterjee, University of Minnesota
- 11:35 a.m. **Model-Assisted Estimation of Unemployment Rates for Longitudinal Surveys with an Application in the Current Population Survey**—◆Daniel Bonner, Joint Program in Survey Methodology/U.S. Census Bureau; Yang Cheng, U.S. Census Bureau; Partha Lahiri, University of Maryland
- 11:50 a.m. **Combining Two Sources of Crime Data to Improve County-Level Estimation**—◆Elizabeth Petraglia, Ohio State University
- 12:05 p.m. **A Pseudo-Likelihood Approach for Hierarchical**



Linear Models Under Complex Designs—◆Junvie Pailden, Southern Illinois University Edwardsville

654 CC-204A Data Collection Issues—Contributed

Survey Research Methods Section, Government Statistics Section, Statistics Without Borders

Chair(s): Ashley Bowers, Indiana University

- 10:35 a.m. **Methodological Challenges in the Redesign of the 2015 Survey of Prison Inmates**—◆Jennifer Unangst, RTI International; Marcus Berzofsky, RTI International
- 10:50 a.m. **Reducing Quality Variation Across Countries in an International Survey**—◆Laura Alvarez-Rojas, Westat; Thomas Krenzke, Westat; Leyla Mohadjer, Westat
- 11:05 a.m. **Using Response Rates to Adjust a Dual Sample Design**—◆Eric Grau, Mathematica Policy Research
- 11:20 a.m. **Analysis of the Sources of Group Quarters Enumeration Data in the 2010 Census**—◆Asaph Chun, U.S. Census Bureau; Jessica Gan, Rice University
- 11:35 a.m. **Transitioning a Random Digit Dialing Health Survey to Address-Based Sampling**—◆Bonnie Shook-Sa, RTI International; David Roe, RTI International; Brian Head, RTI International; Lauren Klein Warren, RTI International; Doug Currivan, RTI International; Barbara Bibb, RTI International
- 11:50 a.m. **A Class of Dual Frame Survey Sampling Estimators in the Presence of a Covariate: How Amy Predicts Her President**—◆Sarjinder Singh, Texas A&M; Stephen Andrew Sedory, Texas A&M; David Molina, University of Granada
- 12:05 p.m. **Dual-Frame Telephone Sampling for a National Survey with State Estimates**—◆Kristie Healey, ICF International; Ronaldo Iachan, ICF International; Naomi Freedner, ICF International; Joshua Brown, ICF International; Kisha Bailly, ICF International

655 CC-203 Advances in Statistical Image Analysis—Contributed

Section on Statistics in Imaging, Section on Physical and Engineering Sciences

Chair(s): James Cross, MathWorks

- 10:35 a.m. **A Novel Scheme for the Classification Analysis of Big Image Data Based on Functional Principle Component Analysis, Matrix Completion, and Sufficient Dimension Reduction**—◆Nan Lin, UTSPH; Junhai Jiang, UTSPH; Shicheng Guo,

University of Texas; Xiao Yu, University of Texas; Long Ma, University of Texas; Momiao Xiong, University of Texas Health Science Center at Houston

- 10:50 a.m. **Inferential Methods for Populations of Images**—◆Maximillian Chen, Cornell University; Martin Wells, Cornell University
- 11:05 a.m. **Diseased Region Detection of Longitudinal Knee Magnetic Resonance Imaging Data**—◆Chao Huang, University of North Carolina at Chapel Hill
- 11:20 a.m. **Identifying Prehistoric House Structures Using Spatial Point Process**—◆Kalanka Jayalath, Stephen F. Austin State University
- 11:35 a.m. **A Linear Model with a Spatiotemporal Covariance Structure for the Analysis of Longitudinal Imaging Data**—◆Brandon George, University of Alabama at Birmingham; Inmaculada Aban, University of Alabama at Birmingham
- 11:50 a.m. **A Comparison of Robust Background Modeling Methods for Enhancing Event Detection in Video**—◆Richard Wood, Draper Laboratory; John Irvine, Charles Stark Draper Laboratory
- 12:05 p.m. **A Stochastic Relaxed Energy Model for Image Deblurring**—◆Walid Sharabati, Purdue University; Mohamed El-Gebeily, KFUPM

