Statistical Laboratory & Department of Statistics

Annual Report

July 1, 2003 to June 30, 2004

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Table of Contents

DEPARTMENT OVERVIEW
2003-04

It has been another busy and challenging year, especially for me. In July 2003, I was appointed as the Chair of the Department of Statistics and Director of the Statistical Laboratory. I will do my best to promote our faculty and students and keep our program among the best in the country. We are making good progress in replacing faculty who have recently retired or resigned with some very exciting young researchers. We are very pleased to have four new faculty members join us this year. Dr. Ranjan Maitra joined us in July as an associate professor. He will provide expertise in the statistical computing, image analysis and the analysis of massive data sets. Dr. Michael Larsen and Dr. Petrutza Caragea joined us in August as assistant professors. Dr. Larsen brings expertise in survey sampling, record linkage analysis, missing data methodology and Bayesian analysis. Dr. Caragea will expand our expertise in spatial analysis, time series analysis, and environmental statistics. Dr. Song Xi Chen joined us in November as an associate professor. He has a variety of interests, including nonparametric and local likelihood estimation, financial risk analysis, diffusion models, and ecological transect studies. He was previously an associate professor at the National University of Singapore. We are also very pleased to welcome Dr. Ozkan Zengin as a researcher in CSSM. We greatly appreciate the support we have received from both the College of Liberal Arts and Sciences and the College of Agriculture in hiring new faculty. We are also pleased to announce the return of Alicia Carriquiry to a full time faculty position, after serving as an Associate Provost for the past five years. She is assisting Dean Isaacson as co-Director of Graduate Education and she will also serve as the Associate Chair of the Department.

The Department of Statistics is in the fourth year of its NSF sponsored VIGRE program. This program currently helps to support one postdoctoral researcher and 24 graduate students. We continue to offer weekly research seminar series in survey statistics, engineering statistics, ecological and environmental statistics, bioinformatics and genetic statistics, graphical and computational statistics, probability and mathematical statistics, and statistics in the social sciences. These seminars allow faculty and students to explore new areas of research and discuss various aspects of current research endeavors. They provide new students with an introduction to developing and ongoing research in our department. The VIGRE program also helped to support summer research experiences for eight excellent undergraduate students. The VIGRE program, combined with scholarships supported by alumni contributions and corporate partners, has been very important in helping to recruit some excellent Ph.D. candidates. A major boost was provided by a three-year gift from the Eli Lilly Foundation that provided scholarships for four entering graduate students this fall and research support for two advanced graduate students. Our students also continue to receive scholarship support from the Proctor & Gamble Corporation, GlaxoSmithKlein and the Belin Foundation.

The Survey Sampling Group in the Statistical Laboratory has been reorganized as the Center for Survey and Statistical Methodology (CSSM) under the leadership of Professor Sarah Nusser. This group experienced steady growth in funding and national recognition under Sarah's leadership. The creation of CSSM should provide more visibility both nationally and on campus.

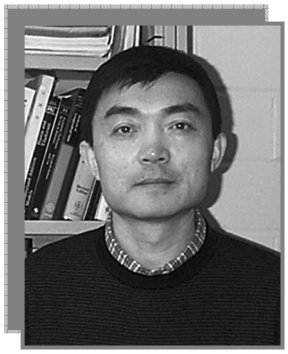
Budget cuts have forced a significant downsizing of our staff. Beth Weiser, who produced our newsletters and annual reports, supported our websites, and assisted with alumni correspondence, resigned in November to take an extension communications position in the Department of Agricultural and Biosystems Engineering. Statistical Laboratory budget cuts prevented us from filling her position. Paula Beckman joined our staff as a Clerk Typist III in September. Unfortunately, additional cuts to the Statistical Laboratory budget resulted in the loss of Paula's position and the loss of the half-time Clerk Typist III position held for the last 18 years by Brenda Hewitt. Both Paula and Brenda found other positions within the University, but the staff has had to become much more efficient. It has been a challenge producing the annual reports in a timely manner, but we are finally catching up.

The state budget picture seems to be improving, however, and we are looking forward to better times. We will continue to search for new faculty next year.

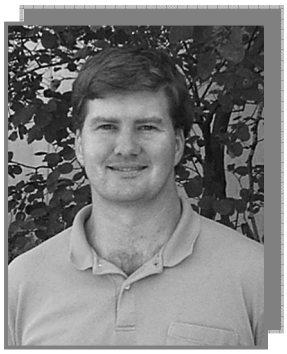
PERSONNEL

New Faculty

Petruta Caragea



Song Chen



Michael Larsen

Ranjan Maitra

Caragea, Petruta, (8/2003). Assistant Professor. Ph.D., Statistics, 2003, University of North Carolina at Chapel Hill. Dr. Caragea's interests are spatial statistics, mathematical statistics, time series and environmental statistics.

Chen, Song Xi, (11/2003). Associate Professor, Ph.D. 1993, Australian National University. Dr. Chen's interests are empirical likelihood, financial econometrics, statistical inference for various risk measures, testing of diffusion models, smoothing methods for curve estimation, surveys: line transect and capture-recapture.

Larsen, Michael, (8/2003). Assistant Professor. Ph.D., 1996, Harvard. Dr. Larsen's interests are survey sampling, missing data problems, mixture and latent class models, Bayesian modeling, small area estimation, administrative records and record linkage.

Maitra, Ranjan, (7/2003). Associate Professor. Ph.D., 1996, University of Washington. Dr. Maitra's interests are statistical computing, spatial statistics and image analysis, multivariate methods and analysis of large datasets.

Visiting Faculty

Bandyopadhyay, Tathagata, (1/2003-5/2003; 3/2004-5/2004). Associate Professor, University of Calcutta, India. Bandyopadhyay worked with Taps Maiti. His interests are generalized linear model, generalized linear mixed model and analysis of count data. Dr. Bandyopadhyay received his Ph.D. from University of Calcutta, India.

Kang, Shin-Soo, (1/2003-9/2003; 7/1//2004-8/31/2004). Associate Professor, Department of Information and Statistics, Kwandong University, Gangwon, South Korea. He organized a series of seminars on missing data issues and worked with Fred Lorenz and Ken Koehler on imputation procedures for the analysis of categorical data and structural equation models. Dr. Kang received his Ph.D. from ISU in 1994.

Emeritus Faculty

Cox, C. Philip, Emeritus Professor

Cox, David F., Emeritus University Professor

David, Herbert A., Emeritus Distinguished Professor

David, Herbert T., Emeritus University Professor

Fuller, Wayne A., Emeritus Distinguished Professor, CSSM

Groeneveld, Richard, Emeritus University Professor

Harville, David A., Emeritus Professor

Hickman, Roy D., Emeritus Professor

Hinz, Paul, Emeritus University Professor

Hotchkiss, Donald K., Emeritus Professor

Pollak, Edward, Emeritus Professor

Strahan, Robert F., Emeritus Professor

Sukhatme, Shashikala, Emeritus Associate Professor

Wolins, LeRoy, Emeritus Professor

Professors

Athreya, Krishna B., Distinguished Professor, Joint appointment with the Dept. of Mathematics

Bailey, Theodore B.

Bonett, Douglas G., Joint appointment with the Dept. of Psychology

Brendel, Volker, Courtesy appointment through the Dept. of Genetics, Development & Cell Biology

Carriquiry, Alicia L.

Dixon, Philip M.

Isaacson, Dean L.

Kaiser, Mark S.

Kennedy, Jr., William J.

Koehler, Kenneth J., University Professor, Chair of the Department, Director of the Statistical Laboratory

Lahiri, Soumendra N.

Lorenz, Frederick O., University Professor, Joint appointment with the Dept. of Sociology

Meeker, Jr., William Q., Distinguished Professor

Morris, Max D., Joint appointment with the Dept. of Industrial & Manufacturing Systems Engineering

Nusser, Sarah M., CSSM Director

Shelley, II, Mack C., Joint appointment with the Dept. of Educational Leadership & Policy Studies

Stephenson, W. Robert, University Professor

Vardeman, Stephen B., Joint appointment with the Dept. of Industrial & Manufacturing Systems Engineering

Associate Professors

Chen, Song X.

Cook, Dianne H.

Maiti, Tapabrata (Taps), CSSM

Maitra, Ranjan

Marasinghe, Mervyn G.

Nettleton, Daniel S.

Opsomer, Jean D., CSSM

Roberts, Carl W., Joint appointment with the Dept. of Sociology

Rollins, Sr., Derrick K., Joint appointment with the Dept. of Chemical Engineering

Sherman, Peter J., Joint appointment with the Dept. of Aerospace Engineering & Engineering Mechanics

Wu, Huaiqing

Yang, Yuhong

Assistant Professors

Adams, Dean C., Courtesy appointment through the Dept. Ecology, Evolution & Organismal Biology

Caragea, Petruta C.

Dorman, Karin S., Joint appointment with the Dept. of Genetics, Development & Cell Biology

Duckworth, William M., II

Evans, Richard B., Courtesy appointment through the College of Veterinary Medicine

Froelich, Amy G.

Hofmann, Heike

Huang, Tzee-Ming

Larsen, Michael, CSSM

Instructors/Lecturers

Bhattacharyya, Jahnabimala (Juri), Lecturer

Faculty Collaborators

Sargent, Daniel J., Mayo Clinic

Sloan, Jeff A., Mayo Clinic

Therneau, Terry M., Mayo Clinic

USDA Collaborators

Dayton, Bob, USDA Natural Resources Conservation Service

Thompson, Dean, USDA Natural Resources Conservation Service

Wilson, Herb, USDA Natural Resources Conservation Service

Postdoctoral Research Associate

Collyer, Michael L.

Lee, EunKyung

Professional and Scientific Staff

Anderson, Dianne, Program Coordinator III, Center for Survey Statistics & Methodology (CSSM)
Anderson, Linda, Systems Analyst I, CSSM
Bell, Andrew, Systems Analyst III, CSSM
Butler, Howard, Systems Analyst II, CSSM
Cheng, Wenfang (Wendy), Systems Analyst, CSSM
Dorsch, Richard, Systems Analyst III, CSSM
Fliehler, Karen, Program Assistant II, CSSM
Hanrath, Scott, Systems Analyst, CSSM
Hoffman, Russ, Systems Support Specialist IV, CSSM
Kazemi, Masoud, Systems Analyst III, CSSM
Kienzler, Jim, Associate Scientist, CSSM
Krueger, Todd, Systems Analyst III, CSSM
Landin, Edith, Administrative Specialist, Statistical Laboratory & Statistics Department
Larson, Jan, Program Coordinator I, CSSM
Peterson, C. Ted, Systems Analyst II, Statistical Laboratory and CSSM,
Reed-Margetan, Deborah, Systems Analyst II, CSSM
Rogers, Marc, Systems Analyst II, CSSM
Shelley, Kathy, Systems Analyst III, Statistical Computing
Smith, Sandie, Administrative Specialist I, CSSM
Terpstra, Harvey, Systems Analyst III, CSSM
Tyler, Allison, Program Assistant II, CSSM
Vardeman, Andrew, Systems Analyst I, CSSM
Weiser, Beth, Program Assistant II, Statistical Laboratory and CSSM
Zengin, Ozkan, Assistant Scientist, CSSM

Support Staff

Ashley, Glenda, Secretary II, CSSM
Beckman, Paula, Clerk Typist III
Elwick, Norma, Secretary II
Gupta, Vemi, Clerk II, CSSM
Heathman, Nancy, Account Specialist, CSSM
Hewitt, Brenda, Clerk Typist III
La Grange, Jeanette, Clerk Typist III
Martinez, Sherri C., Secretary II
Reinertson, Kathie, Data Tech III, CSSM
Riker, Denise, Secretary II
Shepard, Sharon, Clerk Typist III
Tjernagel, Marlene, Account Clerk

STUDENTS

Graduates

Ph.D. Graduates

Name	Graduation
DeCock, Dean (co-major with Industrial & Mfg. Systems Eng. [IMSE])	Fall 2003
Drignei, Dorin	Spring 2004
Fridley, Brooke	Fall 2003
Ilk, Ozlem	Spring 2004
Kim, Ji-Yeon	Spring 2004
Lee, Eun-Kyung	Summer 2003
Silva, Damiao Nobrega Da	Summer 2003
Wang, Jing (co-major with Animal Science)	Fall 2003
Zhang, Hongmei	Summer 2003

M.S. Graduates

Name	Graduation
Au, Pui-Shan Angela	Summer 2003
Balazs, Andrew C.	Fall 2003
Besser, Michael J.	Spring 2004
Bonitz, Erin Esther	Summer 2003
Cai, Wenzheng	Summer 2003
Chin, Swee-Teng	Fall 2003
Chin, William Hawk-Lee (concurrent with Economics)	Spring 2004
Du, Guodong (concurrent with Chemical Engineering)	Spring 2004
Guo, Yao (concurrent with Agronomy)	Summer 2003
Hardjasamudra, Aulia	Fall 2003
Jensen, Kathryn	Spring 2004
Jia, Hongwu	Fall 2003
Li, Xiaoxi	Summer 2003
Liu, Xiaopeng	Fall 2003
Lu, Zheng	Fall 2003
Luo, Yangyang	Summer 2003
Ma, Haijun (concurrent with Political Science)	Summer 2003
Mukhopadhyay, Pushpal	Fall 2003
Paik, Min Hui	Summer 2003
Pan, Tiana Ying-Hsuan	Spring 2004
Prew, Paul J.	Spring 2004
Qi, Lanying	Spring 2004
Skalland, Benjamin J.	Spring 2004
Vaca-Trigo, Iliana	Spring 2004
Van Wettering, Jill	Summer 2003
Wang, Yaqin	Summer 2003
Wang, Yong (concurrent with Sociology)	Summer 2003
Wang, Yongyi	Summer 2003
Wang, Yurong	Fall 2003
Wen, Li (Cathy) (concurrent with Aerospace Eng. & Eng. Mech. [AEEM])	Spring 2004
Wu, Yu	Spring 2004

Wu, Yufang	Fall 2003
Xi, Peiyi (Peggy)	Summer 2003
Xu, Xia	Summer 2003
Yang, Hao	Summer 2003
Zhang-Murray, Yanan	Fall 2003
Zhao, Huiyan	Fall 2003
Zhou, Ai-Hua	Spring 2004
Zhou, Hua (concurrent with Bioinformatics & Computational Biology [BCB])	Fall 2003

B.S. Graduates

Name	Graduation
Dries, Brandi	Fall 2003
Franck, Veronica	Spring 2004
Hagen, Randi	Spring 2004
Hobbs, Jonathan	Spring 2004
McClung, Lindsay	Spring 2004
Nuckolls, Jill	Spring 2004
Roupe, Katie	Spring 2004
Swanson, Jared	Spring 2004
Tan, Han-Huan	Spring 2004

