Statistical Laboratory & Department of Statistics

Annual Report
July 1, 2004 to June 30, 2005

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

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DEPARTMENT OVERVIEW
2004-05

This has been another great year for the Department of Statistics and the Statistical Laboratory. We have recruited five excellent new faculty members to join us in the fall of 2005. Karen Kafadar will join us as the Baker Chair for Bioinformatics and Biological Statistics. Dan Nordman, Arka Ghosh, Cindy Yu and Peng Liu will join us as assistant professors and provide an exciting young core in statistical theory with interests in stochastic network analysis, extreme statistics, genomics, spatial and financial statistics. We also continue to attract excellent graduate students to our graduate and undergraduate programs. Over the last five years the number of PhD students enrolled in our PhD program has increased from about 50 to over 90 students, bringing the total number of graduate students to approximately 180. During the same time, the number of undergraduate statistics majors has nearly doubled. We have received valuable support for these efforts from: an NSF-sponsored VIGRE program; private support from the Eli Lilly Foundation, Procter & Gamble Corporation, Glaxo/Smith/Klein and the Belin Foundation; research assistantships at Pioneer Hybrid and Wells Fargo; and scholarships provided by the generous support of our alumni.

We are extremely pleased to announce a new Research Training Grant (RTG) from the National Science Foundation (NSF) to train PhD students with interest in the application of statistics in the engineering and physical sciences that will begin next year. This program will enable PhD students to spend a year at a research laboratory of one of our government or corporate partners, and it provides support exchanges between our faculty and researchers at our partnering laboratories. This program will make a significant contribution to developing future faculty with the training and experience needed to make valuable contributions to problems of significant importance to government and corporate research. Research centers interested in joining this effort or students with an interest to enroll in the PhD program or to pursue a postdoctoral appointment are encouraged to contact our department.

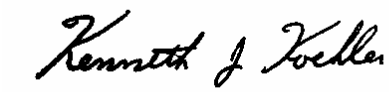
After reorganizing the Survey Sampling Group in the Statistical Laboratory as the Center for Survey and Statistical Methodology (CSSM), Sarah Nusser stepped down as Director to devote more time to research and teaching. Jean Opsomer assumed the director duties in January, and CSSM continues to thrive under his leadership. Sarah will continue to lead the National Resource Inventory, and Jean will help CSSM to become more engaged with research in the social and environmental sciences.

Interest and opportunities in statistical genomics and proteomics continue to grow at a rapid pace. We have responded by developing new courses in the design and analysis of microarray experiments and statistical genomics and reorganizing a course in stochastic processes. Our faculty is engaged in numerous collaborative research projects and we hope to add additional faculty members in the near future to help us meet increasing requests from the agricultural, environmental, nutritional, and veterinary sciences.

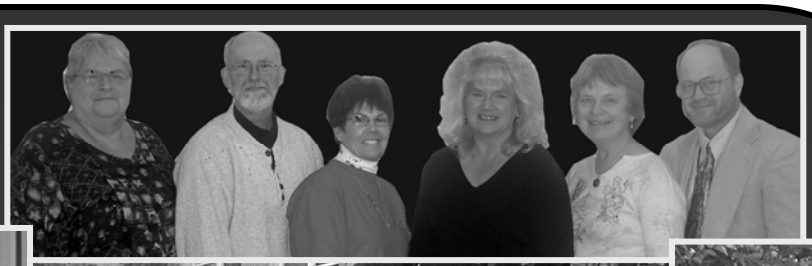
Our programs in statistical computing and visualization and graphics are on the rise. Dianne Cook and Heike Hofmann are building a program in visualization and graphics that is receiving increasing international recognition. We have also advanced our computation support for statistics research with the installation of a computing cluster obtained through support from the NSF SCREMS program with assistance from the College of Liberal Arts and Sciences and the College of Agriculture. Ranjan Maitra will offer a new PhD level course in statistical computing.

Our faculty continues to distinguish itself through research, teaching, awards and invitations to serve the profession. A recent NSF report lists the mathematical sciences at Iowa State University among the top ten programs in the country with respect to research support received from national research institutes.

I invite you to read about the many things we have accomplished in the past year and to visit or contact our department if you want to learn more about us or are interested in supporting our activities. We welcome suggestions for future initiatives.



Kenneth J. Koehler,
Chair of the Department of Statistics and
Director of the Statistical Laboratory



2005 25-Yr Club Members: Sharon Shepard, Bob Stephenson, Nancy Heathman, Kathie Reinertson, Kathy Shelley and Mack Shelley

Howard Butler Professional and Scientific Outstanding New Professional Award

Amy Froelich ISU Foundation Award for Early Achievement in Teaching

Derrick Rollins ISU Engineers' Week 2004 Outstanding Professor in Chemical Engineering

Holly C. Fryer
12/6/1908 – 11/7/2004
Received ISUs first PhD major in Statistics in 1940 (photo above 1992 visit to Snedecor)

Dean Isaacson Presidential Service Award

PERSONNEL

Visiting Faculty

Kang, Shin-Soo, (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, Professor Emeritus

Cox, David F., University Professor Emeritus

David, Herbert A., Distinguished Professor Emeritus

David, Herbert T., University Professor Emeritus

Fuller, Wayne A., Distinguished Professor Emeritus, Center for Survey and Statistical Methodology (CSSM)

Groeneveld, Richard, University Professor Emeritus

Harville, David A., Professor Emeritus

Hickman, Roy D., Professor Emeritus

Hinz, Paul, University Professor Emeritus

Hotchkiss, Donald K., Professor Emeritus

Pollak, Edward, Professor Emeritus

Strahan, Robert F., Professor Emeritus

Sukhatme, Shashikala, Associate Professor Emerita

Wolins, LeRoy, Professor Emeritus

Professors

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

Bailey, **Theodore B.**

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

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

Carriquiry, Alicia L., Co-Director of Graduate Education

Dixon, Philip M.

Isaacson, Dean L., Co-Director of Graduate Education

Kafadar, Karen, Laurence H. Baker Chair of Biological Statistics

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 Department of Sociology

Meeker Jr., William Q., Distinguished Professor

Morris, Max D., Joint appointment with the Department of Industrial and Manufacturing Systems Engineering

Nusser, Sarah M., CSSM

Shelley II, Mack C., Joint appointment with the Department of Educational Leadership and Policy Studies

Stephenson, W. Robert, University Professor

Vardeman, Stephen B., University Professor, Joint appointment with the Department of Industrial and 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 Director (01/01/2005)

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

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

Sherman, Peter J., Joint appointment with the Department of Aerospace Engineering and Engineering Mechanics

Wu, Huaiqing

Yang, Yuhong

Assistant Professors

Adams, Dean C., Courtesy appointment through the Department Ecology, Evolution and Organismal Biology

Caragea, Petrutza C.

Dorman, Karin S., Joint appointment with the Department of Genetics, Development and 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
Lessard, Roni, 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

Visiting Postdoc

Bhattacharya, Sabyasachi

Professional and Scientific Staff

Anderson, Dianne, Assistant Director, Center for Survey Statistics & Methodology (CSSM)
Anderson, Linda, Systems Analyst I, CSSM
Bell, Andrew, Manager Information Technology II, CSSM
Butler, Howard, Systems Analyst III, CSSM
Dorsch, Richard, Systems Analyst III, CSSM
Fliehler, Karen, Program Assistant II, CSSM
Hanrath, Scott, Systems Analyst I, 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 III, CSSM
Peterson, C. Ted, Systems Analyst II, Statistical Laboratory
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
Zengin, Ozkan, Assistant Scientist, CSSM

Support Staff

Ashley, Glenda, Secretary II, CSSM
Elwick, Norma, Secretary II
Gupta, Vemi, Clerk II, CSSM
Heathman, Nancy, Account Specialist, CSSM
La Grange, Jeanette, Clerk Typist III
Martinez, Sherri, 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
Ferraz, Cristiano	Fall 2004
Furukawa, Kyoji	Summer 2004
Landes, Reid D.	Spring 2005
Sun, Shuxia	Summer 2004
Zhang, Zhongqi	Summer 2004