656 CC-259A Challenges and Innovative Solutions for Measurement Error, Meta-Analysis, and Smoothing—Contributed

Section on Statistics in Epidemiology

Chair(s): Wei Zhang, Cornell University

- 10:35 a.m. **A Hybrid Second-Order Iterated Smoother**—◆Dao Nguyen,
- 10:50 a.m. **A Lasso-Type Penalized Spline for Smoothing Under Generalized Linear Mixed Model (GLMM) Framework**—◆Muhammad Mullah, McGill University; Andrea Benedetti, McGill University
- 11:05 a.m. **Multi-Pollutant Measurement Error in Air Pollution Epidemiology Studies Arising from Predicting Exposures with Penalized Regression Splines**—◆Silas Bergen, University of Washington; Adam Szpiro, University of Washington
- 11:20 a.m. **Correcting for Discrete Covariate Measurement Error Models Using QVF**—◆Naima Shifa,
- 11:35 a.m. **Performance of Network Meta-Analysis in Large Networks: A Simulation Study**—◆Binod Neupane; Joseph Beyene, McMaster University
- 11:50 a.m. **Higher-Order Asymptotics for Random Effects Meta-Analysis: An Empirical Evaluation**—◆Joseph Beyene, McMaster University
- 12:05 p.m. **A Multilevel Quantile Mediation Model**—◆Ernest Shen, University of Southern California/Kaiser Permanente; Chih-Ping Chou, University of

● Themed Session ■ Applied Session ◆ Presenter CC-Boston Convention & Exhibition Center W-Westin Boston S-Seaport Hotel

Southern California; Maryann Pentz, University of Southern California; Kiros Berhane, University of Southern California

657 **CC-257B**
■ Analysis of Cut Point and Correlated Data—Contributed

Biopharmaceutical Section

Chair(s): Yunzhi Lin, AbbVie

- 10:35 a.m. **Parameter Estimation and Power Calculation in Zero-Inflated Regressions Models for Clinical Trial with Over-Dispersed Count Data—◆**Jiang Hu, FDA
- 10:50 a.m. **Inverse Sampling for McNemar's Test—◆**Mark Von Tress, Alcon
- 11:05 a.m. **Zero-Inflated and Zero-Altered (Hurdle) Models in HIV Therapy and Behavior Adherence Research—◆**Charles Rose, CDC
- 11:20 a.m. **Some Statistical Issues on Immunogenicity Assay Cut Point Determination—◆**Jianchun Zhang, MedImmune; Binbing Yu, MedImmune; Harry Yang, MedImmune
- 11:35 a.m. **Analysis of Correlated Data in Method Comparison Studies—◆**Changhong Song,
- 11:50 a.m. **Confidence Interval of the Ratio of Two Independent Binomial Proportions Using Weighted Profile Likelihood—◆**Songtao Jiang, Boston Scientific; Vivek Pradhan, Pfizer
- 12:05 p.m. **Power Analysis for Reproducibility Precision Studies of Multilevel Designs—◆**Beimar Iriarte,

11:50 a.m.

Dose Modification According to Early Response: Application to a Phase II Study—◆Dominique Williams, Eli Lilly and Company; Ming-Dauh Wang, Eli Lilly and Company; Scott Beattie, Eli Lilly and Company; Damon Disch, Eli Lilly and Company

Biomarker-Based N-of-1 Trials for Addressing Patient Heterogeneity in Personalized Medicine—◆Yining Du, MD Anderson Cancer Center; Jack Lee, MD Anderson Cancer Center

12:05 p.m.

Bayesian Inference for Gaussian Copula Regression Models—◆Lisa Henn, University of Minnesota; John Hughes, University of Minnesota

658 **CC-104C**
Miscellaneous Topics in Bayesian Inference—Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Chair(s): Allan T. Mense, Raytheon

- 10:35 a.m. **Evaluations of Heirarchical Distributions for Small Area Models—◆**Patrick Joyce, U.S. Census Bureau
- 10:50 a.m. **Bayesian Model Selection Methods in Linear Models—◆**Arnab Maity, Northern Illinois University; Sanjib Basu, Northern Illinois University; Santu Ghosh, Wayne State University
- 11:05 a.m. **Implementation of a Bayesian Method to Estimate a Solution to an Error in Variable Problem—◆**Eduardo Trujillo Rivera,
- 11:20 a.m. **Poisson Hierarchical Biclustering Model—◆**Thao Duong, Donald Bren School of Information and Computer Science
- 11:35 a.m. **Bayesian Inference of Treatment Response Rates in a Dose-Response Study with In-Treatment**



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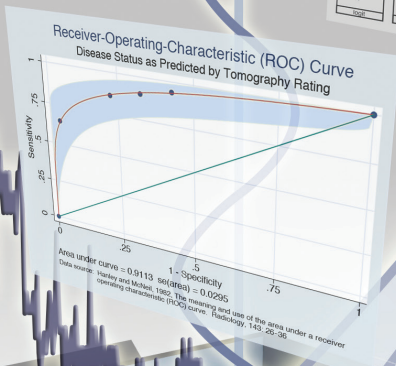
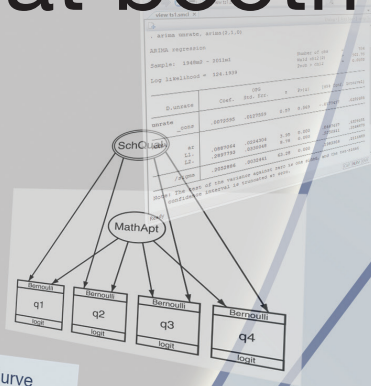
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