Current Students

Ph.D. Students

BOTTS, Carsten (USA)
CAMANO-GARCIA, Gabriel (Uruguay)
CHATTERJEE, Arindam (India)
CHEN, Lihua (China)
DECOCK, Dean (USA)
DECOOK, Rhonda (USA)
DRIGNEI, Dorin (Romania)
ESKER, Paul (USA) *co-major: Plant Pathology*
FERRAZ, Cristiano (Brazil)
FRIDLEY, Brook (USA)
FURUKAWA, Kyoji (Japan)
HEILMANN, Cory (USA)
HUARNG, Shiaau-er (Taiwan)
ILK, Ozlem (Turkey)
JIANG, Qi (China) *co-major: Industrial Education & Technology*
JOVAAG, Kari Ann (USA) *co-major: Ecology & Evolutionary Biology*
KIES-BOKENKROGER, Courtney (USA)
KIM, Ji-Yeon (Korea)
LANDES, Reid (USA)
LEE, Eun-Kyung (Korea)
LEGG, Jason (USA)
LEYVA-ESTRADA, Norma (Mexico)
LI, Xiaoxi (China)
LI, Yunfeng (China)
LOVE, Tanzy (USA)
MA, Haiming (China)
MCCONVILLE, Teresa (USA)
MILLER, Curtis (USA)
MONTEIRO, Carla C. (Brazil)
MONTGOMERY, Samantha (USA)
MUKHOPADHYAY, Pushpal (India)
NGIGI, Bernard N. (Kenya)
ORELLANA, Massiel (Chile)
OTT, Ellis M. (USA) *co-major: Edu. Leadership & Policy Studies*
PAIK, Min Hui (Korea)
RECKNOR, Justin C. (USA) *co-major: Bioinformatics & Comp. Biol.*
SILVA, Damiao Nobrega Da (Brazil)
SUN, Shuxia (China)
TESSIN, Dale (USA) *co-major: Ecology & Evolutionary Biology*
VILLANUEVA-MORALES, Antonio (Mexico)
VOLFOVICZ-LEON, Roberto (Uruguay)
WANG, Dong (China)
WANG, Jing (China) (*co-major: Animal Science*)
WANG, Yaqin (China)
WANG, Yurong (China)
WU, Han (China)
XU, Xia (China)
YOUNG, Myra (USA) *co-major: IMSE*
YUM, Man-Yu (Hong Kong)
ZHAI, Dongmei (China) *co-major: Chemical Engeneering*
ZHANG, Hongmei (China)
ZHANG, Wuyan (China)
ZHANG, Xiaohong (*Alicia*) (China)
ZHANG, Zhongqi (China) *co-major: Bioinformmatics & Computational Biol.*
ZHOU, Zhigang (China)
ZUO, Jianying (*Angela*) (China) (*double degree: Business Admin.*)

M.S. Students

ASPLUND, Ian (USA)
AU, Pui-Shan Angela (China)
BALAZS, Andrew (USA)
BARCLAY-SISSON, Kira (USA)
BAUMANN, William (USA)
BONITZ, Erin Esther (USA)
BROWN, Tamara (USA)
BURGER, Jude (USA)
BUZINEC, Paul (USA)
CAI, Wenzheng (China)
CHEN, Ying-Chi (Taiwan)
CHEN, Yuan-Lin (*Rita*) (Taiwan)

CHIN, Swee-Teng (Malaysia)
CHIN, William Hawk-Lee (Australia)
CHISHAM, Jessica (USA)
CHUNG, Oi-Yu (*JoJo*) (Hong Kong)
DANCIK, Garrett (USA)
DAVIS, Annette (USA)
DEMIRKALE, Cumhur Yusuf (Turkey)
DIAO, Lixia (China)
DU, Guodong (China)
EKE, Alp (Turkey)
ELCI, Okan Umit (Turkey)
ESHENKO, Ihor (Ukraine)
FAN, Peng (China)
FANG, Shu-Ann (Taiwan)
FRITSCH, Arno (Germany)
GAERTNER, Anna (Germany)
GAO, Xiang (China)
GARDNER, Stuart (USA)
GRAY, Nicole (USA)
GUAN, Jie (*Jack*) (China)
GUO, Can (China)
GUO, Rong (China)
GUO, Yao (China)
HARDJASAMUDRA, Aulia (Indonesia)
HAYES, Brian (USA)
HOEKSTRA, Peter (USA)
HUANG, Ling (China)
HUCKETT, Jennifer (USA)
JENSEN, Kathryn (USA)
JEON, Yongsik (S. Korea)
JIA, Hongwu (China)
JIE, Fei (China)
JONES, Benjamin (USA)
KLEINMEYER, Holly (USA)
LARSON, Gabrielle (USA)
LI, Kejian (China)
LI, Lanfen (China)
LI, Tianyu (China)
LI, Wen (*Shirley*) (China)
LI, Yan (China)
LI, Ying (China)
LIU, Hongjun (China)
LIU, Juan (China)
LIU, Xiaopeng (*Ruth*) (China)
LU, Lu (*Emma*) (China)
LU, Pengcheng (China)
LU, Zheng (China)
LUO, Yangyang (China)
MA, Haijun (China)
MACKE, Patrick J. (USA)
MAXSON, Melanie (USA)
MCILLECE, Justin (USA)
NGUYEN, Justin (USA)
OZAWA, Haishin (Japan)
PAN, Jiangyi (China)
PAN, Tiana Ying-Hsuan (Taiwan)
PAN, Yijiang (China)
PREW, Paul (USA)
QAMHIEH, Hekmat (Jordan)
QI, Lanying (China)
QIAO, Xue (*Sherry*) (China)
QIU, Fang (China)
RAMLER, Ivan (USA)
REISING, Monica (USA)
ROTH, Katrin (Germany)
SKALLAND, Benjamin (USA)
SOLANKI, Aparna (India)
SUN, Donglin (China)
THOSTENSON, Jeffrey (USA)
VACA TRIGO, Iliana (Ecuador)
VAN WETTERING, Jill (USA)
WANG, Changxue (China)
WANG, Jianqiang (China)
WANG, Mingjuan (China)
WANG, Yong (China)
WANG, Yongyi (China)
WEN, Li (*Cathy*) (China)
WHITE, Emile V. (USA)
WU, Yu (China)
WU, Yufang (*Christina*) (China)
XI, Peiyi (Peggy) (China)
XIANG, Qun (China)
YAN, Jun (China)
YANG, Chunyu (China)
YANG, Hao (China)
YOU, Lifeng (China)

ZHANG, Bin (China)
ZHANG, Linghong (China)
ZHANG, Shu (China)
ZHANG-MURRAY, Yanan (China)
ZHAO, Honghua (China)
ZHAO, Huiyan (China)
ZHENG, Yan (China)
ZHOU, Ai-Hua (China)
ZHOU, Hua (China)
ZHUANG, Weihong (China)

B.S. Students

ABBEY, James
ALDERIN, Corey Bernard
BARNARD, Sandra H.
BRIAR, Jessica Sue
BROWN, Megan Ann
CHOATE, Marc R.
CHOI, Hyun (*Ken*)
DARBYSHIRE, Megan A. (dbl major: Psychology)
DRIES, Brandi
ESLICK, Andrea Nicole (dbl major: Psychology)
FAN, Bing Wen
FICK, Karl Donald (dbl major: Mathematics)
FRANCK, Veronica
HAGEN, Randi
HANSON, Keith J.
HENDERSON, Eric Ryan (dbl major: Sociology)
HOBBS, Jonathan
ISHDORJ, Ochirmaa
JUNGE, Katherine Ann (dbl major: Mathematics)
MARTIN, Ryan Thomas
MCCLUNG, Lindsay
MCFADDEN, Lisa Marie
MERRICK, Courtney J.
MIN, Jun Young (dbl major: Computer Science)
MINNIS, Kimberly (dbl major: Math)
NUCKOLLS, Jill
PARRA, Stephanie L. (dbl major: Math)
ROUPE, Katie
RYAN, Christopher
SHERMAN, Phillip Joseph
SWANSON, Jared
TAN, Han-Huan
WINTER, Denise Elain
WROBEL, Brian David
WU, Ya-Fang (dbl major: Biology)
ZALETEL, Justin Edward

Distance Education Students

3M

BESSER, Michael
GRYSKIEWICZ, Mark
RESCH, Walter
VALLEJO, Jent

Mayo Clinic

CROWSON, Cynthia
FREDERICKSEN, Zachary
LAHR, Brian
LOHSE, Christine
MCMURTRY, Erin
NIRELLI, Liza
SMITH, Denise
STEVENS, Susanna
WAMPFLER, Jason

Wells Fargo

LOWERY, Richelle

DEPARTMENTAL NEWS 2003-04

The Annual Fall Picnic

The department annual fall picnic was held at Emma McCarthy-Lee Park, Sunday, September 28th, 2003. Hickory Park was catered and they provided their famous variety of smoked meat sandwiches and vegetarian bean burgers, salads and baked beans. Picnicers brought a variety of desserts to share. There were nearly 100 students, staff, faculty and family that attended.

Committee members for 2003-04 department socials were: *Dan Nettleton, Chair, Petruta Caragea, Dick Dorsch, Katie Jensen, Jeanette La Grange, Edith Landin, Marlene Tjernagel and Emile White.*

The Annual Spring Breakfast

The department's annual spring breakfast was held May 1st, 2004 at Brookside Park. There was a definite chill in the air, however the aroma coming from the grills was enticing enough for students, faculty, staff, families, friends and their dogs to stay and have a good time! The breakfast menu included pancakes, special made-to-order omelets, hashbrowns, coffeecake, coffee and juice. The social committee worked hard and provided a delicious meal and an enjoyable time for everyone.

Joint Statistical Meetings (JSM) Conference

There were approximately 22 faculty and 35 graduate students from the department that attended the JSM Conference in San Franciso August 3-7, 2003. The Department hosted a reception on Monday evening, August 4th at one of the host hotels so it was convenient for alumni and friends to attend. The reception was attended by about 75 faculty, students, alumni and friends.

Resignations / Budget Cuts

Yuhong Yang
Dr. Yuhong Yang left the Department of Statistics in August, 2004, to take a position in the Department of Statistics at the University of Minnesota. Dr. Yang received his Ph.D. in Statistics from Yale University in 1996, and joined the Department of Statistics as an Assistant Professor, in October 1996. He was promoted to Associate Professor in August 2001. During his time at Iowa State, Dr. Yang was awarded an NSF CAREER Award in July 2001, an ISU LAS 2002 Award for Early Excellence in Research. Dr. Yang, his wife Julie Wu, and their daughter now make their home in Plymouth, Minnesota

Beth Weiser
Beth Weiser resigned a position that was split between IRISS and the Department of Statistics to take a full time extension communications position in the Department of Agricultural and Biosystems Engineering. Beth produced our newsletters and annual reports, supported our websites, and assisted with alumni correspondence. Budget cuts prevented the Department of Statistics from refilling our half of the position.

Brenda Hewitt
Cuts to the Statistical Laboratory budget forced us to cut the half-time clerk typist III position that Brenda Hewitt held for 18 years. Brenda moved to a new half-time position in the Institute of Social and Behavioral Research. We are grateful to Brenda for her many years of loyal service.

Paula Beckman
Cuts to the Statistical Laboratory Budget also forced used to dismiss Paula Beckman, who had joined our staff as a Clerk Typist III in September 2003. Paula was able to transfer to a secretarial position in the College of Veterinary Medicine.

Stat-ers

Officers for 2003-04:

Tammy Brown ..... President
Jen Huckett ..... Vice President
Gabriel Camano ..... Treasurer
Tanzy Love ..... Secretary
Melanie Maxson ..... Birthday Coordinator
Tanzy Love ..... Community Service
Courtney Kies-Bokenkroger ..... Family Activities Co-Coordinator
Reid Landes ..... Family Activities Co-Coordinator
Kira Barclay ..... First Year Representative
Pat Macke ..... First Year Representative
Norma Leyva ..... International Committee
Alicia Zhang ..... International Committee
Emile White ..... Intramural Coordinator
Tanzy Love ..... Service Coordinator
Nichole Gray ..... Social Committee
Katy Jensen ..... Social Committee
Ben Jones ..... Social Committee
Holly Kleinmeyer ..... Social Committee
Curtis Miller ..... Recycling Coordinator
Ivan Ramler ..... Webmaster
Dr. Max Morris ..... Faculty Advisor

The Stat-ers International Dinner & Talent Show

The Stat-ers hosted their annual International Dinner & Talent show in the spring. The department was well represented with a wide variety of talent from faculty, students and staff. The evenings entertainment included a skit, performed by staff (Paula Beckman, Jeanette La Grange and Edith Landin), classical music (Phillip & Janet Dixon and Max Morris), and two classic professors performing magic tricks (Wayne Fuller and Dean Isaacson). Tuxedo-clad, Jude Burger, was Master of Ceremony for the special event.

AWARDS, RECOGNITIONS AND SCHOLARSHIPS

Achievements & Recognitions

Publication of the Branching Processes Book (co-authored with P. E. Ney) ..... ***Krishna Athreya***

Karl and Anna Bergdahl Professorship in Bioinformatics ..... ***Volker Brendel***

American Statistical Society Fellows Named:

..... ***Philip Dixon***

..... ***Sarah Nusser***

Applications Editor for the Journal of the American Statistical Association..... ***Mark Kaiser***

Jack Youden prize for best expository paper published in the 2002 volume of Technometrics ... ***William Q. Meeker, Jr.*** and ***Huaiqing Wu***

President Bush announces Wetlands Initiative based on USDA/NRI 2002 Annual Review – Net Gain of Wetlands from 1997-2002

CSSM staff include: ***Andrew Bell, Howard Butler, Dick Dorsch, Wayne Fuller, Masoud Kazemi, Jim Kienzler, Todd Krueger, Taps Maiti, Sarah Nusser, Jean Opsomer, Deb Reed-Margetan, Kathie Reinertson, Marc Rogers, and Harvey Terpstra***

NRCS staff include: ***Dean Thompson, Bob Dayton and Herb Wilson***

Awards

Award for Excellence in Research (College of Liberal Arts and Sciences) ..... ***Soumendra Lahiri***

National Science Foundation Career Award..... ***Ranjan Maitra***

William G. Hunter Career Award (Statistics Division of the American Society for Quality Control, El Paso, TX) ..... ***William Q. Meeker, Jr.***

Stat-ers Teacher of the Year Award ..... ***Max Morris***

Distinguished Achievement Award (American Statistical Association Section on Statistics and Environment)..... ***Jean Opsomer***

Promotions

Professor (already tenured)..... ***Mark Kaiser***

Associate Professor (with tenure) ..... ***Tapabrata Maiti***

Professor (already tenured)..... ***Sarah Nusser***

Associate Professor (with tenure) ..... ***HuaiqingWu***

Graduate Awards & Scholarships

Industrial Scholarships

Paul Businec

Jessica Chapman-Chisham

Brian Cook

Annette Davis

Holly Kleinmeyer

Wen Li

Jeffrey Thostenson

Man-Yu Yum

Bancroft Award

Wuyan Zhang

Charlie Sampson Legacy Fund for Excellence in Statistics

Paul Buzinec

Jessica Chapman-Chisham

Dan Mowrey Consulting Excellence Award

Rhonda DeCook

Eli Lilly Scholarship

Reid Landes

Emil Jebe Graduate Fellowship in Statistics Award

Jude Burger

Nicole Gray

Holly Kleinmeyer

Reid Landes

George W. Snedecor Award in Statistics

Dong Wang

Glaxo/Smith/Kline Industrial Scholarship

Ian Asplund

Holly C. & E. Beth Fryer Award in Statistics

Jason Legg

Jianying Zuo

Oscar Kempthorne Award

Ivan Ramler

Procter and Gamble Scholarship

Ben Jones

Rebecca J. Klemm Fellowship in Statistical Communication

Tanzy Love

Research Excellence Award

Dorin Drignei

Teaching Excellence Award

Norma Leyva-Estrada

Monica Reising

Myra Young

Melanie Maxson

Vera David Gradute Fellowship in Statistics

Iliana Vaca Trigo

Vince Sposito Statistical Computing Excellence Award

Yaqin Wang

Undergraduate Scholarships & Awards

Herta & H.T. David Scholarship

Megan Brown

Procter and Gamble Undergraduate Statistics Scholarship

Jonathan Hobbs

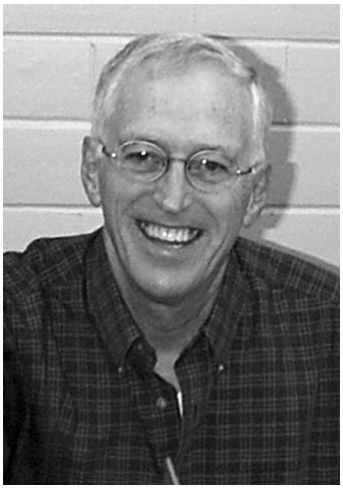
Schillmoeller Family Scholarship in Statistics

Megan Brown

Scott Kongable Statistics Scholarship

Karl Fick

GRADUATE PROGRAM



Dean Isaacson, Director of Graduate Studies

In 2003-04 we had 146 graduate students on campus and another 14 students working on an M.S. degree in Statistics through our distance education program. We awarded 39 M.S. degrees with nine continuing on for the Ph.D. We also awarded nine Ph.D. degrees in Statistics. This included our first VIGRE graduate. She took a job as assistant professor at Wisconsin-La Crosse.