M.S. Graduates

Name	Graduation
Asplund, Ian C.	Spring 2005
Brown, Tamara J.	Fall 2004
Burger, Jude	Summer 2004
Demirkale, Cumhur	Summer 2004
Diao, Lixia	Summer 2004
Eke, Alp	Summer 2004
Elci, Okan Umit	Fall 2004
Gardner, Stuart W.	Spring 2005
Gray, Nichole M.	Summer 2004
Guan, Jie	Summer 2004
Guo, Can	Summer 2004
Guo, Rong	Spring 2005
Hayes, Brian	Summer 2004
Hoekstra, Peter	Summer 2004
Jeon, Yongsik	Spring 2005
Jie, Fei	Spring 2005
Li, Kejian	Summer 2004
Li, Tianyu	Fall 2004
Li, Yan	Spring 2005
Liang, Kun	Spring 2005
Liu, Juan	Fall 2004
Lohse, Christine M.	Fall 2004
Lu, Pengcheng	Summer 2004
Maxson, Melanie	Summer 2004
Ozawa, Haishin	Summer 2004
Pan, Yijiang	Spring 2005
Ramler, Ivan	Summer 2004
Reising, Monica M.	Spring 2005
Solanki, Aparna	Summer 2004
Stevens, Susanna R.	Spring 2005
Sun, Donglin	Summer 2004
Thostenson, Jeffrey D.	Spring 2005
Wang, Changxue	Spring 2005
Wang, Mingjuan	Spring 2005

White, Emile V.	Spring 2005
Yan, Jun	Spring 2005
Yang, Chunyu	Summer 2004
You, Lifeng	Fall 2004
Zhang, Bin	Spring 2005
Zhang, Linghong	Summer 2004
Zhao, Honghua	Summer 2004

B.S. Graduates

Name	Graduation
Briar, Jessica	Spring 2005
Brown, Megan	Spring 2005
Darbyshire, Megan	Spring 2005
Elliott, Joshua	Spring 2005
Fick, Karl	Spring 2005
McFadden, Lisa	Spring 2005
Parra, Stephanie	Summer 2004
Varganova, Elena	Spring 2005
Wrobel, Brian	Spring 2005
Wu, Ya-Fang	Fall 2004
Zaletel, Justin	Spring 2005

Current Students

Ph.D. Students

BOTTS, Carsten (USA)
CAMANO-GARCIA, Gabriel (Uruguay)
CHATTERJEE, Arindam (India)
CHEN, Lihua (China)
CHAPMAN, Jessica (USA)
CRAFT, Jeremy (USA)
DANCIK, Garrett (USA) (co-major w/Bioinformatics and Computational Biology)
DECOOK, Rhonda (USA)
DEMIRKALE, Cumhur (Turkey)
DIAO, Lixia (China)
ESKER, Paul (USA) (co-major: Plant Pathology)
FERRAZ, Cristiano (Brazil)
FURUKAWA, Kyoji (Japan)
GAO, Chunwang (China)
GRAHAM, Rachel (USA)
HALVORSEN, Andrew (USA)
HEILMANN, Cory (USA)
HOBBS, Jonathan (USA) (co-major w/Meterology)
HONG, Yili (China)
HUARNG, Shiaau-er (Taiwan)
JIANG, Qi (China) (co-major w/Industrial Education and Technology)
JOVAAG, Kari (USA) (co-major w/Ecology and Evolutionary Biology)
JUNG, Tony (USA)
KIES-BOKENKROGER, Courtney (USA)
KISCH, Wendy (USA)
LANDES, Reid (USA)
LAWRENCE, Michael (USA) (co-major w/Bioinformatics and Computational Biology)
LEGG, Jason (USA)
LEYVA-ESTRADA, Norma (Mexico)
LI, Xiaoxi (China)
LI, Wen (Shirley) (China)
LI, Yunfeng (China)
LOVE, Tanzy (USA)
MA, Haiming (China)
MAYERS, Melissa (USA)
MCCONVILLE, Teresa (USA)
MILLER, Curtis (USA)
MUELLER, Kim (USA)
MUKHOPADHYAY, Pushpal (India)
NAVARRO-VILLARROEL, Claudia (Chile)
ORELLANA, Massiel (Chile)
OTT, Ellis (USA) (co-major w/Educational Leadership and Policy Studies)
PAIK, Min Hui (Korea)
PINTAR, Adam (USA)
PLATT, Stephanie (USA)
QIN, Yingli (China)
RAMLER, Ivan (USA)
RECKNOR, Justin (USA) (co-major w/Bioinformatics and Computational Biology)
REISING, Monica (USA)
SUN, Shuxia (China)
TANG, Chengyong (China)
TESSIN, Dale (USA) (co-major w/Ecology and Evolutionary Biology)
VACA TRIGO, Iliana (Ecuador)
VILLANUEVA-MORALES, Antonio (Mexico)
VOLFOVICZ-LEON, Roberto (Uruguay)
WANG, Dong (China)
WANG, Yaqin (China)
WANG, Yurong (China)
WICKHAM, Hadley (New Zealand)
WU, Han (China)
WU, Yu (China)
XU, Xia (China)
YOU, Lifeng (China)
YUM, Man-Yu (Hong Kong)
ZHAI, Dongmei (China) (co-major w/Chemical Engineering)
ZHANG, Wuyan (China)
ZHANG, Xiaohong (Alicia) (China)
ZHANG, Zhongqi (China)
ZHOU, Zhigang (China)
ZUO, Jianying (*Angela*) (China)

M.S. Students

ADAIR, Joseph (USA)
ASPLUND, Ian (USA)
BANCROFT, Timothy (USA)
BARCLAY-SISSON, Kira (USA)
BAUMANN, William (USA)
BLABAC, Eric (USA)
BOE, Kathryn (USA)
BORROWMAN, Gina (USA)
BROWN, Tamara (USA)
BURGER, Jude (USA)
BUZINEC, Paul (USA)
CAO, Xueyuan (China)
CHEN, Dong (China)
CHEN, Ying-Chi (Taiwan)
CHEN, Yuan-Lin (Rita) (Taiwan)
CHUNG, Oi-Yu (JoJo) (Hong Kong)
COLEMAN, Scott (USA)
DUAN, Zhaoyang (China)
EKE, Alp (Turkey)
ELCI, Okan Umit (Turkey)
ERDOGDU, Hamza (Turkey)
ESHENKO, Ihor (Ukraine)
FADEN, David (USA)
FAN, Peng (China)
FAN, Xing (China)
FANG, Shu-Ann (Taiwan)
FRANKENBERGER, Kristi (USA)
GAO, Xiang (China)
GARDNER, Stuart (USA)
GIL-SAGAS, Esteban (Chile)
GRAY, Nichole (USA)
GUAN, Jie (China)
GUO, Can (China)
GUO, Rong (China)
GUSTAFSON, Kathleen (USA)
HAYES, Brian (USA)
HE, Jie (China)
HOEKSTRA, Peter (USA)
HUANG, Ling (China)
HUCKETT, Jennifer (USA)
HUGEN, Dirk (USA)
JEON, Yongsik (S. Korea)
JI, Yulin (China)
JIE, Fei (China)
JONES, Benjamin (USA)
LARSON, Gabrielle (USA)
LEE, Jae Won (S. Korea)
LI, Kejian (China)
LI, Lanfen (China)
LI, Ming (China)
LI, Tianyu (China)
LI, Wenqing (China)
Ll, Yan (Julia) (China)
LI, Ying (China)
LIANG, Kun (China)
LIU, Hongjun (China)
LIU, Juan (China)
LU, Dingding (China)
LU, Lu (Emma) (China)
LU, Pengcheng (China)
MACKE, Patrick (USA)
MAXSON, Melanie (USA)
MCILLECE, Justin (USA)
NGUYEN, Justin (USA)
NIRELLI, Liza (USA)
OZAWA, Haishin (Japan)
PAN, Jiangyi (China)
PAN, Yijiang (China)
QIU, Fang (China)
QUAN, Peter (USA)
SHAFFER, Philip (USA)
SHANG, Wenzhuo (China)
SOLANKI, Aparna (India)
SUN, Donglin (China)
SUN, Junjie (China)
THOSTENSON, Jeffrey (USA)
WANG, Changxue (China)
WANG, Jianqiang (China)
WANG, Mingjuan (China)
WHITE, Emile (USA)
XIANG, Qun (China)
YAN, Jun (China)
YANG, Chunyu (China)
YANG, Lei (China)
YOU, Hai-Qing (China)
YUE, Chengyan (China)
ZHANG, Bin (China)
ZHANG, Linghong (China)
ZHANG, Shu (China)
ZHANG, Yi (China)
ZHAO, Honghua (China)
ZHU, Jianhua (China)
ZHUANG, Weihong (China)

M.S. Distance Education Students

3M

CARTER, Donald
ELLICOTT, Max
FERNANDEZ, Lombardo
GRYSKIEWICZ, Mark P.
RESCH, Walter
VALLEJO, Janet

Mayo Clinic

CROWSON, Cynthia
FREDERICKSEN, Zachary
LAHR, Brian
LOHSE, Christine M.
MCMURTRY, Erin
SMITH, Denise
STEVENS, Susanna R.
WAMPFLER, Jason
ZHAO, Cathy

B.S. Students

ABBEY, James
ALDERIN, Corey
BRIAR, Jessica
BROWN Megan
CHOI, Hyun
CHOU, Yeh-Hung
CULHANE, Jessica
DARBYSHIRE, Megan
ELLIOTT, Joshua
ESLICK, Andrea
FAN, Bing
FICK, Karl
FONDROY, Mollie
HANSON, Keith
HENDERSON, Eric
HOWARD, Reka
ISHDORJ, Ochirmaa
JUNGE, Katherine
KUNIZAWA, Hideki
KREFT, Michael
LAMBERT, Matthew
LEE, Sang Joon
LEE, Seung-Gyu
LI, Hang
KUNIZAWA, Hideki
MARTIN, Robert
MARTIN, Ryan
MCFADDEN, Lisa
MEISTERLING, Angela
MERRICK, Courtney
MIN, Jun
MINNIS, Kimberly
NIEDERKORN, Jonathan
OLSON, Krista
OLSON, Timothy
PARA, Stephanie
PRIEBE, Lindsey
REES, Donald
RYAN, Christopher
SHELL, Amy
SHERMAN, Phillip
VARGANOVA, Elena
WROBEL, Brian
WU, Ya-Fang
ZALETEL, Justin

DEPARTMENTAL NEWS

The Department Annual Fall Picnic – 2004

The department's annual fall picnic was held at Emma McCarthy-Lee Park, Sunday, September 12, 2004. Hickory Park catered the main meal, which included a choice of a vegetarian bean or meat sandwich, salads and beans. Picnickers brought a variety of desserts to share and Edith Landin made homemade ice cream. There were 108 students, staff, faculty, friends, and their families that attended.

Department social committee members for 2004-05 were: *Dan Nettleton, Chair, Juri Bhattacharyya, Doug Bonett, Petrutza Caragea, Dick Dorsch, Ben Jones (student), Jeanette LaGrange, Edith Landin and Marlene Tjernagel*.

The Department Annual Spring Breakfast – 2005

The annual spring breakfast was held April 30th, 2005 at Brookside Park's Maple Shelter. The breakfast menu included pancakes, special made-to-order omelets, hashbrowns, coffee and juice. Coffee was gotten from McDonalds because the shelter was without electricity at the very beginning! A variety of coffee cakes and breakfast breads were brought to share. The social committee worked fast and hard in the early morning cold to restore electricity to the facility so they would be ready to serve their morning breakfast on time.

International Dinner & Talent Show – 2005

The Stat-ers hosted the Department International Dinner and Talent Show at the Unitarian Universalist Fellowship on March 4, 2005. The evening was very well attended and began with a potluck supper, followed by a variety of dance, music and songs. Those working on the committee were Dirk Hugen, Ben Jones, Liza Nirelli and Yu Wu.

Joint Statistical Meetings (JSM) Conference 2004

The following faculty attended:

Ted Bailey
Dianne Cook
Philip Dixon
Bill Duckworth
Amy Froelich
Dean Isaacson
Ken Koehler
Soumendra Lahiri
Michael Larsen
Ranjan Maitra
Bill Meeker
Mervyn Marasinghe
Taps Maiti
Mack Shelley
Bob Stephenson

The following graduate students attended:

Will Baumann
Lihua Chen
Rhonda DeCook
Cumhur Demirkale
Kyoji Furukawa
Cory Heilmann
Courtney Kies-Bokenkroger
Shin-soo Kang
Tanzy Love
Pushpal Mukhopadhyay
Samantha Montgomery
Teresa McConville
Xiaohong Zhang
Zhigang Zhou

Stat-ers

Officers for 2004-05:

Kira Barclay ..... President
Jessica Chisham ..... Vice President
Paul Buzinec ..... Treasurer
Tanzy Love ..... Secretary
Gina Borrowman..... Birthday Coordinator
Tanzy Love ..... Community Service
Katy Gustafson ..... First Year Representative
Andrew Halvorsen ..... First Year Representative
Kira Barclay ..... GPSS
Paul Buzinec ..... GPSS
Jessica Chisham ..... GPSS
Dirk Hugen ..... International Committee
Justin Nguyen ..... International Committee
Yu Wu..... International Committee
Pat Macke ..... Intramural Coordinator
Ben Jones ..... Social Committee
Wendy Kisch..... Social Committee
Liza Nirelli ..... Social Committee
Curtis Miller..... Recycling Coordinator
Will Baumann ..... Webmaster
Petrutza Caragea ..... Co-Faculty Advisor
Mike Collyer ..... Co-Faculty Advisor

Front row (l-r): Co-Faculty Advisors: Petrutza Caragea and Mike Collyer, Will Baumann (Webmaster), Kira Barclay (President), Jessica Chisham (Vice President), Wendy Kisch (Social Committee), Katie Gustafson (First Year Representative), Ben Jones (Social Committee)

Back row (l-r): Justin Nguyen (International Committee), Gina Borrowman (Birthday Coordinator), Pat Macke (IM Coordinator), Paul Buzinec (Treasurer), Andrew Halvorsen (FIrst Year Representative)

AWARDS, RECOGNITIONS AND SCHOLARSHIPS

Achievements & Recognitions

ISU 25-Year Club Members

Sharon Shepard, Bob Stephenson Nancy Heathman, Kathie Reinertson, Kathy Shelley, Mack Shelley

International/National Awards

FAA-ATA Better Way Award for "Engineering Studies of Cleaning and Drying Processes for Florescent Penetrant Inspection" ..... **William Q. Meeker**

Margaret Ellen White Graduate Faculty Award ..... **Mack Shelley**

NSF Career Award ..... **Dean Adams**

Travel Award to Semstat 2004 (granted by the European Union) ..... **Petrutza Caragea**

University Awards

Iowa State University Foundation Award for Early Achievement in Teaching ..... **Amy Froelich**

ISU Engineers' Week 2004 Outstanding Professor in Chemical Engineering ..... **Derrick Rollins**

Presidential Service Award ..... **Dean Isaacson**

Professional and Scientific Outstanding New Professional Award ..... **Howard Butler**