Outreach: We will continue to offer distance education courses for our M.S. degree program in Statistics. We also provide distance courses in statistics for graduate programs in the Colleges of Agriculture, Education and Engineering.

VIGRE: Year 4 – VIGRE Brings VIGOR to the Program

The National Science Foundation (NSF) Vertical Integration of Research and Education (VIGRE) grant continues to strengthen our program. For 2003-04 we had 10 VIGRE Fellows pursuing a Ph.D. in Statistics. This marked the first year in which Ph.D. students took the new 600 level core courses. Students took Stat 642 (4 credits) and Stat 601 (4 credits) in the fall. They also took Stat 690 (1 credit) for which they attended at least 20 work group sessions. In the spring they took Stat 643 (4 credits) and other elective courses. Eleven students finished this sequence. Eight of thesestudents took the Ph.D. written exam in late July. This new curriculum allows students to complete core courses and written exams within two years.

WORKING GROUPS

The working groups created by the VIGRE initiative have continued to develop. Faculty leaders of the working groups are as follows:

Bioinformatics and Genetic Statistics ..... Dan Nettleton / Karin Dorman
Ecological and Environmental Statistics ..... Philip Dixon / Mark Kaiser
Engineering Statistics ..... Max Morris
Graphical and Computational Statistics ... Dianne Cook / Ranjan Maitra / Hadley Wickham
Probability and Mathematical Statistics ..... Soumendra N. Lahiri
Statistics in the Social Sciences ..... Fred Lorenz
Survey Statistics ..... Michael Larsen / Taps Maiti / Sarah Nusser

All of these groups met on a weekly basis to discuss faculty and student research and explore new topics and initiatives. These groups also provide new graduate students with opportunities to become better acquainted with faculty and potential research opportunities.

VIGRE UNDERGRADUATE SUMMER RESEARCH EXPERIENCE

Summer Conference Day

Another VIGRE summer program was held in 2004. We had nine undergraduates study here for an eight-week period and present a paper during the final week. Their research involves statistics and another discipline so they can see statistics in action. Rhonda DeCook and Will Baumann (VIGRE Fellows) coordinated the program. The students and their faculty mentors for the summer of 2004 were:

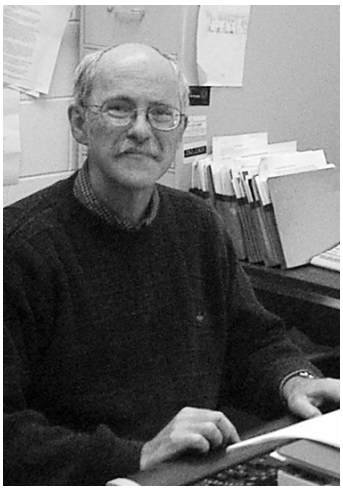
Nick Annoni (Carleton College, MN) ..... Ken Koehler
Ashley Bennett (Simpson College, IA) ..... Ranjan Maitra
Katherine Edwards (Arizona State University, AZ) ..... Philip Dixon
Kyle Hewitt (Lawrence University, WI) ..... Michael Larsen
Katherine James (St. Olaf College, MN) ..... Karin Dorman
Mihaela Krasteva (Mount Holyoke, College, MA) ..... Jean Opsomer
Nicholas Larson (St. Olaf College, MN) ..... Petruta Caragea
Mark Mckelvey (Truman State, University, MO) ..... Mark Kaiser
Daniel Prignitz (Grinnell College, IA) ..... Taps Maiti

THE AGEP & ALLIANCE PROGRAMS

Summer Research Experience for Undergraduate Students

A summer program similar to VIGRE was supported by two other NSF grants. The Alliance for Graduate Education and the Professoriate (AGEP) and the Alliance for the Production of African American Ph.D.'s in the Mathematical Sciences (Alliance) brought 17 students from under-represented groups to Iowa State. These students did research in the Science, Technology, Engineering or Mathematics (STEM) fields for an eight-week period. They also presented a paper or poster at the end of the session. Two of the Alliance students, Frederick Douglas and Erica Naves, studied statistics under the direction of Dr. Lorenz and Dr. Rollins, respectively. The VIGRE, AGEP and Alliance interns bring energy and excitement into our summer research programs.

UNDERGRADUATE PROGRAM



Bob Stephenson, Director of Undergraduate Studies

The number of undergraduate majors in statistics increased to 37 in fall 2003 and remained steady at 34 in spring 2004. Nine students graduated during 2003-2004 with undergraduate majors in statistics.

Conceptual Statistics: Engaging Students in Statistical Discovery

Professors Bill Duckworth, Amy Froelich and Bob Stephenson continued to develop material for the introductory statistics course as part of their National Science Foundation (NSF) grant. They also began to assess how effective the new materials are in improving students learning of statistics. In Spring 2004, students in one section of Statistics 101, taught by Professor Stephenson, used the new materials while other students in other sections did not. Students were evaluated on their performance on common exam questions and on a data collection and analysis project. In the next part of the project, materials will be revised and new materials added. In the 2004 – 2005 school year, Professor Froelich will teach one section using the new materials and one section without using the new materials. Again, students will be assessed on how well they learn the material. Results of the project will be presented at meetings of the Mathematical Association of America and the American Statistical Association.

Graduates and First Activity:

- Brandi Dries (Fall 03), Actuarial Associate with CIGNA Insurance Company in Bloomfield, CT
- Veronica Franck (Spring 04, other major Psychology), law school at Drake University
- Randi Hagen (Spring 04), Risk Analyst for Kingsgate Insurance in Fort Dodge, IA
- Jonathan Hobbs (Spring 04, other major Meteorology), graduate program in Statistics and Meteorology at Iowa State University
- Lindsay McClung (Spring 04), statistician with the National Agricultural Statistics Service, U.S.D.A., Des Moines, IA
- Jill (Nuckolls) Esser (Spring 04), Actuarial Associate with AmerUS Life Insurance, Des Moines, IA
- Katie Roupe (Spring 04, other major Finance)
- Jared Swanson (Spring 04)
- Han-Huan Tan (Spring 04), returned to his home country of Malaysia to work

STATISTICAL COMPUTING SECTION

Because of the ubiquitous nature of computing used by faculty in statistical research, the department has changed the structure and focus of the computing section. The computing section now is a statistical computing group and consists of technical support staff and graduate research assistants. Their activities are overseen by a faculty computing advisory group. A new technical support position was created by our chair to mainly focus on assisting faculty in using computing for their research. This position is held by Ted Peterson and the faculty advisory group members are Dianne Cook, Ranjan Maitra, Heike Hofmann and Mervyn Marasinghe. These faculty members heavily promote and use computing in their research and each has a different research interest that aids in providing a diverse level of support to our department. In addition to the computing research emphasis, the statistical computing group maintains a high level of daily support which is performed by Ted, the research assistants and superviser Kathy Shelley. Future plans include implementing a data-driven automated web page system, a cluster for computer-intensive research and exploration of alternative technology for teaching such as tablet PCs, video streaming and web-cam usage.

CENTER FOR SURVEY STATISTICS AND METHODOLOGY (CSSM)

The Center for Survey Statistics and Methodology (CSSM), under the direction of Sarah M. Nusser, continues to provide consultation and direct operational assistance to researchers in sample design and the planning and execution of sample surveys and censuses. Center faculty and staff also conduct research and teach courses in the areas of sampling, survey design, and statistical methods; research is covered elsewhere in this report. CSSM's Survey Research Services Group (SRS) collaborates with researchers on a wide variety of topics including studies in agriculture, medicine, education, political science and business, as well as surveys and evaluations for ISU administrators and non-research entities.

The SRS group contributed to an assortment of projects this past year. For the third year, it continued its collaboration with researchers from the Department of Natural Resource Ecology and Management on an odor pollution study. Telephone interviews were conducted with producers in the states of Iowa, North Carolina and Washington to assess the effectiveness of shelterbelts in mitigating odor problems associated with pork production. On health topics, the data collection group continued its control selection for the University of Maryland to locate and recruit participants for the NIH funded research on the onset of stroke in men. The goal of the five-year recruitment effort is to locate 900 healthy male control subjects in the state of Maryland that can be paired with selected cases. The study is a follow-up to a previous collaboration that studied early onset of stroke in women.

Development began for another NIH funded health-related study called *Community Influences in Rural Adolescent Alcohol Use*. The first phase of the project included survey instrument and data collection protocol development and sample design. Phase two will include subject recruitment and data collection. Subjects will be recruited from the states with high rates of early onset drinking including North Dakota, South Dakota, Wisconsin and Wyoming. On an international front, the Centre for Business Research (CBR) at Cambridge University England also contracted with SRS to conduct an establishment survey of a national sample to obtain information from 1000 businesses. Researchers were interested in the impact of business innovation on a variety of business sectors that could later be compared to data collected in the UK from similar businesses. Telephone interviews were conducted over a four-month period. In addition to business related research, projects focusing on education were

conducted. Two studies focusing on post-high school education and the effectiveness of educational programming were conducted for the Iowa Department of Education. Samples were drawn, surveys designed, school data collectors were trained, and data was prepared and analyzed. A third educational study was conducted for the Educational Leadership and Policies Studies Department. This web survey was developed to assess experiences of ISU transfer students. Survey work for ISU administrative groups was conducted as well as the annual Faculty Activity Survey for the State Board of Regents. This mail/web survey contacted a stratified sample of ISU faculty to determine the average number of hours worked per week during the 2003-2004 academic year

CONSULTING AND COOPERATIVE RESEARCH

Agriculture and Home Economics Experiment Station

Accomplishments for 2004 cover a wide range of statistical applications including the design and analysis of microarray experiments for gene expression, design and analysis of surveys for accessing impact of agricultural practices environment and health, development of procedures for risk assessment for genetically modified organisms, studies of human and animal nutrition, statistical models for evolution of viruses and other organisms, development of procedures detecting genes related to important production traits or disease resistance in plants and animals. This work benefited hundreds of researchers and their graduate students and many projects.

CARAGEA, PETRUTA C. AND KAISER, MARK S. Collaborated with the scientists from the Seed Science Institute in the analysis of corn pollen dispersion from genetically modified crops to improve understanding of the potential impact on neighboring crops. Dr. Caragea helped to develop a model that better describes the impact of meteorological variables on spatial aspects of pollen dispersion. She helped to design a study to collect data on the relationship between education level and finance distribution in Iowa and its surrounding states, taking into account spatial variability. Another interesting project is addressing the concern that uniform application of nitrogen based fertilizers may impact ground water contamination without much benefit in the yield. A system based on simulated data obtained from crop-models was developed to will help farmers make better decisions about fertilizer application. Finally, in a collaboration project with the EEOB researchers, Dr. Caragea helped to design a study of amphibian evolution in Central Iowa, and its relationship with the urbanization process. She supervised the summer research experience for a undergraduate student who looked at examined historical data-bases available to help identify important variables.

CARRIQUIRY, ALICIA L. Collaborated with scientists in Agronomy and in Biochemistry and Molecular Biology on the design and analysis of microarray experiments for maize embryogenesis. She also continued research and collaborative work on statistical methods for analyzing dietary intake data and for assessing nutritional risk. The National Academy of Sciences has recommended that the methods developed at Iowa State University (known as the ISU method) be universally adopted to assess nutrient and food intake data and estimate of the prevalence of nutrient inadequacy. This work is receiving international attention and Dr. Carriquiry was invited to participate as a Drafting Expert in an FAO/WHO workshop on Nutritional Risk that will be held in Geneva, Switzerland, in early May of 2005.

DIXON, PHILIP M. Supervises the day-to-day statistical consulting efforts of graduate research assistants who help numerous researchers in the agricultural and environmental sciences with study design and data analysis. He also conducted collaborative research on a range of agricultural, nutritional and environmental issues including the development of models of cropping system effects on annual weed demography, predicting risk of naturalization of non-native woody plants in Iowa, analyzing environmental effects of applying composted organics to new highway embankments, analyzing properties of starches from new corn lines, mining EST

databases to study evolutionary events in major crop species. Dr. Dixon and Dr. Kaiser also collaborate with researchers in the Botanicals Research Center.

DORMAN, KARIN S. Determining how viruses evolve and recombine is essential for understanding how they persist and cause disease within hosts as well as how they spread through populations, and could ultimately help researchers to engineer genetic therapies to treat infected infections. Karin Dorman's major focus during the year was to further develop and apply models for detecting recombinant sequences in viruses using a Bayesian statistical approach. This project included rewriting and extending existing software to improve speed and applicability. She also applied existing analysis techniques and developed novel variance estimation methods to study the evolutionary properties of EIAV sequences collected longitudinally from infected horses. In a separate project, she contributed to a project on risk analysis for transgenic crop plants, helping in particular to formalize the probability model of gene flow during plant production and harvest.

HOFMANN, HEIKE AND COOK, DIANNE. Worked with the MetNet working group, consisting of researchers from Botony, Bioinformatics and Computational Biology, Computer Science and Computer Engieneering and Statistics, on analysis of genomic, proteomic and metabolic function of plants. Functionality of the MANET software package was extended to allow simple statistical inference on gene expression data. The graphical user interface makes it easy for users with a non-statistical background to use the software. Development continued on the GeneGobi software package for visualizing complex genomic data.