Graduate Awards & Scholarships

Sampson Legacy Fund for Excellence in Statistics

Gina Borrowman

Dan Mowrey Consulting Excellence Award

Norma Leyva-Estrada

Eli Lilly Fellowship

Jeremy Craft

Jonathan Hobbs

Wendy Kisch

Melissa Mayers

Eli Lilly Dissertation Fellowship

Rhonda DeCook

Cory Heilmann

Emil Jebe Graduate Fellowship in Statistics Award

Paul Businec

Man-Yu Yum

George W. Snedecor Award in Statistics

Jason Legg

Xia Xu

Glaxo/Smith/Kline Industrial Scholarship

Andrew Halvorsen

Holly C. & E. Beth Fryer Award in Statistics

Yu Wu

Oscar Kempthorne Award

Jianqiang Wang

Procter and Gamble Scholarship

Adam Pintar

Rebecca J. Klemm Fellowship in Statistical Communication

Justin Recknor

Richard Kleber Award

Kathryn Boe

Andrew Halvorsen

Teaching Excellence Award

Kira Barclay-Sisson

Jessica Chapman

Ellis Ott

Vera David Gradute Fellowship in Statistics

Lu Lu

Wen Li

Vince Sposito Scholarship

Dirk Hugen

Vince Sposito Statistical Computing Excellence Award

Gabriel Camano-Garcia

Undergraduate Scholarships & Awards

George W. Snedecor Undergraduate Statistics Award

Megan Brown

Herta & H.T. David Scholarship

Megan Brown

Procter and Gamble Company Undergraduate Statistics Scholarship

Ryan Martin

Schillmoeller Family Scholarship in Statistics

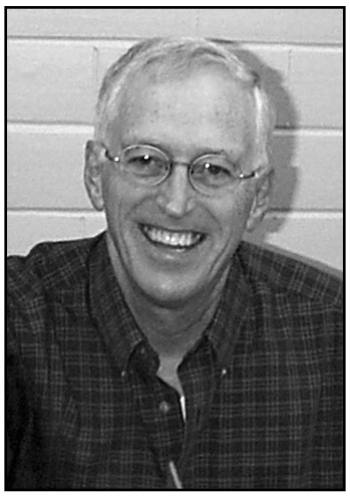
Phillip Sherman

Undergraduate Statistics Scholarship

Kimberly Minnis

Chris Ryan

GRADUATE PROGRAM



Dean Isaacson and **Alicia Carriquiry**, Co-Directors of Graduate Education

In 2004-05 we had 163 graduate students on campus and another 15 students working on an MS degree in Statistics through our distance education program. We awarded 41 MS degrees with six continuing on for the PhD. We also awarded five PhD degrees in Statistics. Six students passed the PhD written exam and three of these were VIGRE (Vertical Integration of Research and Education) fellows.

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

VIGRE: Year 5 – Impact on Recruiting U.S. Citizens as PhD Students

The National Science Foundation (NSF) VIGRE grant continues to strengthen our program. For 2004-05 we had 17 VIGRE fellows pursuing a PhD in statistics. This includes students who were previously in the statistics program in 2001 and also new recruits. Recruiting more U.S. students who plan to pursue a PhD in statistics has always been a priority. The VIGRE grant has helped us achieve this goal. We started offering VIGRE fellowships in 2002 and the number of newly recruited fellows has been 1, 2 and 6, respectively over the past three years. We expect these numbers to grow as we learn how to effectively use the VIGRE grant.

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 June of 2005. We had seven undergraduates study here for an eight-week period and present a paper during the final week. Their research involved statistics and another discipline so they could see statistics in action. Rhonda DeCook and Will Baumann (VIGRE Fellows) coordinated the program.

The students and their faculty mentors for the summer of 2005 were:

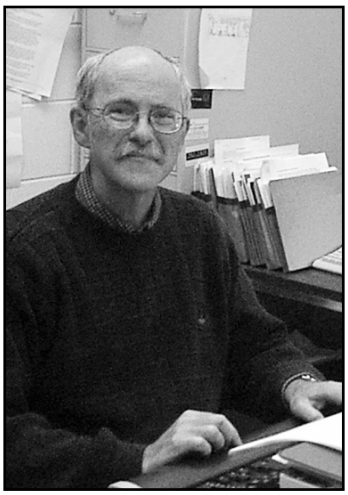
Nick Annoni ..... Max Morris / Steve Vardeman
Michael Claveria ..... Heike Hofmann
Katie Elsbernd ..... Mack Shelley
Amy Hoeksema ..... Derick Rollins
Christopher Martinek ..... Michael Larsen / Fred Lorenz
Aatekah Owais ..... Michael Larsen / Fred Lorenz
Matthew Timm ..... Mark Kaiser

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 PhDs in the Mathematical Sciences (Alliance) brought 23 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. Three of the Alliance students, Maria Joseph, Dana Hill-House and Nicole Rembert, studied statistics. Maria Joseph worked with Dr. Carriquiry and Dr. Jensen from Economics. Dana Hill-House and Nicole Rembert worked with Dr. Isaacson. Maria Joseph decided to join our graduate program starting in the fall of 2005. The VIGRE, AGEP and Alliance interns bring energy and excitement into our summer research programs.

UNDERGRADUATE PROGRAM



Bob Stephenson, Director of Undergraduate Studies

The undergraduate program continued to attract good students with 34 undergraduate majors in both fall 2004 and spring 2005. Fifteen undergraduate majors made the dean's list (GPA of 3.5 or above for 12 or more credits) in fall 2004 and fourteen made the dean's list in spring 2005. Megan Brown and Lisa McFadden were elected to the Phi Beta Kappa Honor Society. Eleven students graduated during 2004-2005 with undergraduate majors in statistics. Almost half of those graduating had a second major in another discipline.

Conceptual Statistics:

Professors Bill Duckworth, Amy Froelich and Bob Stephenson continued to develop activities for the introductory statistics course as part of their National Science Foundation (NSF) grant. During the 2004-05 school year, Professor Froelich taught one section of the introductory course using the new activities and one section without using the new activities. Students were then assessed on how well they learned the course material through the use of common exam questions and on a data collection and analysis project. Results of the assessment will be presented at the Joint Statistical Meetings 2006 in Seattle.

Graduates and First Activity:

- Stephanie Parra (I 04, other major Mathematics)
- Ya-Fang Wu (F 04, other major Biology) Graduate School in Statistics, University of Connecticut, Storrs, CT
- Jessica Briar (S 05)
- Megan Brown (S 05) Actuarial Analyst, ING Financial Services, Minneapolis, MN
- Megan Darbyshire (S 05, other major Psychology, University Honors Student) Graduate School in Personality Psychology, Kansas State University, Manhattan, KS.
- Joshua Elliott (S 05)
- Karl Fick (S 05, other major Mathematics)
- Lisa McFadden (S 05, other major Psychology) Graduate School in Neurology and Behavioral Psychology (PhD) and Applied Probability and Statistics (MS), Northern Illinois University, Dekalb, IL
- Elena Varganova (S 05)
- Brian Wrobel (S 05)
- Justin Zaletel (S 05) Analyst, Wells Fargo, West Des Moines, IA

STATISTICAL COMPUTING

Technology continues to drive improvements in support for research, teaching, and information collection and dissemination in our department. Data driven web pages have begun with the posting of department preprints. Similarly, future projects will involve automating the course web pages, seminars, and faculty/student/staff directory. Alumni information is now collected and updated in an online database. This database is used to keep our alumni current on department happenings.

Instructors have begun to use tablet PCs for distance education course offerings. The lectures are entered using a pen on the laptop screen, while being recorded. The recorded file is then converted to a web-friendly format and the video lectures are placed on the course web site. Because the material is posted on the same day as the lecture, this has enabled our distance students to view the lectures in a timely and convenient manner. Online instructional resources are also gaining in popular usage among instructors. Online exams, and self-grading review quizzes are available in some courses.

Research computing resources have improved immensely with the purchase of a unix cluster, funded primarily by a grant from the National Science Foundation. The cluster is a collection of Mac processors that can do parallel processing. Intensive simulations can now be run on this dedicated hardware. Tutorials are given to help students and faculty get started using the cluster.

Day to day support is being provided by Kathy Shelley and Ted Peterson, supervising two graduate research assistants. Faculty involved with supervising support are Dianne Cook, Mervyn Marasinghe, Heike Hofmann and Ranjan Maitra.

The research in the section during the year included:

- Development of the graphics methodology and accompanying software, including the open source graphics software ggobi (www.ggobi.org), by Hofmann and Cook. GGobi is used in courses taught by the department, and widely outside.
- Algorithms and theory for Positron Emission Tomography (PET) and functional Magnetic Resonance Imaging (fMRI) are being developed by Ranjan Maitra.
- Development of algorithms and methods for bioinformatics applications by Marasinghe, Maitra, Hofmann and Cook.

A useful development on the international front is that Iowa State University became a mirror site for the widely used open source data analysis software, R (www.R-project.org).

CENTER FOR SURVEY STATISTICS AND METHODOLOGY (CSSM)

This has been a year of change for the Center for Survey Statistics and Methodology. After serving CSSM for over twelve years, Dr. Sarah M. Nusser stepped down as director of the center. Under her direction, the center grew in its research scope, its technological capabilities, as well as increased its faculty and staff. Dr. Nusser will remain the Principal Investigator for CSSM's National Resources Inventory cooperative agreement with the United States Department of Agriculture, and will continue as a faculty member and researcher in the Department of Statistics. Dr. Jean D. Opsomer, a Department of Statistics and CSSM faculty member since 1995, assumed leadership responsibilities as CSSM director on January 1, 2005.

CSSM 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. CSSM's Survey Research Services Group collaborates with researchers from ISU and other institutions on a wide variety of topics including studies on agriculture, medicine, education, political science and business, as well as surveys and evaluations for ISU administrators and non-research entities. CSSM's National Resource Inventory Group conducts research on land-use in the United States and its territories in collaboration with staff from the Natural Resource Conservation Service (NRCS) as part of a cooperative agreement with USDA.

Survey Research Services (SRS)

The SRS group collaborated on several educational evaluation projects this year including work with the National Endowment for Financial Education and the University of Minnesota, the Iowa Department of Education, and ISU's Departments of Educational Leadership and Policy Studies and the Veterinary Teaching Hospital. SRS staff developed survey instruments for self-administered and on-line surveys, conducted data collection activities, and prepared final data files, methods and analysis reports for these research efforts.

Social and Behavioral research studies included continued work on the NIAAA sponsored study called *Community Influences in Rural Adolescent Alcohol Use* where staff designed survey instruments and collected data from young teens living in the states of North Dakota, South Dakota, Wisconsin and Wyoming, about their exposure to and use of alcohol. The *Reliability and Validity of the Youth Media Campaign Longitudinal Survey* was a collaboration with ISU's Department of Health and Human Performance researchers and was funded by Westat and the Center for Disease Control. This study included telephone interviews with students and their parents to assess perceived and actual levels of physical activity.

Several business-related research projects were conducted during this year as well. Final work was completed on an establishment survey for the Centre for Business Research at Cambridge University England where U.S. businesses were contacted to assess their level of innovation. Iowa businesses and a sample of Iowa residents were contacted via phone to assess their opinions about the efficacy of state government on-line business options. SRS staff developed survey instruments and directed the telephone data collection. This research was funded by the State of Iowa and conducted in collaboration with ISU's Department of Political Science. The Center for Industrial Research and Service (CIRAS) contracted with SRS to develop and conduct an on-line survey with Iowa Manufacturers to evaluate types of motors used in production facilities.

Other work conducted by the SRS group during the year included continued random-digit-dial control selection for the University of Maryland's *Study of Early-Onset Stroke in Men*, an online survey for the American Statistical Association to assess salaries of statisticians in business, industry and government, and ISU administrative surveys on faculty hours worked and faculty retention.

National Resources Inventory (NRI)

This past year was a productive one for the NRI faculty and staff. The 2003 NRI database was delivered to Natural Resource Conservation Service (NRCS). In addition, the NRI data collection system and infrastructure were extensively revamped for the 2004-2005 NRI survey to support digital collection. To accomplish this, a system was designed to retrieve imagery from the NRI data mart in Fort Worth, TX, to integrate those images with segment geometry (points and segment boundaries) from CSSM and digital maps and photo quads from Microsoft's TerraServer. These data were then presented to data collectors digitally to facilitate accurate and timely data collection using the new system.

Additional work included revising software to allow collection of field data for rangelands in the western U.S. A handheld device uses the software to collect information on plant ecosystem characteristics. CSSM also assisted NRCS in preparing data for the *Conservation Effects Assessment Project* that evaluates croplands in the U.S.

Survey research for the year included imputation, variance estimation and estimation for analytic purposes. Fractional imputation for the nearest neighbor procedure was studied as well as the estimated generalized least squares (EGLS) approach for estimating population means from the supplemental panel design. Finally, the sample for the state of Alaska was completely revised to facilitate the use of satellite imagery in data collection.

CONSULTING AND COOPERATIVE RESEARCH

Agriculture and Home Economics Experiment Station

We continue to develop new study designs and methods of data analysis for studying gene expression and protein function. This includes improved designs of micro-array and other experiments for developing genetic markers and discovering gene and protein function in model plants (Arabidopsis) and animals (mouse) as well as agriculturally important plants (alfalfa, barley, maize, soybean) and animals (pig, chicken), and development of effective methods of analysis for the resulting massive data sets. One example is the optimization of partitioning algorithms with application to identifying genes in starch that are similar to those that are already known. Another example is the development of weighted distance measures and a weighted principal components analysis that provide a more powerful way to explore patterns in metabolomic data involving the relative abundance of many small molecules across different samples. Recombination among viruses creates mosaic viruses and provides viruses a great opportunity to develop new, sometimes dangerous, characteristics. Novel models and efficient software were developed to improve detection and accurately predict the number of recombination events in viral sequences.

Research on biorenewable resources technology includes the design of experiments on the elucidation of protein based adhesive systems intended to replace petroleum based chemicals with compounds derived from soy. We also helped to design studies of human and animal health effects of natural substances extracted from plants, and we participated in the design and analysis of several animal nutrition studies. We have begun to provide training to several countries on statistical methods we developed for assessing human dietary intake data and nutritional risk. These methods have been endorsed by the National Research Council and are used by the USDA. We have completed enrollment and continue to follow women in a three-year study of effects of soy isoflavones on preventing bone loss, heart disease and cancer. We are developing statistical methods for multivariate survival data that will be used to model genetic and environmental variation in the longevity of breeding sows and dairy cows.

New survey methodology was designed and implemented to study economic, environmental and social impact of strategies for natural resource development. New data collection procedures were developed for assessing spatial and temporal changes in national land use. Non-parametric statistical models and methods for variance estimation were developed for data from complex longitudinal studies involving both temporal and spatial variability. We collaborated on many other initiatives including the development of better models for soil fertility and predicting economic rewards of precision agriculture strategies for fertilizer application, relationships between soybean cyst nematode levels and soybean yield, prediction pollen dispersion patterns, ground water and air quality studies. We are developing innovative statistical models of the effects of soil temperature and freezing on corn seed quality and germination that have received substantial interest.

CARAGEA, PETRUTZA C. Caragea consulted with a small group in the Food Science department, in particular a group conducting research in the field of Biorenewable Resources Technology. Caragea helped them design an experiment on the elucidation of protein based adhesive systems. This project will potentially have a great impact on the environment, as their technology is intended to replace petroleum based chemicals with materials derived from plants, in particular soy beans.

Caragea worked with a master student on a problem from the agricultural realm: environmental influences on corn seed development and seed quality. Although this is still work in progress, preliminary results have been presented at the ASA-CSA-SSSA International Annual Meetings in November 2005, and they have been received with very much interest: this is the first study that identifies more than one exotherm known as Super Cooling Points in a cycle that mimics the natural process of freezing in the field. Caragea is pursuing several venues, innovative both in terms of the statistical methodology and the seed science, to better describe the effect of the environment on the seed quality.

Caragea helped two groups from civil engineering with studies concerning road properties, using spatial statistics methods. It is unsure if this kind of work fits with the present project.

DIXON, PHILIP M. Dixon developed weighted distance measures and a weighted principal component analysis that provides a more powerful way to explore patterns in metabolomic data (i.e. patterns in the abundance of many small molecules across different samples). This work contributed to NSF funding a $1,000,000 proposal to understand the Arabidopsis metabolome.

DORMAN, KARIN S. Dorman worked on recombination among viruses creating mosaic viruses and providing viruses a great opportunity to develop new, sometimes dangerous, characteristics. Novel models and efficient software were developed to identify the occurrence and of past recombination events in viral sequences. The accuracy of methods for identifying the location of recombination events in the viral genes was improved. Entirely new methods were created to count, with some statistical rigor, the number of historical recombination events producing extant viruses. Some viruses that cause disease are particularly threatening because they alter their genes rapidly, making it difficult for the immune system to recognize and neutralize them. The models and tools developed make it possible to understand how recombination contributes to the variation in viruses and could ultimately lead to better treatment, vaccines, or even novel recombination-based therapies.