KOEHLER, KENNETH J. Worked with animal science researchers on statistical models for analyzing productive life spans of dairy cows and breeding sows. He also developed statistical procedures for dealing with missing observations and managing safety aspects of participation in a longitudinal study of prevention of fatty liver disease in dairy cows, and he continued to work with other animal science researchers on developing estimation methods for quantitative trait loci (QTL) from pooled samples of DNA from selected animals. He provided some assistant micobiologists and food science researchers on probability models for detection of microbial organisms in ground beef. He continues to participate in four year study of preventative effects of soy isoflavones on bone loss and cardiovascular risk factors in women.

MAITRA, RANJAN. Started working with Dan Nettleton and researchers of the Plant Sciences Institute to develop methodology for analyzing two-dimensional gel data. This work will provide a better understanding of the connection between different kinds of protein markers and disease. Dr. Maitra also continues to assist plant science researchers in developing tools and strategies for analyzing the massive data sets generated by their research.

NETTLETON, DANIEL S. Has been heavily engaged in designing and analyzing functional genomics experiments. He has worked with more than 35 students, staff, and faculty on microarray, proteomics, and related experiments to identify and verify changes in gene expression in response to experimental conditions. Such experiments are important for discovering the functions of genes in model plants (Arabidopsis) and animals (mouse) as well as agriculturally important plants (barley, maize, soybean) and animals (pig, chicken). In addition to work in genomics, he has helped with miscellaneous projects that among others include work on assays to measure amino

acid content in field samples, the study of relationships between soybean cyst nematode levels and soybean yield, and identification of alfalfa genetic markers associated with traits of agronomic importance.

OPSOMER, JEAN D. AND NUSSER, SARAH M. Assisted researchers in the design and analysis of surveys to study economic and environmental impact of agricultural practices and natural resource management, skill preparation assessment of employees hired by private sector landscape companies, immigration and emigration in rural communities, transportation needs in rural areas, surveys of soil properties, air quality and asthma risk in rural Iowa, surveys of tillage practices, wildlife abundance surveys, social and economic impact of investment in natural resource development, prevelance of wasting disease and other diseases in deer populations, development of new GIS data collection procedures for national land use assessment that include loss of prime farmland to development, gains and losses in wetlands and soil conservation practices.

Engineering and Physical Sciences

MEEKER, JR., WILLIAM Q. Continued ongoing collaboration with researchers at the Ames laboratory on non-destructive evaluation of deterioration of airplane parts. He participated in a National Institute of Standards and Technology (NIST) sponsored project to develop methodology for service life prediction using accelerated testing, and he served as a consultant to the Building Research Division of NIST. Bill spent two weeks at Los Alamos National Laboratory as a visiting researcher. He continues to do some consulting for General Electric CR&D and Hewlett-Packard Company, and he did reliability-related statistical work for Freddie Mac.

MORRIS, MAX D. Worked with Professor David White in Civil Engineering on studies involving the validation of new, indirect measurement techniques for characterizing soil properties at construction sites. Unlike traditional methods that are labor intensive point measurements, the new technique estimates characteristics via energy expended by the earthworking equipment in real time. Statistical issues include spatial modeling, prediction, and comparison. Max continues to collaborate with Ames Laboratory scientists on the forensic analysis of tool marks.

SHERMAN, PETER J. Worked with Professor A. Chandra on stochastic models for the effects of chemical mechanical polishing on material removal rates and the evolution of surface properties.

VARDEMAN, STEPHEN B. Continues to receive support from John Deere Corporation for research in quality control and reliability. Steve Vardeman and Max Morris have begun to work with U.S. Air Force researchers on decision analysis and models for threats to aircraft based on the time evolution of sensed electromagnetic spectra. Steve has also started to work with the Iowa Department of Revenue on the development of forecasting models.

WU, HAIQING and ROLLINS, SR., DERRICK K. Collaborated on process control research. Huaiqing Wu also continued collaboration with Bill Meeker on methods for early detection of warranty problems using accelerated testing and warranty returns. Derrick Rollins has begun work on a data mining method to identify assay-specific signatures in functional genomic studies. Professor Rollins participated in developing a pioneering non-residential summer enrichment program in mathematics and

physics. He is also an active participant in the NSF Alliance for Graduate Education and the Professoriate (AGEP) program, and he serves as faculty advisor to the NSF Program for the Production of African American Ph.D.s in the Mathematical Sciences.

Social & Behavioral Science & Humanities

BONETT, DOUGLAS G. In addition to providing assistance in study design and data analysis to numerous researchers in the behavioral sciences, Doug Bonett is working with researchers in the Institute for Social and Behavioral Research on a study of physiological effects of marital conflict. He is also engaged in collaborative research on using kurtosis information to improve confidence intervals for standard deviations.

LORENZ, FREDERICK O. Remains active in NIH-funded studies of health and family relations in the Institute for Social and Behavioral Research (ISBR). He collaborates with several other researchers in studies of factors influencing health behaviors among African-American youth, ethnicity and socio-emotional functioning in later life, interparent conflict and youth maladjustment. Professor Shelly and Professor Lorenz, have been actively working with the Statistics Department's Center for Survey Statistics and Methodology (CSSM) to strengthen linkages between substantive research problems and survey sampling methodologies that can be used to address those problems.

ROBERTS, CARL W. Collaborated with faculty in Education, Sociology, Journalism and English on regression analysis, correlation analysis and statistical methodology for text analysis. He also advised Sociology and Journalism faculty on the development and analysis of on-line surveys, network visualization, applications of log-linear models and spatial analysis. He helped faculty in Industrial Engineering and Regional Planning with study designs and data analysis. Carl Roberts continues to develop methods of text analysis and does research on trends in European public opinion as represented in newspapers.

SHELLEY, II, MACK C. (Director of the Research Institute for Studies in Education) Works regularly on a variety of projects for the Iowa Department of Education and regional and national education agencies. He also works with the Iowa Department of Public Health on sample design and data analysis. He assisted with the interpretation of findings for the report to the Center for Substance Abuse Prevention on Iowa's compliance with Synar legislation requirements to minimize underage consumption of tobacco products. Professor Shelley provides statistical expertise to the Iowa Association of School Boards on study design and the analysis of data from a U.S. Department of Education-funded Lighthouse Project to improve K-12 student outcomes through greater emphasis on policy discussion by school boards. He is a statistical consultant for an evaluation of Mid-Iowa Early Head Start Programs, a study of methods to improve nutrition education, the New Visions in Foreign Language Education survey for the National K-12 Foreign Language Resource Center at Iowa State University and the American Council on the Teaching of Foreign Languages, a study of local housing decisions and economic vitality of rural communities. He has helped numerous researchers in education and the behavioral sciences prepare and submit research proposals

THESIS ABSTRACTS (PH.D.)

DeCock, Dean

Kriging as an alternative to polynomial regression in response surface analysis. (2003)

Response surface methodology (RSM) is typically used in the modeling and optimization of processes. RSM relies upon empirical approximations of true process relationships, with the second order polynomial model being the most popular. Structured designs, such as Central Composite or Box-Behnken, are used for data collection and subsequent parameter estimates in these models are traditionally found via ordinary least squares methods. One common difficulty in RSM is lack of fit resulting from an under-specified model, which can lead to biased estimates for the parameters and incorrect estimates of the process maximum. One solution to this problem is the use of Box-Cox transformations on the data. As an alternative, kriging will be presented as a viable method for modeling near quadratic surfaces. Kriging is a spatial statistics method, first developed for applications in the mining industry, whose basic premise is the use of a weighted average of local data points to predict a new response. Two kriging methods, Ordinary and Universal, will be evaluated for various surfaces in 1, 2, & 3 dimensions.

Drignei, Dorin

Statistical analysis of multivariate computer output. (2004)

Many scientific investigations rely on computer models for simulating plausible real situations. In trying to describe the complexities of reality, some computer models are themselves very complex and are therefore expensive to run. In response to some of these issues, a recent approach proposes to use statistical models as less computationally demanding surrogates of such complex computer models. The statistical surrogates do not exactly match the computer model output in a new situation, but these have the capability to describe the associated uncertainty. Ideally, the completed statistical model would not require as many computational resources as the original computer model. Chapter 1 surveys briefly the literature related to the statistical analysis of computer experiments. While most applications implementing the above statistical methodology deal with scalar output, this dissertation suggests methodologies for analyzing multivariate computer output. In particular, Chapter 2 implements a method for the statistical analysis of time series produced by finite difference solvers of differential equations. This statistical model makes use of the underlying code information and, as a result, is second-order non-stationary. The Lotka-Volterra competing species differential system is used as an example to illustrate the methods. It is shown that the statistical model proposed here is more accurate than a statistical model that extends directly the existing scalar methodology to the multivariate case; however, the method is useful only in cases where the output can be easily saved and manipulated numerically. Chapter 3 suggests a two-stage method for the analysis of multivariate computer output in cases when at least one dimension is large, in particular when the number of temporal points is large. A double-gyre ocean system of partial differential equations is used to illustrate this method. Chapter 4 outlines preliminary work on two additional methodologies concerning the statistical analysis of multivariate computer output.

Fridley, Brooke

Data augmentation for the handling of censored spatial data. (2003)

This dissertation provides a solution to the analysis of spatial censored data. Spatially dependent data occurs in a variety of applications in which observations are associated with a spatial location. In environmental data, it is not uncommon for measurements of contamination to fall below a level of detection (LOD). There are many statistical methods for the analysis of censored data when the observations are independent, but what does one do

when spatial correlation is present? A solution presented in this dissertation is to use the idea of data augmentation for the analysis censored spatial data. The first paper will look at a Bayesian geostatistical model. In addition to parameter estimation and inference, a main focus of many analyzes is spatial prediction. A prediction method will also be presented and illustrated involving censored data from two studies, one involving dioxin contamination in Missouri and one looking at site polluted with heavy metals. Comparison between the data augmentation method and the methods of replacing the censored values with LOD and LOD/2 are also illustrated. The second paper explores the use of data augmentation for censored spatial data in the context of a Bayesian conditionally specified Gaussian model. As opposed to the Bayesian geostatistical model, the focus of this paper is not on prediction, but on parameter estimation and subsequent inference. The Missouri dioxin study and the metal contamination site will be used to illustrate the method, along with comparison to the common method of replacing the censored observations with the LOD/2 or LOD. In the third paper, results from an extensive simulation study conducted to investigate the effect of different factors on the effectiveness of the data augmentation procedure for the handling of censored spatial data, are presented and discussed. In addition to simulation studies investigating factors that may impact the data augmentation procedure, two additional simulation studies were conducted to look at the general adequacy of the augmentation procedure for both the geostatistical and conditionally specified Bayesian models.

Ilk, Ozlem

Exploratory multivariate longitudinal data analysis and models for multivariate longitudinal binary data. (2003)

Longitudinal data occurs when repeated measurements from the same subject are observed over time. In this thesis, exploratory data analysis and models are utilized jointly to analyze longitudinal data which leads to stronger and better justified conclusions. The complex structure of longitudinal data with covariates requires new visual methods that enable interactive exploration. Here we catalog the general principles of exploratory data analysis for multivariate longitudinal data, and illustrate the use of the linked brushing approach for studying the mean structure over time. It is possible to reveal the unexpected, to explore the interaction between responses and covariates, to observe the individual variations, understand structure in multiple dimensions, and diagnose and fix models by using these methods. We also propose models for multivariate longitudinal binary data that directly model marginal covariate effects while accounting for the dependence across time via a transition structure and across responses within a subject for a given time via random effects. Markov Chain Monte Carlo Methods, specifically Gibbs sampling with Hybrid steps, are used to sample from the posterior distribution of parameters. Graphical and quantitative checks are used to assess model fit. The methods are illustrated on several real datasets, primarily the Iowa Youth and Families Project.

Kim, Ji-Yeon

Nonparametric regression estimation under complex sampling design. (2004)

The efficient use of auxiliary information to improve the precision of estimation of population quantities of interest is a central problem in survey sampling. We consider nonparametric regression estimation using much weaker assumptions on the superpopulation model in more general survey situations. Complex designs such as multistage and multiphase sampling are often employed in many large-scale surveys. Nonparametric model-assisted estimators, based on local polynomial regression, for two-stage and two-phase sampling designs are proposed. The local polynomial regression estimator is a nonparametric version of the generalized regression (GREG) estimator and shares most of the desirable properties of the generalized regression estimator. The estimator of the finite population total for two-stage element sampling with complete cluster auxiliary information is a linear combination of cluster total estimators, with sample-dependent weights that are calibrated to known control totals. The

nonparametric estimator for two-phase sampling with a regression model for between-phase inference is also expressed as a weighted linear sum of the study variable of interest over a second-phase sample, in which the weights are not calibrated directly to known control totals, but are calibrated to the Horvitz-Thompson estimators of known control totals over a first-phase sample. Asymptotic design unbiasedness and design consistency of the estimators are established, and consistent variance estimators are proposed. Simulation experiments indicate that the local polynomial regression estimators are more efficient than parametric regression estimators under model misspecification, while being nearly as good when the parametric mean function is correctly specified.

Lee, Eun-Kyung

Projection pursuit methods for exploratory supervised classification. (2003)

In high-dimensional data, one often seeks a few interesting low-dimensional projections which reveal important aspects of the data. Projection pursuit is a procedure for searching high-dimensional data for interesting low-dimensional projections via the optimization of a criterion function called the projection pursuit index. Very few projection pursuit indices incorporate class or group information in the calculation, and hence can be adequately applied to supervised classification problems. We introduce new indices derived from linear discriminant analysis that can be used for exploratory supervised classification. When we have the small number of observations relative to the number of variables, the class structure of optimal projection can be biased too much. In this situation, most of classical multivariate analysis methods also be problematic, too. We discuss how the sample size and dimensionality are related, and we propose a new projection pursuit index that considers the penalty for the projection coefficients and overcomes the small number of observation problem.

Silva, Damiao Nobrega Da

Adjustments for survey unit nonresponse under nonparametric response mechanisms. (2003)

Nonresponse is a problem in survey sampling that occurs when part of the information that should be collected on the units selected to the sample is not observed. Unit nonresponse is the type of nonresponse where none of the characteristic of interest is measured for a particular set of units. A popular method to handle unit nonresponse is by increasing the sampling weights of the respondent units to compensate for the nonrespondents. In this class, two procedures are the weighting within cell estimator and the estimator that weighs the observations using estimated response probabilities, also known as propensity scores. In this dissertation, properties of these estimators are studied under a nonparametric response mechanism that allows for varying response probabilities. The response probabilities are assumed to be related to an auxiliary variable through a "smooth", but otherwise unspecified function. The weighting within cell estimator is proved to be consistent for the population mean. The impact of the number of cells on the asymptotic bias and variance of the estimator is also addressed. Empirical comparisons illustrate the superior performance of the estimator over an estimator that does not account for the nonresponse. The weighting with response probability estimator is implemented using a zero order local polynomial fit to estimate the response probabilities. Consistency of the resulting estimator for the population mean is established. Also, a replication estimator for the variance of the weighting with response probability estimator is constructed. Asymptotic properties of the variance estimator are derived.