KOEHLER, KENNETH J. Koehler developed a statistical method for assessing human dietary intake data and nutritional risk which was recommended for national use by the National Research Council. Enrollment is nearly completed in a three-year study of effects of soy isoflavones on preventing bone loss, heart disease and cancer in women. Koehler helped to design studies of human and animal health effects of natural substances extracted from plants. Ken also participated in the design and analysis of several animal nutrition studies. A procedure was developed for determining the amount of sampling needed to achieve a specific probability of detecting a microorganism in processed foods.

MAITRA, RANJAN. Maitra collaborated with Dan Nettleton and researchers of the Plant Sciences Institute to develop methodology for analyzing two-dimensional gel data. They worked on methodology for finding and analyzing patterns for micro-array data. Much of the work done has been in the context of clustering, and we developed methods for finding initializers of optimization partitioning algorithms. An application of this methodology is in identifying genes in starch that are similar to those that are already known. Additionally, since a lot of statistical research involves analysis of massive datasets, the need to expose students in the AES and in the department to modern methods of statistical computing is very important. Ranjan actively participated in the

department's efforts to refurbish the course sequence in statistical computing, and taught both Stat 580 and Stat 690E (intermediate and advanced graduate courses in statistical computing) in the spring and fall semesters of 2005. Coordination of a VIGRE group in statistical computing for the graduate students in statistics was begun.

Work on the two-dimensional gels is expected to provide a better understanding of the connection between different kinds of protein markers and disease. Clustering tools will make it possible to identify genes that are similar and different to those that are already well studied. In general, analysis tools for massive databases will make it possible to obtain deeper understanding of scientific phenomena.

NETTLETON, DANIEL S. New study designs and methods of data analysis were developed for studying gene expression and protein function. These include improved strategies for micro-array and other experiments for developing genetic markers and discovering the functions of genes in model plants (Arabidopsis) and animals (mouse) as well as agriculturally important plants (alfalfa, barley, maize, soybean) and animals (pig, chicken). Using novel variance estimation methods, software was developed for detecting recombinant sequences in viruses and to model evolutionary properties of EIAV sequences in infected horses. A probability model of gene flow during plant production and harvest was developed for risk analysis in transgenic crop plants. Gaussian models were incorporated into phylogenetic trees to provide a method for predicting ancestral incidents of genetic divergence from information on modern species. A software package (GeneGobi) for visual display and analysis of genomic and proteomic data was completed and made available on the web. Work was begun on algorithms for finding and analyzing patterns for massive datasets. Statistical methods were developed for detecting quantitative trait loci (QTL) from pooled DNA taken from selected animals.

OPSOMER, JEAN D. AND NUSSER, SARAH M. Surveys were designed and implemented to study economic and environmental impact of agricultural practices, skills assessments of employees hired by landscape companies, immigration and emigration in rural communities, transportation needs in rural areas, soil properties, air quality and asthma risk in rural Iowa, wildlife abundance and disease prevalence, social and economic impact of investment in natural resource development. New GIS data collection procedures were developed for national land use assessment. Statistical methods for analyzing spatial variability were used to predict pollen dispersion patterns, develop new recommendations for economic benefits of nitrogen application in corn, simulate potential effects of fertilizer application strategies on ground water contamination, analyze associations between education level and financial health for residents of Iowa and surrounding states, study of the effects of urbanization on amphibian evolution in Central Iowa. Opsomer and Nusser collaborated on many other initiatives including the development of better assays to measure amino acid content in field samples, and a study of relationships between soybean cyst nematode levels and soybean yield.

Engineering and Physical Sciences

MEEKER JR., WILLIAM Q. Meeker worked with scientists in the Center for Nondestructive Evaluation to develop statistical models for analyzing and predicting potential weaknesses on jet-engine and airplane bodies. Research was funded by the U.S. Federal Aviation administration. Meeker also did research for the National Institute of Standards and Technology constructing statistical models for predicting the service life of products that company's produce.

MORRIS, MAX D. Morris continued collaborative research with Professor David White (ISU Civil Engineering) on measurement processes and methods used in earth compaction operations, with David Baldwin and Stan Bajic of Ames Laboratory on forensic applications involving image analysis, and with Steve Vardeman on their joint work for the U.S. Air Force on analysis of data from electromagnetic sensors. Max also began a new forensics collaboration with Scott Chumbley and Larry Genalo (ISU Material Science and Engineering), with focus on physical measurements of the surface of toolmarks.

VARDEMAN, STEPHEN. Vardeman worked with Monica Resing, Max Morris and U.S. Air Force personnel on analysis of spectral-termporal data from bright point sources of electromagnetic radiation. The work involved model building with an end goal of finding effective real time detection systems for various military threats. Steve also worked with Jennifer Huckett, Mike Larsen and personnel from the Iowa Department of Revenue on problems of creating confidentiality-protected synthetic surrogates for large tax return data bases. He also received support from the John Deere Foundation for research in the general areas of quality and reliability.

Social & Behavioral Science & Humanities

BONETT, DOUGLAS G. Bonett provided statistical and psychometric consultation to graduate students and faculty in the social science departments. Doug also worked with social science faculty to help them design their studies for optimal performance and also provided assistance with statistical and psychometric data analysis.

LORENZ, FREDERICK O. Lorenz engaged in research and consulting in ISU's Institute for Social & Behavioral Research (ISBR). The research is on Iowa families, especially linking family stress to physical and emotional health outcomes of midlife adults, young adults and children. Fred also, served as the PI on a new five-year grant from NIH/NICHD to examine the ways in which relationships between mothers and fathers when children were adolescents affects the relationships children have with their spouses and partners when they become young adults. Fred served as consultant on other ISBR projects, worked with CSSM faculty on sampling and missing data problems, and did general university-wise consulting with faculty and graduate students on the design and analysis of research projects.

SHELLEY II, MACK C. Shelley worked regularly on a variety of projects with the Iowa Department of Education and with other state agencies and federal funding sources. Mack worked with the Iowa Department of Elder Affairs on the analysis of data for evaluating Iowa's Aging and Disability Resource Center online information and referral system, as part of a national effort funded by the U.S. Department of Health and Human Services' Administration on Aging and its Centers for Medicare and Medicaid Services. He also worked regularly with the Iowa Department of Public Health on sample design, data analysis, and 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, and on the Pick A Better Snack nutrition education program for elementary and preschool students. Shelley provided 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. In addition, Mack is a statistical consultant for Mid-Iowa Early Head Start Programs, Iowa's Positive Behavioral Supports for Children and Youth, the National Science Foundation-funded Vertical Integration of Computer, Electrical and Mechanical Engineering Education project, and the U.S. Department of Education-funded Improving Elementary Science by Connecting Science Inquiry and Language Arts program, as well as a study of local housing decisions and economic vitality of rural communities, and a study for the Board of Regents of the State of Iowa of student K-12 achievement. Mack has helped numerous researchers in education and the behavioral sciences, as well as in engineering, agriculture, and other disciplines.

THESIS ABSTRACTS (PH.D.)

Ferraz, Christiano

SAMPLE DESIGN FOR QUALITY MONITORING AND MEASUREMENT ERROR EVALUA-TION OF LARGE-SCALE LONGITUDINAL SURVEYS. (2004)

We discuss the design of samples to monitor the quality of the data being collected (data quality monitoring) and to evaluate properties of measurement errors for the survey (measurement error evaluation) in the context of large-scale longitudinal surveys. Longitudinal surveys provide historical information that allows for more complex sample designs than the simple ad hoc approaches used in one-time surveys. The properties and feasibility of several classes of probability sample designs for data quality monitoring will be investigated. The problem of assessing the properties of measurement error will be addressed with emphasis on designing a subsample to estimate the measurement error contribution to the variance of a sample estimator. The investigation is motivated by potential applications to the United States Department of Agriculture's National Resources Inventory.

Furukawa, Kyoji

DEVELOPMENT OF MARKOV RANDOM FIELD MODELS BASE ON EXPONENTIAL FAMILY CONDITIONAL DISTRIBUTIONS. (2004)

Constructing statistical models through the specification of conditional distributions is being recognized as an appealing approach to a multivariate data analysis. A useful class of such models may be formulated by assuming that the conditional distributions are specified as exponential families. The class of exponential family conditional (EFC) models is expected to provide a general model framework that may be applied to a wide variety of situations that may contain complex dependence structures. The overall objective of this study is to develop and refine the general methodology for EFC models.

Among a number of EFC models that have been studied by far, the Gaussian conditionals family has attracted a major interest, both theoretically and practically, and has been applied to many problems. Unfortunately, many of the nice properties and results that are available for Gaussian conditionals models are not transferable to non-Gaussian EFC models, and we need to develop adequate procedures for modeling, estimation and inference for a generalized class of EFC models. Among a number of issues associated with such general EFC models, we are mainly concerned in this study with three problems: (1) developing a general procedure of MRF construction using multi-parameter exponential families, (2) application of the general procedure to a problem of spatial, categorical data analysis, and (3) investigating useful parameterizations of EFC models.

Landes, Reid D.

STATISTICAL METHODS FOR APPLICATION TO CALIBRATION PROBLEMS. (2005)

This dissertation makes Bayesian and classical contributions to statistical cal-ibration methodology in two primary areas: calibration of both tested and untested devices produced en masse, and calibration of devices returning rounded values.

For calibration of mass produced devices, a Bayes hierarchical model for simultaneously tested devices is proposed. Markov Chain Monte Carlo (MCMC) simulation in this type of model allows estimation of calibration parameters and a measureand generating an observed device value for tested devices, and prediction of the same for untested devices. Additionally, this model can accommodate potential measurement error in the reference instrument. An example of calibration of resistance temperature devices is given for illustration, and frequentist properties of the estimators/predictors are investigated.

For devices that return (potentially severely) rounded values, a Bayes method based on MCMC simulation in a hierarchical model and a classical method based on maximum likelihood for estimation of calibration parameters and a measurand generating an observed device value are presented. Properties of the maximum likelihood estimators are investigated alongside estimators based on naive treatment of device values as exact (rather than as rounded).

Sun, Shuxia

BOOTSTRAPPING THE SAMPLE QUANTILE BASED ON WEAKLY DEPENDENT OBSERVATIONS. (2004)

In this work, we investigate consistency properties of normal approximation and block bootstrap approximations for sample quantiles of weakly dependent data. Under mild weak dependence conditions and mild smoothness conditions on the one-dimensional marginal distribution function, we show that the moving block bootstrap (MBB) method provides a valid approximation to the distribution of normalized sample quantile and the corresponding MBB estimator of the asymptotic variance is also strongly consistent. Along the line, we also examine the rate of convergence of the MBB approximation to the distribution of the sample quantile, and prove a Berry-Esseen Theorem, which indicates that the normal approximation to the distribution of the sample quantile under weak dependence is of order $O(n^{-1/2})$.

Zhang, Zhongqi

STATISTICAL ANALYSIS OF GENE EXPRESSION PROFILES. (2004)

Function divergence after gene duplication has been considered to be an important mechanism for the evolution of new functions. Although gene expression profiles have been treated as an important indicator of gene function, large scale gene expression analysis has mostly focused on current relationships among genes, instead of their evolutionary relationships. By putting expression analysis into the framework of evolution, we make inferences about expression divergence after gene duplication. Using a Brownian-based model, gene expression of ancestral states can be inferred using the posterior distribution of ancestral gene expression profiles given observed current gene expression profiles. Since expression profiles measure the transcriptional activity of genes, expression divergence can be used to infer function divergence. Consequently, we put the analysis of gene expression profiles into the context of gene evolution and some strategies are given for distance-based phylogenetic analysis of microarray data. Finally, we examine the correlation between regulatory motif structure and gene expression profile in yeast. Our results suggest that duplicate genes tend to be co-expressed but the correlation between motif content and expression similarity is generally weak, only about 2-3% of expression variation can be explained by the motif divergence. Our observations suggest that, in addition to the (*cis*)-regulatory motif structure in the upstream region of the gene, multiple *trans* acting factors in the gene network may significantly influence the pattern of gene expression.

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ADAMS, DEAN C.
Assoc. Ed./Editorial Board, Herpetologica, (07/01/2004-12/31/2005)

ATHREYA, KRISHNA
Assoc. Ed./Editorial Board, Indian Academy of Sciences Journals, Mathematical Sciences, (01/01/1999-present)

Assoc. Ed./Editorial Board, Journal of Theoretical Probability, (01/01/2000-present)

Assoc. Ed./Editorial Board, Resonance, Journal of Science Education, Indian Academy of Sciences, (01/01/1999-present)

Assoc. Ed./Editorial Board, Sankhya, Indian Journal of Statistics, (08/01/99-present)

CARRIQUIRY, ALICIA L.
Editor, Bayesian Analysis, (07/2003-06/06)

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

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

COOK, DIANNE
Editor, ASA Statistical Computing and Statistical Graphics section newsletter, (01/01/2000-present)

Assoc. Ed./Editorial Board, Journal of Statistical Software, (09/01/1995-present)

DIXON, PHILIP
Assoc. Ed./Editorial Board, Journal of Vegetation Science, (01/01/1997-present)

HOFMANN, HEIKE
Assoc. Ed./Editorial Board, Journal of Computational and Graphical Statistics, (04/01/2002-present)

Assoc. Ed./Editorial Board, Computational Statistics, (01/01/2003-present)

LAHIRI, SOUMENDRA N.
Assoc. Ed./Editorial Board, Statistical Methodology, (07/01/2003-present)

Assoc. Ed./Editorial Board, Sankhya, (02/01/2004-present)

Assoc. Ed., Statistics and Probability Letters, (2002-2005)

LARSEN, MICHAEL D.
Assoc. Ed., Journal of Official Statistics, (04/2005-present)

Newsletter Editor and Board Member, Classification Society of North America Newsletter, http://www.cs-na.org, http://public.iastate.edu/~larsen/csna/csnanews.html, (01/2005-present)

LORENZ, FREDERICK
Assoc. Ed., Rural Sociology, (2000-05)

MAITI, TAPS
Assoc. Ed./Editorial Board, Journal of the American Statistical Association, Review section, (01/01/2003-present)

MEEKER JR., WILLIAM Q.
Editorial Board, Lifetime Data Analysis, (2001-present)

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

MORRIS, MAX
Assoc. Ed./Editorial Board, Radiation Research, (01/01/1992-present)

NETTLETON, DAN
Assoc. Ed./Editorial Board, Biometrics, (02/04/2005-06/30/2006)

Assoc. Ed./Editorial Board, Journal of Agricultural, Biological, and Environmental Statistics (JABES), (04/07/2003-present)

OPSOMER, JEAN D.
Assoc. Ed., Biometrika, (1/1/2003-present)

POLLAK, EDWARD
Editorial Board, Mathematical Biosciences, (1980-present)

SHELLEY II, MACK C.
Editorial Board, TESOL Quarterly, (01/01/2002-12/31/2006)

STEPHENSON, W. ROBERT
Editor, Journal of Statistics Education, (01/01/2004-12/31/2006)

VARDEMAN, STEPHEN B.
Assoc. Ed./Editorial Board, The American Statistician, (07/01/1996-12/31/2005)

Assoc. Ed./Editorial Board, Naval Research Logistics, (01/01/2003-12/31/2005)

Assoc. Ed./Editorial Board, AmStat News, (07/01/2004-07/31/2004)

WU, HUAIQING
Assoc. Ed./Editorial Board, Journal of American Statistical Association, (01/10/2004-present)

PROFESSIONAL ACTIVITIES

Offices & Committee Work for National Organizations

CARAGEA, PETRUTZA

Participated in SemStat2004 “Statistics of Spatio-Temporal Systems” Workshop. (12/2004).

Participated in the Iowa-NASA-NSGIC Data Integration Workshop. (4/2005).

CARRIQUIRY, ALICIA L.

Institute of Mathematical Statistics (IMS): Committee on Meetings and Joint Meetings Advisory Committee. (2001-05).