Wang, Jing

Interval mapping of QTL with selective DNA pooling data. (2003)

Selective DNA pooling is an efficient method to identify chromosomal regions that harbor quantitative trait loci (QTL) by comparing marker allele frequencies in pooled DNA from phenotypically extreme individuals. The currently used single marker analysis can detect

linkage of markers to a QTL, however, it does not provide separate estimates of QTL position and effect, nor does it utilize the joint information from multiple linked markers. In this thesis, two interval mapping methods for analysis of selective DNA pooling data were developed. One was based on least squares regression (LS-pool) and the other on approximate maximum likelihood (ML-pool). Both methods simultaneously utilize information from multiple markers and multiple families and both are easily applied to different family structures (half-sib, F2 cross and backcross). Simulation was used to compare these two DNA pooling interval mapping methods with single marker analysis and with selective genotyping analysis of individual genotypes. Results indicated that both LS-pool and ML-pool provided greater power to detect the QTL than the single marker analysis and separate estimates of QTL location and effect. With large family size, both LS-pool and ML-pool provided similar power and estimates of QTL location and effect as selective genotyping. The LS-pool method, however, resulted in severely biased estimates of QTL location with small family size and distal QTL but the bias was reduced with ML-pool. Both interval mapping methods were also applied to two real data sets, a dairy cattle data set from a half-sib design and a layer chicken data set from an F2 cross. In the dairy cattle data application, both LS-pool and ML-pool solved problems of single marker analysis when missing marker genotypes were present by utilizing joint information from multiple markers. In the chicken data application, both LS-pool and ML-pool provided similar power to detect the QTL and similar estimates of QTL location and effect as analysis of individual genotypes. In conclusion, both LS-pool and ML-pool methods provide powerful tests for QTL detection and accurate estimates of QTL parameters while substantially saving genotyping costs through the use of DNA pooling. In addition, both methods are readily applied to practical situations.

Zhang, Hongmei

Probability models for design and analysis of genetic data. (2003)

This thesis concerns probability model development and analysis for genetic data. There are two studies involved. One study focuses on interference and study design for application where objects of different types are observed. We apply a Bayesian hierarchical model to estimate the total number of categories in a region, and then use a Monte Carlo simulation approach to design future sampling. Specifically, the Monte Carlo simulation method is used to determine how large an extra sample is needed to guarantee that a certain proportion of all categories can be collected with a specified confidence. We apply the method to DNA sequence data. Some important properties of the proposed model are investigated through simulations. The second study uses genetic marker information to identify ancestors of a given individual in the presence of genotyping errors. We extend an existing probability model to calculate the probability that a particular inbred line is an ancestor of the given hybrid, accounting for genotyping errors. A simulation study indicates that if misclassification is ignored, ancestry probabilities can be overestimated. We use the maximum likelihood estimate (MLE) as the estimate for the error rate. The developed methodology is then applied to simulated data and a genetic data set containing maize Simple Sequence Repeats (SSR) marker profiles.

PUBLICATIONS

Books

Proceedings of the Rome Geometric Morphometric Workshop. Homage to Leslie F. Marcus
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Murphy, E. D. and **Nusser, S. M.** 2003. Evaluating user interfaces for accommodation of individual differences in spatial abilities and way-finding strategies. *In* Proceedings of the UAHCI 2003: 2nd International Conference on Universal Access in Human-Computer Interaction, **4**, 1005-1009.

Nusser, S. M. 2003. Methodological research on mobile computing tools for field data collection. *Report prepared for the American Statistical Association Census Bureau Advisory Committee*, 6 pp.

Nusser, S. M. 2003. User responses to digital map tools on handheld computeres: Statistical design and analysis report for the 2002 Delaware Route Planning and Navigation Study. *Report prepared for the Census Bureau*, 19 pp.

Nusser, S. M. 2004. Computer-assisted data collection for geographic features. *Proceedings of the Section on Survey Research Methods*, American Statistical Association. [CD-ROM].

Breidt, F. J. and **Opsomer, J. D.** 2004. Theory and methods for nonparametric regression estimators. *Proceedings of Seminar on Funding Opportunities in Survey and Statistical Research*, Statistical Policy Working Paper. Office of Management and Budget, Washington, DC.

Czuprynski, J. and **Opsomer, J. D.** 2003. Estimating the number of household contacts needed for case-control studies. *Proceedings of the Section on Survey Research Methods*. American Statistical Association, [CD-ROM]. Alexandria, VA, article #00433.

da Silva, D. N. and **Opsomer, J. D.** 2003. A kernel smoothing method to adjust for unit nonresponse in complex surveys. *Proceedings of the Section on Survey Research Methods*. American Statistical Association, [CD-ROM]. Alexandria, VA, article #00605.

Li, X. and **Opsomer, J .D.** 2003. A comparison of two regression estimators for two-phase sampling. *Proceedings of the Section on Survey Research Methods. American Statistical Associatio,* [CD-ROM]. Alexandria, VA, article #00618.

Miller, C. P. and **Opsomer, J. D.** 2003. Selecting the amount of smoothing in local polynomial regression estimation for complex surveys. *Proceedings of the Section on Nonparametric Statistics*. American Statistical Association, [CD-ROM]. Alexandria, VA, article #00559.

Opsomer, J. D. and Breidt, F. J. 2003. Nonparametric estimation in complex surveys with auxiliary information. *Proceedings of the 54th Session of the International Statistical Institute*. Volume LX, Book 1, 400-403.

Zhu, L. and **Roberts, C. W.** (2003) A web-based simulation built on constructivist learning. *In* Proceedings of E-Learn 2003: World Conference on E-Learning in Corporate, Government, Healthcare & Higher Education. Allison Rossett, (ed.) Norfolk, VA: Association for the Advancement of Computing in Education.

Galloway, R. and **Shelley, II, M. C.** (2003) The lighthouse project, Iowa Association of School Boards. Brief Report: Sioux Center. Ames, IA: Research Institute for Studies in Education.

Galloway, R. and **Shelley, II, M. C.** (2004) The lighthouse project, Iowa Association of School Boards. Brief Report: Fort Madison. Ames, IA: Research Institute for Studies in Education, 21 pp.

Harms, D., Thrane, L., Kemis, M. and **Shelley, II, M. C.** (2004) Evaluation report on fall 2003 student digital divide focus group. Ames, IA: Research Institute for Studies in Education, Iowa State University.

Kemis, M., **Shelley, II, M. C.**, Galloway, R. and Stevens, A. (2003) Success4 final evaluation report: March 2003-September 2003. Ames, IA: Research Institute for Studies in Education, Iowa State University, 14 pp.

Kemis, M., Saunders, K. and **Shelley, II, M. C.** (2004) Report of faculty satisfaction with RISE services. Ames, IA: Research Institute for Studies in Education, **iii**:60, 9 pp.

Manion, L., **Shelley, II, M. C.**, Kemis, M. and Wright, L. (primary contributors). (2003) City of Des Moines 2002 City-Wide citizen satisfaction survey: Report on city services. Research Institute for Studies in Education.

Stephenson, W. R. 2003. Resampling statistics: Not just for statisticians anymore. *In* 2003 Proceedings of the Section on Teaching Statistics in the Health Sciences.

Thrane, L., Kemis, M., and **Shelley, II, M. C.** (2003) Digital citizenship: Expanding information technology literacy with a service-learning approach: Evaluation report, July 2002 to July 2003. Ames, IA: Research Institute for Studies in Education, Iowa State University.

Thrane, L., Kemis, M. and **Shelley, II, M. C.** (2004) Evaluation report on spring 2004 student digital divide focus group. Ames, IA: Research Institute for Studies in Education, 10 pp.

Thrane, L., Kemis, M. and **Shelley, II, M. C.** (2004) Fall 2003 service-learning lab coordinator interview. Ames, IA: Research Institute for Studies in Education, 8 pp.

Thrane, L., Kemis, M. and **Shelley, II, M. C.** (2004) Spring 2003 workshop participants focus group report. Ames, IA: Research Institute for Studies in Education, Iowa State University, 7 pp.

Wen, L. and **Sherman, P. J.** 2004. The influence of sampling a Gauss-Markov process over a finite time for estimation and prediction. *In* Conference on Noise in Communication. International Society of Optical Engineering, SPIE – 2004. Maspalomas Gran Canaria Island, Spain.

Software & Videos -none

Meeker, Jr., W. Q. (1998, 1999, 2000, 2001, 2002, 2003, 2004) SPLIDA. A collection of S-Plus functions for reliability data analysis and test planning to accompany the text book by Meeker and Escobar (1998). The latest version is always available at http://www.public.iastate.edu/ ~splida.

Book Reviews

Dixon, P. M. 2004. Review of "Mateu, J. and Montes, F. 2002". Spatial statistics through applications. *Environmetrics Bulletin*.

Maiti, T. 2004. Analysis of Longitudinal Data. *Journal of the American Statistical Association*, 906.

Maiti, T. 2004. Bayesian Data Analysis. *Journal of the American Statistical Association*, 905.

Maiti, T. 2004. Mathematical Statistics. *Journal of the American Statistical Association*, 907

Maiti, T. 2004. Survey Nonresponse. *Journal of the American Statistical Association*, 570.

Maiti, T. 2004. Telephone Survey Methodology. *Journal of the American Statistical Association*, 570.

Meeker, Jr., W. Q. 2003. Recurrent Events Data Analysis for Product Repairs, Disease Recurrences, and Other Applications, by Wayne B. Nelson, ASA-SIAM, 2003. *Technometrics*, **45**, 263-264.

EDITORSHIPS

ATHREYA, KRISHNA

–Associate Editor/Editorial Board, Sankhya, Indian Journal of Statistics

–Associate Editor/Editorial Board, Resonance, Journal of Science Education, Indian Academy of Sciences

–Associate Editor/Editorial Board, Indian Academy of Sciences Journals, Mathematical Sciences (01/01/1999 – present)

–Associate Editor/Editorial Board, Journal of Theoretical Probability (01/01/2000 – present)

CARRIQUIRY, ALICIA L.

–Associate Editor, Proyecciones-Revista Boliviana de Matematicas (01/01/2001 – present)

–Editor, Bayesian Analysis (07/01/2003 – present)

–Editor, Statistical Science (01/01/1998 – present)

Editorial Board, Case Studies in Bayesian Statistics IV, V, and VI (1997 – present)

COOK, DIANNE

–Editor, American Statistical Association Statistical Computing and Statistical Graphics section newsletter (01/01/2000 – present)

–Associate Editor/Editorial Board, Journal of Statistical Software (09/01/1995 – present)

HOFMANN, HEIKE

–Associate Editor/Editorial Board, Journal of Computational and Graphical Statistics (04/01/2002 – present)

–Associate Editor/Editorial Board, Computational Statistics (01/01/2003 – present)

KAISER, MARK S.

–Editor, Journal of the American Statistical Association

LAHIRI, SOUMENDRA N.

–Associate Editor/Editorial Board, Statistical Methodology (07/01/2003 – present)

–Associate Editor/Editorial Board, Sankhya (02/01/2004 – present)

MAITI, TAPS

–Associate Editor/Editorial Board, Journal of the American Statistical Association – Review section (01/01/2003 - present)

MEEKER, JR., WILLIAM Q.

–Member/Editorial Board, Lifetime Data Analysis, (2001 – present)

–Advisory Editor, Quality Technology & Quality Management, (2003 – present)

MORRIS, MAX

–Associate Editor/Editorial Board, Radiation Research (01/01/1992 – present)

NETTLETON, DAN

–Associate Editor/Editorial Board, The Journal of Agricultural, Biological, and Envronmental Statistics (4/7/2003 – present)

OPSOMER, JEAN D.

–Associate Editor, Biometrika (1/1/2004 – present)

POLLAK, EDWARD

–Editorial Board, Mathematical Biosciences (1980 – present)

SHELLEY, II, MACK C.

–Associated Editor/Editorial Board, TESOL Quarterly (01/01/2002 – present)

STEPHENSON, W. ROBERT

–Editor, Journal of Statistics Education (01/01/2004 – present)

–Associate Editor/Editorial Board, Journal of Statistics Education (01/01/1999 – 12/31/2003)

VARDEMAN, STEPHEN B.

–Associate Editor/Editorial Board, The American Statistician (07/01/1996 – present)

–Associate Editor/Editorial Board, Naval Research Logistics (01/01/2003 – present)

WU, HUAIQING

–Associate Editor/Editorial Board, Journal of American Statistical Association (01/10/2004 – present)

PROFESSIONAL ACTIVITIES

Offices & Committee Work for National Organizations

CARRIQUIRY, ALICIA L.

- Advisor, Ministry of Health and Human Services on the Design and Analysis of a Dietary Intake Survey, Colombia
- Advisor, Ministry of Health and Human Services in New Zealand on the Design and Analysis of a Dietary Intake Survey of Children, New Zealand.
- Finance Committee Chair, ISBA Eighth World Meeting, Chile.
- Member, External Review Committee for Department of Statistics, Harvard University.
- Member, National Academy of Sciences, Committee on Gender Differences in Careers or Science, Engineering and Mathematics Faculty.
- Member, National Academy of Sciences, Standing Committee on Theoretical and Applied Statistics
- Member, National Science Foundation Review Panel for Statistics Proposals
- Program :Committee Member, Case Studies in Bayesian Statistics VII Workshop, Carnegie Mellon University
- Program Committee Member, First IMS-ISBA Workshop. University of Puerto Rico.
- Program Committee Member, IX Latin American Congress on Probablity and Mathematical Statistics, Uruguay.

COOK, DIANNE

- Member, Program Committee, International Workshop on Visual Data Mining, (2nd European Conference on Machine Learning (ECML'01) and 5th European Conference on Principles and Practice of Knowledge Discovery in Databases
- Member, Program Committee, IEEE 2001 Symposium on Parallel and Large-Data Visualization and Graphics
- Member, Program Committee, Workshop on the Future of Statistical Computing
- Member, Program Committee for Workshop on Visual Data Mining at IEEE Conference on Data Mining
- Session Organizer, Interface 2001

DIXON, PHILLIP M.

- Member, NSF Review Panel, Biocomplexity in the Environment
- Member, Program Committee, 2004 ENAR Spring Meeting
- Member, Scientific Advisory Panel on Probabilistic Risk assessment, U.S. EPA

DUCKWORTH, II, WILLIAM M.

- Associate Editor, Journal of Statistics Education
- Associate Editor of Educational Content, Amstat Online (American Statistical Association web site)

ISAACSON, DEAN L.

- Member, SPAIG Committee for ASA (2000 - Present)

KOEHLER, KENNETH J.

- Member, College Board/SAT, Advisory Committee on the Development of the New SAT Mathematics Examinations
- Chair, College Board/ AP Statistics Development Committee, Exam Leader for AP Statistics Reading

LARSEN, MICHAEL

- Organizer, Topic Contributed sessions on Record Linkage (2, ASA Section on Survey Research Methods) and Disclosure Limitaiton and Microdata Research (ASA Government Statistics Section), Joint Statistical Meetings, Toronto, Canada, August 2004
- Co-Organizer, ASA Section on Survey Research Methods, Invited Session on Multilevel Modeling with Survey Data, Joint Statistical Meetings, Toronto, Canada, August 2004
- Local Organization Committee, International Federation of Classification Societies meeting, (also abstract book editor, Chicago, IL, July 2004.
- Scientific Organizing Committee, IMS-ASA's SRMS Joint Mini-Meeting on Current Trends in Survey Sampling and Official Statistics, Calcutta, India, January 2-3, 2004

LAHIRI, SOUMENDRA N.

- Organized an invited session on "Computer-intensive statistical methods" at the 35th Symposium of the Interface, Salt Lake City, UT, March 12-15, 2003.

LORENZ, FREDERICK O.

- Member, NIH, Reviewed "Body-Mind-Connections" Proposals

MAITRA, RANJAN

- Member, National Science Foundation, NSF Review Panel on Mathematical Sciences: Innovations at the Interface with the Sciences and Engineering
- Member, Section on Statistical Computing, American Statistical Association, Executive Committee

MEEKER, JR., WILLIAM Q.

- Chair, American Statistical Association Publications Committee
- Chair, American Statistical Associatoin Taskforce on Journals Marketing
- Member, American Statistical Association Taskforce on Electronic Publications
- Member, National Research Council "Panel on Operational Test Design and Evaluation of the Interim Armored Vehicle"

MORRIS, MAX D.

- Member, National Academy of Science, Survivability and Lethality Review Panel

NETTLETON, DANIEL S.

- Member, NSF-sponsored Maize Oligonucleotide Array Project Advisory Committee

NUSSER, SARAH M.

- Member, National Science Foundation, Committee of Visitors, Division of Social and Economic Sciences
- Member, ASA, Survey Research Methods Section Executive Committee (Chair-Elect)
- Member, ASA, Management Committee for the Journal of Agricultural, Biological and Environmental Statistics

OPSOMER, JEAN D.

- Member, Proposals Screening Panel, National Science Foundation, Biocomplexity – Dynamics of Coupled Natural and Human Systems program, March 2004
- External examiner, Ph.D. exam for University of British Columbia (Canada) statistics student, 2004.
- Chair-elect, ASA Section on Statistics and the Environment
- Chair, ASA E. C. Bryant Scholarship Committee
- Associate editor, Journal of Computational and Graphical Statistics
- Member, Editorial Committee for Statistics for Foxwell & Davis Italia

SHELLEY, II, MACK C.

- Member, University Council for Educational Administration, Reviewer of proposals for University Council for Educational Administration (UCEA), 2004 annual conferences

SHERMAN, PETER J.

- Member, 2nd Symposium on Fluctuations and Noise, of the SPIE-2004 Conference, Maspalomas, Gran Canaria, Spain, Technical Program Committee

STEPHENSON, W. ROBERT

- Chair, American Statistical Association, Advisory Committee on Teacher Enhancement
- Member, American Statistical Association, Publications Committee
- Member, American Statistical Association, Section on Statistical Education Fellows Committee
- Member, Mu Sigma Rho, the National Statistics Honor Society, Board of Directors

VARDEMAN, STEPHEN B.

- Member, American Statistical Assoication, Board of Directors
- Member, American Society for Engineering Education, Meriam/Wiley Distinguished Author Award Committee

Papers Presented, Lectures & Seminars

ADAMS, DEAN C.

"Adaptive morphological divergence of a pupfish species in as little as three decades." Annual Meeting of the Desert Fishes Council. Death Valley, CA, 2003.

"A morphometric shape analysis of phenotypic plasticity in plains spadefoot toad (Spea bombifrons) tadpoles." Annual Meeting of the Society of Integrative and Comparative Biology. Toronto, Canada, 2003.

"Evolutionary community ecology in plethodon salamanders." Department of Biology, Universidad de Los Andes. Bogota, Colombia, 2004.

"Evolutionary community ecology in plethodon salamanders. " Department of Wildlife & Fisheries Sciences, Texas A&M University. College Station, TX, 2004.

"Evolutionary community ecology in plethodon salamanders." Department of Biology, Cornell College. Mount Vernon, IA, 2004.

"The analysis of multivariate reaction norms for assessing phenotypic plasticity." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Ft. Collins, CO, 2004.

ATHREYA, KRISHNA

Germany meeting on Branching Processes and Superprocesses. Oberwolfach, 2003.

Dept of Mathematics, University of Mainz. Germany, 2003.

IMA Conference on PDE and Probability. University of Minnesota. MN, 2003.

Probability Seminar, Department of Mathematics, University of Wisconsin. WI, 2003.

ISI, Bangalore and IISC, Bangalore. Bangalore, 2004.

IISA Conference. Athens, GA, 2004.

BAILEY, THEODORE B.

"Design and analysis of experiments involving development of new food products and taste panels." NCR170 (Research Advances in Agricultural Statistics Technical Committee) meeting. Reno, NV, 2003.

" 'Choice of number of observations in experiments with repeated measures.' " Joint Statistical Meetings, American Statistical Association, Biopharmaceutical Section. San Francisco, CA, 2003.

CARAGEA, PETRUTA C.

"Centering the effects of neighbors in Markov random field models." Graybill Conference 2004: Spatial Statistics Agricultural, Ecological, and Environmental Applications. Fort Collins, CO, 2004.

"Three alternative estimators for spatial parameters." Department of Regional and Community Planning, GIS Seminar, Iowa State University. Ames, IA, 2004.

"Three alternative estimators for spatial parameters." JSM 2003. San Francisco, CA, 2003.

CARRIQUIRY, ALICIA L.

"An analysis of the volatililty of exchange rates in a financial forensic problem." Department of Statistics, Kansas State University. Manhattan, KS, 2004.

"Assessing usual nutrient intakes." National Cancer Institute. 2003.

"EDA, Bayes, and the subjectivist versus objectivist controversy." Panel discussion, Eighth World Meeting of ISBA. Vina del Mar, Chile, 2004.

"Eighth world meeting of ISBA." With Brown, T., Maxson, M., Reising, M. Vina del Mar, Chile, 2004.

"Gene expression analysis of maize regeneration tissue." With Love, T., Che, P., Howell, S. Eighth World Meeting of ISBA. Vina del Mar, Chile, 2004.

"Series of invited lectures at the Latin American Congress on nutrition." Acapulco, Mexico, 2003.

CHEN, SONG X.

"Information recovery in a study with surrogate endpoints." Applied Statistics Symposium. San Diego, CA, 2004.

"Nonparametric estimation of value at risk and the standard errors for financial returns." Workshop on Modeling Dependence in Finance. Quebec, Canada, 2004.

"Nonparametric inference for financial risk measures and nonparametric tests for diffusion models." Applied Mathematics Institute, Chinese Academy of Science. Beijing, China, 2004.

COOK, DIANNE

"Data through the windshield in p-dimensions." CSIRO. Sydney, Australia, 2004.

"EDA using direct manipulation graphics." Sydney Summer Statistics Workshop. Sydney University. Sydney, Australia, 2004.

Workshop on statistical inference, computing and visualization for graphs. Sponsored by the Institute of Mathematical Statistics. Stanford University. Stanford, CA, August 1-2, 2003.

"Using graphics in exploratory data analysis and data mining: An application of supervised classification in olive oil quality." Data Mining and Machine Learning Workshop, Statistical and Applied Mathematical Science Institute. Research Triangle Park, NC, 2003.

"Visual methods for data from two factor single-replicate gene expression studies." Department of Statistics, University of Newcastle. Newcastle, Australia, April 22 2004. University of New South Wales. Sydney, Australia, 2004.

DAVID, H. A.

"The history of statistics in the classroom." Joint Statistical Meetings. San Francisco, CA, 2003.

"H. O. Hartley (1912-1980): From Germany to England and the USA." Bulletin of the International Statistical Institute 54th Session, Vol. 60, Book 1, 45-48. Berlin, Germany, 2003.

"Topics in the history of order statistics." International Conference on Distribution Theory, Order Statistics and Inference in Honor of Barry C. Arnold. San Francisco, CA, 2004.

DIXON, PHILLIP M.

"Modeling nucleotide sequence variation in a viral quasispecies." Graybill Conference on Bioinformatics. Colorado State University. Ft. Collins, CO, June 2003.

"Spatial point processes - theory and applications." Department of Computer Science and Statistics, University of Rhode Island. Kingston, RI, June 2003.

DUCKWORTH, II, WILLIAM M.

"Resampling methods: Not just for statisticians anymore." Invited talk, Joint Statistical Meetings. Presented by W. Robert Stephenson. San Francisco, CA, August 2003.

"Engaging students in statistical discovery." Contributed Poster, Joint Statistical Meetings. With Amy Froelich and W. Robert Stephenson. Toronto, Canada, August 2004.

FROELICH, AMY G.

"Alternative construction of a food insecurity and hunger measure from the 1995 current population survey food security supplement data." Paper presented at the Workshop on the Measurement of Food Insecurity and Hunger. Sponsored by the Panel to Review USDA's Measurement of Food Insecurity and Hunger, Committee on National Statistics, The National Academies. Washington, D.C., July 2004.

FULLER, WAYNE A.

"Deming and survey sampling." Deming invited lecture at Joint Statistical Meetings. San Francisco, CA, 2003.

"Variance estimation for complex surveys." Two-day Short Course given at 54th Session of the International Statistical Institute. Berlin, Germany, 2003.

"Statistical analysis from comples survey data." 54th Session of the International Statistical Institute. Berlin, Germany, 2003.

"Replication variance estimation for the two phase NRI." Statistics Canada's 20th International Methodology Symposium. Ottawa, Canada, 2003.

"Analytic studies using survey data." Invited Soumitra Chakrabarty Memorial Lecture at Fifth International Trennial Calcutta Symposium on Probability and Statistics. Kolkata, India, 2003.

"Fractional imputation." Indian Statistical Institute. Kolkata, India, 2004.

"Estimation in the presence of measurement error." IMS/ASA's SRMS Joint Mini Meeting. West Bengal, India, 2004.

"Fractional imputation." Indian Statistical Institute. New Delhi, India, 2004.

"Replication variance estimation for two phase samples." Indian Agricultural Statistics Research Institute. New Delhi, India, 2004.

ISAACSON, DEAN L.

"Statistics graduate program at Iowa State." The Pew Midstates Science and Mathematics Consortium. St. Olaf College. Northfield, MN, November 2003.

HOFMANN, HEIKE

"Visualizing conditional distributions." Annual Meeting of the German Society of Statistical Computing. Reisensburg, Germany, 2003.

"Visualizing conditional distributions." Annual Meeting of the German Society of Statistical Computing. Reisensburg, Germany, 2003. Annual meeting of the Interface. Salt Lake City, UT, March 2003.

"How to visualize a million bins." Joint Statistical Meeting. San Francisco, CA, 2003.

"History of statistical graphics." VIGRE Graphical and Computational Statistics Working Group. Iowa State University. Ames, IA, 2003.

KOEHLER, KENNETH J.

"QTL detection with selective DNA pooling." QTL detection with selective DNA pooling. San Francisco, CA, 2003.

"Applications of statistical methods in agricultural research." Applications of Statistical Methods in Agricultural Research. Winona State University. Winona, MN, 2003.

"QTL-estimation from pooled selective DNA: An example of collaborative research." Thirtieth Anniversary Conference of the Department of Statistics, Universitaet Dortmund. Dortmund, Germany, 2004.

LAHIRI, SOUMENDRA N.

"Block bootstrap for periodic time series." At the Fifth International Triennial Calcutta Symposium on Probability and Statistics. Calcutta, India, 2003.

"Bootstrap for irregularly spaced spatial data." Fifth IISA Biennial International Conference on Statistics, Probability and Related Areas. Athens, GA, 2004.

"Bootstrap methods for irregularly spaced spatial data." Department of Statistics, Cornell University. Ithaca, NY, 2004.

"Bootstrap methods for irregularly spaced spatial data." Department of Statistics, University of Minnesota. Minneapolis, MN, 2004.

"Lattice point counts and its connections to optimal block lengths for spatial resampling methods." Department of Statistics, Rutgers University. New Brunswick, NJ, 2003.

LARSEN, MICHAEL

"Bayesian record linkage." Poster presentation, ISBA World Meeting. Vina del Mar, Chile, May 2004.

"Advances in record linkage modeling." Seminar. Duke University. Raleigh-Durham, NC, March 2004.

"Advanced methods for record linkage." Invited talk, IMS-ASA's SRMS Joint Mini-Meeting on current trends in Survey Sampling and Official Statistics. Ffort Radisson Hotel, Raichak. West Bengal, India, January 2004.

"Comparisons of clusterings of categorical survey data." Invited talk, Calcutta Statistical Association, Fifth International Triennial Calcutta Symposium. Calcutta University. Calcutta, West Bengal, India, December 31, 2003.

"Technical, legal, and organizational barriers to data linkage." Invited talk, National Academy of Sciences Workshop, Access to Research Data: Assessing Risks and Opportunities. National Academy of Sciences. Washington, D.C., October 16-17, 2003.

"Comparison of alternative latent class clusterings of survey data." Contributed talk, Joint Statistical Meetings, American Statistical Association, Social Statistics Section. San Francisco, CA, August 2003.

"Using technology to connect topics and contrast scenarios technology" and "Internet sites and their use in introductory statistics." Invited talks, Conference "Beyond the Formula 7". Monroe Community College. Rochester, NY, July 2003.

MAITI, TAPS

"County level wind erosion estimation from National Resources Inventory surveys." Symposium on Monitoring Science and Technology. Denver, CO, 2004.

"Generalized mixed nonlinear modeling." Joint Statistical Institute meeting. Toronto, Canada, 2004.

"Nonnegative mean squared prediction error estimation in small area estimation." University of Southampton. Southampton, UK, 2004.

"Nonnegative mean squared prediction error estimation in small area estimation." University of British Columbia. British Columbia, Canada, 2004.

"Nonnegative mean squared prediction error estimation in small area estimation." University of Iowa. Iowa City, IA, 2004.

MAITRA, RANJAN

"Reliability assessment in fMRI Studies: A test-retest estimation approach." International Conference on Emerging Strategies for Improving Productivity, Quality and Reliability. Kolkata, India, 2003.

"A statistical perspective on data mining." Workshop on Data Mining and Bioinformatics. Kalyani, India, 2004.

MEEKER, JR., WILLIAM Q.

"Accelerated Destructive Degradation Test Planning." Presented at Joint Statistical Meetings. New York, NY, August 2003.

"Bayesian optimal planning for accelerated life tests." Invited paper presented at the International Society for Bayesian Analysis. Vina Del Mer, Chile, May 26, 2004.

"Comments on accelerated demonstration testing." Invited paper, joint with Harry Martz. Mathematical Methods in Reliability Conference (MMR2004). Santa Fe, NM, June 21, 2004.

"Experiences in the analysis of reliability data." Presented at General Electric Global Research Center. Schenectady, NY, July 29, 2003.

"Statistical methods for accelerated testing." Short course, HP. Corvalis, OR, January, 2004.

"Statistical methods for reliability data." American Statistical Association traveling short courses. New York, NY, September 25-26, 2003.

"Statistical methods for reliability data." Short course, Boeing Corporation. Seattle, WA, March 15-17, 2004.

"Statistical methods for reliability data." Short course, AMSAA. Aberdeen Proving Grounds. MD, July 14-16, 2003.

"Use of a transfer function model to predict field reliability from accelerated test data." Plenary address, Mathematical Methods in Reliability Conference (MMR2004). Santa Fe, NM, June 23, 2004.

"Using accelerated life tests results to predict field reliability." Seminar presented at IBM, T.J. Watson Research Center. Yorktown Heights, NY, April 5, 2004.

"Using accelerated life tests results to predict field reliability, workshop on survival and reliability." Presented at the International Statistical Institute Meeting. Berlin, Germany, August 20, 2003.

"Using accelerated tests to predict service life of organic materials subjected to outdoor weathering." Invited paper, Degradation Modeling and Analysis Conference. St. Petersburg, Russia, June 3-11, 2004.

"Using accelerated tests to predict service life of organic materials subjected to outdoor weathering." Invited paper, Mathematical Methods in Reliability Conference (MMR2004). Santa Fe, NM, June 23, 2004.

MORRIS, MAX

"Large incomplete factorial eesigns and uncertainty analysis of computer models." Joint Statistical Meetings. San Francisco, CA, 2003.

"Spatial design and variogram estimation." Department of Statistics, Kansas State University. Manhattan, KS, 2003.

"Input screening: Finding the important model inputs on a budget." Keynote lecture, SAMO 2004 (Sensitivity Analysis of Model Output). Sante Fe, NM, 2004.

"Statistical image analysis for toolmark forensics." Osborn Research Club. Iowa State University. Ames, IA, 2004.

NETTLETON, DANIEL S.

"Analysis of a large-scale split-split-plot experiment using the Affymetrix Barley1 GeneChip." Workshop on Statistical Methods in Microarray Analysis. Singapore, 2004.

"Using statistical design and analysis to detect differentially expressed genes in microarray experiments." University of Colorado Health Science Center. Denver, Colorado, 2004.

"The relationships among scan intensity, expression level, and the power to detect differential expression using cDNA microarrays." International Conference on the Analysis of Genomic Data. Harvard Medical School, 2004.

NUSSER, SARAH M.

"User responses to digital map tools on handheld computers." Joint Statistical Meetings. San Francisco,CA, 2003.

"CASIC developments at Iowa State University." FedCASIC Workshop. Washington, D.C., 2004.

"Using digital tools for collecting data in the June Area Survey." National Agricultural Statistics Service. Washington, D.C., 2004.

OPSOMER, JEAN D.

"Replication variance estimation in the National Resources Inventory." Joint Statistical Meetings. Toronto, ON, Canada, 2003.

"Nonparametric small area estimation for the Northeastern Lakes survey." Workshop on Statistical Survey Design and Analysis for Aquatic Resources. Corvallis, OR, 2003.

"Discussion of 'Computational statistics in the environmental sciences.' " 54th Session of the International Statistical Institute. Berlin, Germany, 2003.

"Nonparametric estimation in complex surveys with auxiliary information." 54th Session of the International Statistical Institute. 2003.

"Two applications of nonparametric regression in survey estimation." University of New South Wales. Sydney, Australia, 2003.

"Two applications of nonparametric regression in survey estimation." Canberra Chapter of the Statistical Society of Australia. Canberra, Australia, 2003.

"Two applications of nonparametric regression in survey estimation." University of Western Australia. Perth, Australia, 2003.

"Two applications of nonparametric regression in survey estimation." North Carolina State University. Raleigh, NC, 2004.

"Theory and methods for nonparametric regression estimators." Federal Committee on Statistical Methodology. Washington, D.C., 2004.

ROBERTS, CARL W.

"A web-based simulation built on constructivist learning." With Lei Zhu. E-Learn Conference. Phoenix, AZ, 2003.

"Reading personhood." With Yong Wang. American Sociologial Association meeting. Atlanta, GA, 2003.

ROLLINS, SR., DERRICK K.

"Continuous-time block-oriented predictive modeling of the human thermoregulatory system." With N. Bhandari and S. Hulting. AIChE Annual Meeting. Austin, TX, 2004.

"Compact block-oriented continuous-time dynamic modeling for nonlinear systems under sinusoidal input sequences." With D. Zhai and N. Bhandari. The IASTED Intelligent Systems and Control Conference. Honolulu, HI, 2004.

SHELLEY, II, MACK C.

"Effect size." Project HOME Research Group, Iowa State University. Ames, IA, 2003.

"The impact of work motivations and location on the academic performance of college students." Iowa Educational Research and Evaluation Association Annual Conference. Ames, IA, 2003.

"The redesign of mathematics 150: Impact and statistical analysis." Department of Statistics Seminar, Iowa State University. Ames, Iowa, 2004.

"Writing outcome statements." Learning Community Assessment Subcommittee Forum. Iowa State University. Ames, Iowa, 2004.

"Contextual teacher preparation: Cohort effects on student teacher self-efficacy." American Educational Research Association. San Diego, CA, 2004.

"Relationship among risk factors for nephrolithiasis, cardiovascular disease, and ethnicity in a law enforcement cohort." 6th Annual Southeastern Wisconsin Nursing Research Conference. Milwaukee, WI, 2004.

"Generational differences in informational technology use & political involvement." 2004 National Conference on Digital Government Research. Seattle, WA, 2004.

"Predictors of academic success for freshmen residence hall students." Association for Institutional Research 2004 Annual Forum. Boston, MA, 2004.

"Multicollinearity." Project HOME research group. Iowa State University. Ames, IA, 2003.

" 'What is assessment?." Vice President for Student Affairs Assessment Team Retreat. Iowa State University. Ames, IA, 2003.

"Digital citizenship: Parameters of the digital divide." Joint Statistical Meetings. San Francisco, CA, 2003.

"Parameters of the digital divide." Iowa State Institute of Science and Society, Iowa State University. Ames, IA, 2003.

"Some applications of statistics in political science." Iowa Stat-ers. Iowa State University. Ames, IA, 2003.

"Longitudinal panel data analysis: Applications to the NE167 community data." NE167 Technical Committee. Des Moines, IA, 2003.

"Service-learning and the digital divide." International Conference on Civic Education Research. New Orleans, LA, 2003.

"Housing in rural communities." Center for Family Policy Seminar. Institute for Social and Behavioral Research. Ames, IA, 2003.

STEPHENSON, W. ROBERT

"Resampling statistics: Not just for statisticians anymore." 2003 Joint Statistical Meetings. San Francisco, CA, 2003.

"Logistic regression." 2004 Annual Meeting of the National Council of Teachers of Mathematics. Philadelphia, PA, 2004.

VARDEMAN, STEPHEN B.

"Hierarchical Bayes analyses for a calibration experiment." Joint National Meeting of ASA, Biometric Society and IMS. San Francisco, CA, 2003.

"Confidence set estimation from rounded/digital normal data." Statistics Department Colloquium, University of Dortmund. Dortmund, Germany, 2003.

"Confidence set estimation from rounded/digital normal data." Mathematics Department Colloquium, University of Augsburg. Augsburg, Germany, 2003.

"Likelihood-based inference in some continuous exponential families with unknown threshold parameters." Ludwig Maximilian University Statistics Department Colloquium. Munich, Germany, 2003.

"Advanced SPC." Annual AICE Conference, ASQ Automotive Division. Davenport, IA, 2004.

WU, HUAIQING

"An algorithm for computing the mean cumulative function and its standard error." Spring Research Conference on Statistics in Industry and Technology. National Institute of Standards and Technology. Gaithersburg, MD, 2004.

CONTRACTS & GRANTS 2002-03

AMERICAN HEART ASSOCIATION

Koehler, Kenneth J., Co-PI.
With: Manju B. Reddy (PI). Soy isoflavones and cardiovascular disease risk. 2003-2006. $120,996.

AMERICAN STATISTICAL ASSOCIATION (ASA)

Maiti, Taps, PI. Travel grant to attend International Statistical Institute meeting in Berlin. 2003. $1,900.

AT&T

Meeker, Jr., William Q., PI. Private instruction and consulting on the technical material in and related to Professor Meeker's book. *Statistical Intervals*. 2000-2010.

BAE SYSTEMS

Nusser, Sarah, M., PI.
With: L. M. Miller, Goodchild and Clarke. Mobile computing. 2004. $65,000.

BARD IS

Brendel, Volker, Co-PI.
With: Robert Fluhr (PI). Harnessing the genetic diversity engendered by alternative gene splicing. 2003-2006. $130,000.

BUREAU OF LABOR STATISTICS

Opsomer, J. D., PI. Evaluation of small area estimation approaches for the current employment survey. 2003-2005. $24,768.

CIAG RESEARCH SUPPORT PROGRAM

Dorman, Karin, PI. Building a comprehensive model of pathogen-host interactions during persistent infection. 2004-2006. $22,000.

DUXBURY PRESS, DUXBURY/WADSWORTH/THOMPSON PUBLISHING

Larsen, Michael D., PI. Internet Companion to Statistics. 2002-2005.

ENVIRONMENTAL PROTECTION AGENCY (EPA), OREGON STATE UNIVERSITY

Opsomer, Jean D., Co-PI
With: F. Jay Breidt. Nonparametric model-assisted survey estimation for aquatic resources. 2001-2005. $150,000. ISU share $75,333.

FEDERAL AVIATION ADMINISTRATION (FAA)

Meeker, Jr., William Q., Co-PI. Thermal acoustic studies of engine disk materials source of support. 2004-2007. $995,000.

FAA, ISU CENTER FOR NONDESTRUCTIVE EVALUATION, ALLIED SIGNAL PROPULSION ENGINES, GENERAL ELECTRIC AIRCRAFT ENGINES, PRATT & WHITNEY

Meeker, Jr., William Q., Co-PI.
With: Lisa Brasche (PI). Phase II engine titanium consortium. 1993 - Present.

HEALTHY LIVESTOCK INITIATIVE COMPETETIVE GRANTS PROGRAM

Dorman Karin S., Co-PI.
With: Susan Carpenter (PI). Genetic and computational analysis of virus evolution. 2002-2003.

IOWA BOARD OF REGENTS

Shelley, II, Mack C., PI. Evaluation study of board of regents Title IIa. 2004-2005.

IOWA DEPARTMENT OF EDUCATION

Shelley, II, Mack C., Development of an area education agency cost efficiency study.

Shelley, II, Mack C., PI. Response to the United States Department of Education, Office of Civil Rights' (OCR) request that Iowa students requiring special education be assigned categorical disability labels for purposes of OCR's data collection requirements.

Shelley, II, Mack C., Co-PI.
With: Carl Smith, Marion Panyan and Kelli Tallman. Iowa positive behavioral support for children and youth. 2002-2006. $607,101.

IOWA DEPARTMENT OF EDUCATION, BUREAU OF CHILDREN, FAMILY & COMMUNITY SERVICES

Shelley, II, Mack C., PI.
With: Barbara Ohlund (Co-PI). Focus groups on evaluation of special education programs in the State of Iowa.

IOWA DEPARTMENT OF EDUCATION, MATHEMATICS AND SCIENCE PARTNERSHIPS PROGRAM

Shelley, II, Mack C., PI. Improving elementary science by connecting science inquiry and language arts. 2004-2007.

IOWA DEPARTMENT OF PUBLIC HEALTH

Shelley, II, Mack C., Co-PI.
With: Mary Jane Oakland and Grace Marquis. Improving how WIC teaches nutrition: Using stages of change criteria and critical thinking skills to teach about vegetables. 2002-2004.

IOWA DEPARTMENT OF REVENUE

Vardeman, Stephen B., PI. Research collaboration between tax research and program analysis section. 2004-06. $40,000.

IOWA DEPARTMENT OF TRANSPORTATION

Carriquiry, A. L., PI. Bayesian analysis of traffic safety data. 2004. $40,000.

ISU, AGRONOMY DEPARTMENT ENDOWMENT

Opsomer, Jean D., Co-PI.
With: R. D. Cruse, W. James, J. Laflen Krajewski and D. Todey. Daily soil erosion and water runoff estimates in Iowa. 2001-2004. $292,292 total, $67,789 statistics share.

ISU CENTER FOR NONDESTRUCTIVE EVALUATION, PRATT & WHITNEY

Meeker, Jr., William Q., Co-PI.
With: Lisa Brasche (PI). Development and integration of inspection technology for damage in on-wing engine configurations. 2000-2003.

Meeker, Jr., **William Q.**, Co-PI.
With: Lisa Brasche (PI). Dual angle phased array multiple axis ultrasonic testing system-reliability calculations and inspectability support. 2003-2005. $1,008,000.

Meeker, Jr., **William Q.**, Co-PI.
With: Lisa Brasche (PI). Reliability calculations and inspectability support for contoured shapes titanium forgings, including POPD calculations. 2003.

ISU, CENTER FOR ONLINE LEARNING GRANT

Cook, Dianne, PI.
With: **W. Robert Stephenson**, **Amy G. Froelich** and **William M. Duckworth, II**. 2002-2003.

ISU, INSTITUTE OF SCIENCE AND SOCIETY

Sherman, Peter J., Co-PI. Characterization and prediction of public attitudes toward bioterrorism. 2005.

ISU, LAS COMPUTER ADVISORY COMMITTEE (LASCAC)

Hofmann, Heike. Mysql database for online storage of course material. 2003-2004. $4,000.

Roberts, Carl, W., PI. A web-based applet for teaching the concept of statistical control. 2002-2003.

ISU, P & S GRANT

Rollins, Sr., Derrick K., Co-PI.
With: Anita Rollins. Science bound's learn and earn program and its impact on student success and program retention. 2003.

ISU, PIONEER HI-BRED INTERNATIONAL, INC.

Isaacson, Dean L., PI. Research Opportunity Agreement. 2002-2003.

ISU, PLANT SCIENCES INSTITUTE

Brendel, Volker, PI. Identification of alternatively spliced genes in arabidopsis. 2001-2003.

ISU, UNIVERSITY RESEARCH GRANT

Caragea, Petrutza C., Co-PI. Spatial analysis for local public finance decision support. 2004-2005.

JOHN DEERE FOUNDATION

Vardeman, Stephen B., PI. Quality and reliability research. 2003-2005.

JOHN DEERE TECHNOLOGY CENTER

Cook, Dianne, Co-PI.
With: Julie Dickerson (PI) and Carolina Cruz-Neira. Research Opportunity Agreement. 2001-2004. $150,000.

MATHEMATICA POLICY RESEARCH

Carriquiry, Alicia L. Assessing the diet of high risk subgroup using the dietary reference intakes. 2001-2003.

MILLER FACULTY FELLOWSHIP

Stephenson, W. Robert, PI.
With: William M. Duckworth, II and Amy G. Froelich. Engaging students in statistical discovery. 2003.

NATIONAL CENTER FOR HEALTH STATISTICS

Larsen, Michael D., PI. Advanced record linkage using hierarchical mixture models applied to health survey and administrative data. 2004-2005. $20,000.

NATIONAL INSTITUTE FOR HEALTH (NIH)

Dorman, Karin S., Co-PI.
With: Susan Carpenter (PI). Multilocus selection of lentivirus variants. 2002-2004. $289,700.

Dorman, Karin S. Co-PI.
With: Susan Carpenter (PI). Quasispecies evolution during lentivirus persistence. 2002-2003.

Koehler, Kenneth J., Co-PI.
With: Diane F. Birt (PI). Energy restriction, cell signaling and cancer prevention. 1998-2003.

NIH, JOHN HOPKINS UNIVERSITY

Maitra, Ranjan, PI. Imagining analysis. 2004-2009. $302,764.

NIH, NATIONAL INSTITUTE ON AGING (NIA)

Lorenz, Frederick O., Co-PI.
With: Carol Magai. Ethnicity and socioemotional functioning in later life. 2002-2007. $1,360,040.

NIH, NATIONAL INSTITUTE OF ARTHRITIS,MUSCULOSKELETAL, AND SKIN DISEASES

Koehler, Kenneth J., Co-PI.
With: D. Lee Alekel (PI). Bone response to soy isoflavones in women. 2002-2007. $3,382,663.

NIH, NATIONAL INSTITUTE ON DRUG ABUSE

Amemiya, Yasuo, Co-PI.
With: Richard Spoth (PI). Rural youth and families competencies building project. 9/18/02-6/30/03.

NIH, NIEHS, RESEARCH CENTER FOR BOTANICAL PRODUCTS

Dixon, Philip M. and **Mark S. Kaiser**, Co-PIs.
With: Diane Birt (PI). Integrated research on Echinaceae and Hypericum herbal medicines. 2002-2007. $6,069,636.

Koehler, Kenneth J., Co-PI.
With: D. Lee Alekel (PI). Effect of soy isoflavones on body composition in postmenopausal women. 2004-2005. $39,980.

NIH, NIGMS

Dorman, Karin S., PI. Statistical, computational, and genetic analysis of HIV recombination. 2003-2007. $972,720.

NIH, NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH)

Bonett, Douglas G., Co-PI.
With: D. L. Vogel, C. E. Cutrona and R. J. Werner-Wilson. Physiological effects of marital conflict. 2003-2004.

Lorenz, Frederick O., Co-PI.
With: Cheryl Beuchler (PI). Interparent conflict and youth maladjustment. 2000-2005.

Lorenz, Frederick O., PI.
With: Conger, Simons, Bryant and Wickrama. Midlife adaptation and health in rural society. 2000-2004. $916,700.

Lorenz, Frederick O., Co-PI.
With: Conger, Simons, Bryant and Wickrama. Critical transitions in rural families at risk. 2001-2004. $1,003,764.

Lorenz, Frederick O., Co-PI.
With: R. Gibbons, (PI). Factors influencing African-American youths' health behaviors. 2001-2004. $2,914,033.

NIH, NATIONAL SCIENCE FOUNDATION (NSF)

Brendel, Volker, PI.
With: **Dan Nettleton** and **Karin Dorman**. Summer institute in bioinformatics and computational biology -Iowa State University. 2002-2006. $645,000.

Dorman, Karin S., Co-PI. BBSI summer institute in bioinformatics and computational biology. 2003-2007. $645,000.

NIH, NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE, PARKINSON'S DISEASE FOUNDATION, NATIONAL PARKINSON'S FOUNDATION

Koehler, Kenneth J., Co-PI.
With: Ann L. Smiley-Owen (PI). Motor learning and transfer in PD and cerebellar dysfunction. 2001-2003.

NIH, UNIVERSITY OF FLORIDA

Koehler, Kenneth J., Co-PI.
With: Mike Daniels (PI). Covariance estimation in longitudinal cancer data. 2004.

Maiti, Tapabrata, PI. Bayesian neural networks for a prostate cancer study. 2001-2004. $141,567.

NATIONAL INSTITUTE OF JUSTICE

Morris, Max D., Co-PI.
Characterization of toolmarks. 2004-2006. $390,000.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

Meeker, William Q., PI. Statistical modeling of service life prediction. Contract with Atlas Material Testing Technology. 2004-2006. $30,000.

Meeker, William Q., PI. Statistical modeling of service life prediction. Contract with Sherwin Williams Company. 2004-2006. $30,000.

NATIONAL K-12 FOREIGN LANGUAGE RESOURCE CENTER AT ISU, AMERICAN COUNCIL ON THE TEACHING OF FOREIGN LANGUAGES

Shelley, II, Mack C., Co-PI.
With: Marcia Rosenbusch (PI). New visions in foreign language education survey.

NATIONAL SCIENCE FOUNDATION (NSF)

Adams, Dean C., PI. CAREER: Evolutionary community ecology in plethodon salamanders. 2001-2010. $500,885.

Bonett, Douglas G., PI.
With: Bushman, B. J. Using prior kurtosis information to improve confidence intervals for standard deviations. 2003-2004.

Brendel, Volker, PI. Efficient web-based serving of consolidated multi-source biological sequence data extracts. 2001-2003.

Brendel, Volker, PI. Plant GDB - plant genome database and analysis tools. 2004-2006. $978,683.

Brendel, Volker, Co-PI.
With: Srinivas Aluru (PI). CISE research resources: Acquisition of a cluster for experimental parallel computing research in scientific computing and computational biology. 2001-2004.

Brendel, Volker, Co-PI.
With: Srinivas Aluru (PI). Parallel algorithms and software for gene identification and annotation from EST collections. 2002-2004.

Carriquiry, Alicia L., PI. Ninth Latin American congress on probability and mathematical statistics. 2004. $16,500.

Carriquiry, Alicia L., PI. International Society for Bayesian analysis. 2004. $12,000.

Cook, Dianne, PI.
With: Vasant Honavar and Les Miller. Large scientific visualization program. 1999-2003. $370,000.

Cook, Dianne, Co-PI.
With: Eve Wurtele and Julie Dickerson. Visualizing and modelling global expression data in Arabidopsis. 2002-2005. $91,646.

Hofmann, Heike, Co-PI. Functional genomics of the biotin metabolic network for Arabidopsis. 2004-2006. $379.996.

Isaacson, Dean L., Co-PI.
With: Phil Kutzko. Iowa alliance for graduate education and the professoriate. 2002-2007. $2,400,000.

Isaacson, Dean L., Co-PI.
With: Phil Kutzko. The alliance for the production of African American PhD's in the mathematical sciences. 2002-2005. $1,800.00.

Kaiser, Mark S., PI.
With: **Dean L Isaacson**. VIGRE-Department of Statistics. 2001-2006. $1,800,000.

Lahiri, Soumendra N., PI. Higher order accuracy of Bootstrap methods for temporal and spatial patterns. 2001-2003.

Lahiri, Soumendra N., PI. Research grant. 2000-2004. $143,000.

Lahiri, Soumendra N., PI. Research grant. 2003-2006. $226,000.

Maiti, Tapabrata, PI. Topics in small area estimation. 2003-2006. $160,033.

Maitra, Ranjan, PI. CAREER: Methodology for statistical computing in massive datasets–parallel approaches to clustering and MCMC estimation. 2003-2008. $400,017.

Meeker W Q., PI.
With: **A.L.Carriquiry**, **D.H. Cook**, , **R. Maitra**, , **D.S. Nettleton**, , **J.D.Opsomer**,
Computing equipment to support research in statistics. SCREMS program. 2004-2006. $127,000.

Nettleton, Daniel S., Co-PI.
With: Stephen H. Howell (PI). Regulation of shoot development in Arabidopsis. 2003-2006. $399,964.

Nettleton, Daniel S., Co-PI.
With: Scanlon, Buckner, Janick-Buckner, Timmermans, Schnable (PI). Functional analyses of genes involved in meristem organization and leaf initiation. 2003-2007. $3,939,129.

Nusser, Sarah M., PI.
With: L. M. Miller, M. F. Goodchild and K. Clarke. Collecting and using geospatial data in the field: An extensible framework and testbed. 2000-2004. $65,000.

Nusser, Sarah M., PI.
With: L. M. Miller, Oliver, M. F. Goodchild, K. Clarke, Turk and Höllerer. Geospatial knowledge in complex mobile field settings. 2003-2006. $225,000.

Nusser, Sarah M., PI.
With: **Tapabrata Maiti** and L. M. Miller (Co-PIs). Enabling the creation and use of geogrids for next generation geospatial information. (Subcontract from Univeristy of Maine). 2002-2004.

Nusser, Sarah M., PI.
With: **H. Stern** and L. Miller. GeoGrid: An extensible resource for next generation geospatial data. 2001-2005. $450,000. (Subcontract from University of Maine.)

Opsomer, Jean D., Co-PI.
With: F. Jay Breidt. Theory and methods for nonparametric survey regression estimation. 2002-2004. $136,000 total, $65,036 ISU share (funded jointly by DMS and MMS programs).

Shelley, II, Mack C., PI.
With: B. Hand. Education research meets the gold standard: Statistics and mathematics applications in science, reading, and research methodology. 2004-2005. $85,000.

Shelley, II, Mack C., Co-PI.
With: Rover, Dickerson, Mina and Flugrad. Vertical integration of computer, electrical and mechanical engineering education. 2004-2005. $99,986.

Shelley, II, Mack C., Co-PI
With: Stuart Shulman (PI). Digital citizenship: expanding information technology literacy with a service-learning approach. (ITR grant.) 2001-2004.

Stephenson, W. Robert, PI.
With: **William M. Duckworth, II** and **Amy G. Froelich**. Conceptual statistics: Engaging students in statistical discovery. (Curriculum and Laboratory Improvement Program.) 2003-2005. $74,976.

Yang, Yuhong, PI. Adaptive regression for dependent data by combining different procedures. (Faculty Early Career Development (CAREER) Program.) 2001-2006.

NSF, AMERICAN STATISTICAL ASSOCIATION (ASA), BUREAU OF LABOR STATISTICS

Opsomer, J. D., PI. Semiparametric estimation for the current employment statistics survey. 2003. $71,727.

NSF, ISU

Brendel, Volker, Co-PI.
With: Sarah Hake (PI). Regulation of inflorescence architecture in maize. (Subcontract from ISU.) 2001-2006.

Brendel, Volker, Co-PI.
With: Virginia Walbot (PI). Maize gene discovery, sequencing and phenotypic analysis. (Subcontract from ISU.) 2002-2004.

NSF, NATIONAL INSTITUTE OF STATISTICAL SCIENCES (NISS)

Larsen, Michael D., PI. Research on interagency data sharing, confidentiality, and record linkage. 2004-05. $12,730.

NATIONAL UNIVERSITY OF SINGAPORE

Chen, Song X. PI. Applications of empirical likelihood in semi- and non-parametric statistical influence. 2002-2003. $46,306.

Chen, Song X. PI. Computer-intensive statistical methods for testing specifications of financial market models. 2001-2004. $88,000.

PEW FOUNDATION GRANT

Shelley, II, Mack C., Co-PI.
With: Wolfgang Kleimann (PI). Course redesign for revising delivery of discrete mathematics. 2002-2004.

PIONEER HI-BRED INTERNATIONAL, ISU

Koehler, Kenneth J., PI. Research Opportunity Agreement to support plant breeding research. 2004-05. $28,099.

US DEPARTMENT OF AGRICULTURE (USDA)

Cook, Dianne, Co-PI.
With: Roger Wise, Julie Dickerson (PI), **Daniel Nettleton** and **Volker Brendel**. BarleyBase, a prototype online database for cereal microarrays with integrated tools for data visualization and statistical analysis. 2002-2005. $406,654.

Nettleton, Daniel S., Co-PI.
With: Baenziger, Gill and Eskridge (PI). The genetic basis of agronomic traits controlled by chromosome 3A in wheat. 2000-2003. $250,000.

Nettleton, Daniel S., Co-PI.
With: Tuggle, Geisert, Lunney, Reecy (Co-PI). Identifying molecular genetic mechanisms controlling pig litter size: Expression profiling of peri-implantation conceptus and endometrium. 2003-2006. $300,000.

USDA, AGRICULTURE RESEARCH SERVICE (ARS)

Brendel, Volker, PI. Database of maize genome information (DBMGI) - a new generation maize genome database. 2001-2006. $809,035.

USDA, CENTER FOR VETERINARY BIOLOGICS

Koehler, Kenneth J., PI. Research Agreement to support development of statistical methodology. 2004-2005. $23,289.

USDA, ECONOMIC RESEARCH

Carriquiry, Alicia L., PI. Using the new dietary reference intakes to assess nutrient adequacy.

USDA, FOREST SERVICE ROCKY MOUNTAIN RESEARCH STATION

Opsomer, Jean D. Co-PI.
With: F. Jay Breidt. Nonparametric model-assisted survey estimation for forest resources. 2001-2005. $99,995.

USDA, NATIONAL AGRICULTURAL STATISTICS SERVICE

Fuller, Wayne A., PI. Survey design and estimation. 10/01/00-09/30/04.

USDA, NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

Nusser, Sarah M., PI.
With: **Wayne A. Fuller**. National soils databases. 2000-2003.

Nusser, Sarah M., PI.
With: **Jean D. Opsomer**, **Tapabrata Maiti** and **Michael D. Larsen**. Statistical and survey methods for the National Resources Inventory. 2003-2005. $2,180,000.

Nusser, Sarah M., PI.
With: **Jean D. Opsomer**, **Tapabrata Maiti**, **Michael D. Larsen** and **Cindy Yu**. Statistical and survey methods for the National Resources Inventory. 2004- 2005. $2,226,842.

USDA, NATIONAL RESEARCH INITIATIVE (NRI)

Dixon, Philip M. Co-PI.
With: M. Liebman (PI). Understanding weed dynamics in contrasting crop rotation systems: Combining a pulse/field experiment and matrix models. 2002-2006. $265,000.

Dixon, Philip M. Co-PI.
With: K-J Yoon (PI). Genetic and antigenic evolution of PRRS virus in persistently infected pigs. 2002-2005. $250,000.

Shelley, II, Mack C., Co-PI.
With: Chris Cook and Sue Crull. Local housing decisions and the economic vitality of rural communities. Initiative Rural Development.

US DEPARTMENT OF DEFENSE, AIR FORCE RESEARCH LABORATORY

Vardeman, Stephen B., PI.
With: **Max D. Morris.** Modeling and decision analysis for threat warning based on the time evolution of sensed electromagnetic spectra. 2004-2005. $70,000.

US DEPARTMENT OF EDUCATION, IOWA ASSOCIATION OF SCHOOL BOARDS

Shelley, II, Mack C., Co-PI.
With: Mari Kemis (PI). Evaluation of the lighthouse project. 2002-2007. $75,720.

US DEPARTMENT OF EDUCATION, NATIONAL CENTER FOR EDUCATION STATISTICS

Shelley, II, Mack C., Co-PI.
With: Sarah Lubienski (PI). A closer look at mathematics achievement and instructional practices: Examinations of race, SES, and gender in a decade of NAEP data. 2002-2004.

US DEPARTMENT OF JUSTICE

Morris, Max D., Co-PI.
With: Stan Bajic and David Baldwin. Statistical tools for forensic analysis of toolmarks. 2002-2003. $95,000.

US DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS

Nusser, Sarah, M., PI. Strategies for improving abilities to use digital maps. 2002-2004. $25,000.

US GEOLOGICAL SURVEY

Dixon, Philip M., PI. Analysis of Missouri River fish community data. 2004-2005.

Kaiser, Mark S., PI.
With: **Philip Dixon**. Spatial prediction of sediment categories for use in ecological response modeling. 2002-2004.

WELLS FARGO, INC., ISU

Isaacson, Dean L., PI. Joint Statistical Agreement. 2002-2003.

Koehler, Kenneth J., PI. Research Agreement to support development of statistical methodology. 2004-2005. $25,219.

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& Department of Statistics

Ken Koehler, Chair and Director