Institute of Mathematical Statistics (IMS): Member of the Executive Committee. (2003-05).

Invited to participate as a Drafting Expert in the FAO-WHO Workshop on Nutritional Risk. (5/2005).

National Academy of Sciences, Committee on Assessing the Technical Feasibility of a National Ballistics Database. (2004-06).

National Academy of Sciences, Committee on Gender Differences in the Careers of Science, Engineering and Mathematics Faculty. (2004-06).

National Academy of Sciences, Standing Committee on Theoretical and Applied Statistics. (2003-06).

COOK, DIANNE

Member, Program Committee, COMPSTAT, Prague, Czech Republic. (8/2004-present).

Member, Program Committee, IEEE 2001 Symposium on Parallel and Large-Data Visualization and Graphics. (10/1/2001-present).

Member, Program Committee, International Workshop on Visual Data Mining, (2nd European Conference on Machine Learning (ECML 2001) and 5th European Conference on Principles and Practice of Knowledge Discovery in Databases. (9/1/2001-present).

Member, Program Committee, Workshop on the Future of Statistical Computing. (6/1/2001-present).

Program Committee, Workshop on “Visualization of Uncertain Information” sponsored by the National Security Agency, National Research Council, Division of Engineering & Physical Sciences, Board on Mathematical Sciences and their Applications. (3/2005).

Session Organizer, Interface. (6/1/2001-present).

DIXON, PHILLIP M.

Member, Committee on Sampling Radionuclides in the Environment, International Commission on Radiation Units and Measurements. (1995-2005).

Member, ENAR Student Travel Award Committee. (2004-present).

Member, U.S. EPA, Scientific Advisory Panel on Probabilistic Risk Assessment. (6/1/2001-present).

Vice-Chair, Committee on Archives and Historical Materials, ASA. (2004-05).

ISAACSON, DEAN L.

Member, SPAIG (Statistical Partnerships Among Academe, Industry and Government) Committee. (2000-06).

KOEHLER, KENNETH J.

Chair, ASA, Academic Representatives. (1/1/2005-12/31/2007).

Exam Leader for AP Statistics reading, College Board/AP Statistics Development Committee. (6/8/2005-6/19/2005).

Member, College Board/SAT, Advisory Committee on the Development of the New SAT Mathematics Examinations. (5/1/2002-12/31/2004).

LAHIRI, SOUMENDRA N.

Chair, Nomination Committee, International Indian Statistical Association (IISA). (2004-05).

Program chair, International Indian Statistical Association. (2005-07).

Program chair elect, Section on Nonparametric Statistics, ASA. (2005).

LARSEN, MICHAEL

Co-Organizer, ASA Section on Survey Research Methods, Invited Session on Multilevel Modeling with Survey Data, Joint Statistical Meetings. (8/2004).

Local Organization Committee, International Federation of Classification Societies meeting, Chicago. (7/2004).

Newsletter Editor and Board Member, Classification Society of North America Newsletter. (1/2005-present).

Organizer, Joint Statistical Meetings, Two Topic Contributed Sessions on Record Linkage (ASA Section on Survey Research Methods), Toronto, Canada. (8/2004).

Organizer, Joint Statistical Meetings, Topic Contributed sessions on Disclosure Limitation and Microdata Research (ASA Government Statistics Section), Toronto, Canada. (8/2004).

Scientific Organizing Committee, IMS-ASA's SRMS Joint Mini-Meeting on Current Trends in Survey Sampling and Official Statistics, Calcutta, India. (1/2004-3/2004).

LORENZ, FREDERICK O.

Chair, session on "Housing and rural well-being among lower income populations, part II", Rural Sociological Society meetings. (8/11/2004-8/15/2004).

Chair, session on "Methodological issues in rural research," Rural Sociological Society meetings. (8/11/2004-8/15/2004).

Chair, session on "The influence of family on health and well-being", Rural Sociological Society meetings. (8/112004-8/15/2004).

MAITRA, RANJAN

Member, Executive Committee, Section on Statistical Computing, and Graphics, ASA. (2002-05).

Panelist for reviewing proposals submitted to the Mathematical and Computer Science Panel, National Science Foundation. (2004).

MEEKER JR., WILLIAM Q.

Chair, ASA Publications Committee. (1998-05) (Chair, 2005-06).

Chair, ASA Taskforce on Journals Marketing

Member, ASA Taskforce on Electronic Publications. (2002-04).

NSF SCREMS Proposal Review Panel. (2005).

MORRIS, MAX D.

Member, National Academy of Science, Survivability and Lethality Review Panel (for the Army Research Laboratory). (1/1/2002-12/31/2006).

NETTLETON, DANIEL S.

Member, NSF-sponsored Maize Oligonucleotide Array Project Advisory Committee. (5/7/2004-present).

NUSSER, SARAH M.

Chair Elect and Chair, ASA, Survey Research Methods Section Executive Committee. (1/1/2004-12/31/2005).

Member, ASA (SRMS), Behavioral Risk Factor Surveillance System Advisory Group to the CDC. (1/1/2001-12/31/2005).

Member, ASA, Management Committee for the Journal of Agricultural, Biological and Environmental Statistics. (1/1/2002-12/31/2004).

Member, International Biometric Society, Management Committee for the Journal of Agricultural, Biological and Environmental Statistics. (1/1/2005-12/31/2005).

Member, ISI International Association of Survey Statisticians, IASS Council. (1/1/2005-12/31/2008).

Member, National Academies, Social Security Representative Payees Committee. (3/1/2005-3/1/2007).

OPSOMER, JEAN D.

Chair, ASA Section on Statistics and the Environment. (2005).

Member of Advisory Panel, National Science Foundation, Methodology, Measurement, and Statistics Program. (2005-08).

Member, ENAR Student Paper Award Committee. (2004-06).

ROLLINS, DERRICK

Faculty Advisor to the NSF Program for the Production of African American Ph.D.s in the Mathematical Sciences. (2001-present).

Gordon Conference Session Chair for Statistics in Chemistry and Chemical Engineering. (2005).

SHELLEY II, MACK C.

Reviewer of proposals for American Educational Research Association, American Educational Research Association, Annual Conference. (2005).

Reviewer of proposals for University Council for Educational Administration, University Council for Educational Administration , Annual Conference. (2005).

SHERMAN, PETER J.

Member, Third Symposium on Fluctuations and Noise, of the SPIE-2005 Conference, Technical Program Committee Member. (5/23/2005-5/26/2005).

STEPHENSON, W. ROBERT

Member, ASA, Advisory Committee on Teacher Enhancement. (1/1/2004-12/31/2006).

Member, ASA, Publications Committee. (1/1/2004-12/31/2006).

Member, ASA, Section on Statistical Education Fellows Committee. (1/1/2003-12/31/2005).

Member, Mu Sigma Rho, the National Statistics Honor Society, Board of Directors. (1/1/1997-12/31/2006).

VARDEMAN, STEPHEN B.

Chair, University of Tennessee Department of Statistics, Operations, and Management Science, Department Review Committee. (4/4/2005-4/25/2005).

Member, American Society for Engineering Education, Meriam/Wiley Distinguished Author Award Committee. (1/1/2004-12/31/2006).

Papers Presented, Lectures & Seminars

ADAMS, DEAN C.

"A generalized framework for the analysis of phenotypic change." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Fairbanks, AK, 2005.

"A multivariate method of model selection for evolutionary data." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Fairbanks, AK, 2005.

"Evolution of wing shape in Blepharoneura: (Diptera: Tephritidae)." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Fairbanks, AK, 2005.

"Fine scale trophic polymorphism in a terrestrial salamander." Joint Annual Meeting of the American Society of Ichthyologists and Herpetologists, the Herpetologist League, and the Society for the Study of Amphibians and Reptiles. Norman, OK, 2004.

"How similar morphogenetic processes do not equal parallel patterns of phenotypic change." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Fairbanks, AK, 2005.

"Morphological variation in populations of Plethodon cinereus and Plethodon hubrichti." Joint Annual Meeting of the American Society of Ichthyologists and Herpetologists, the Herpetologist League, and the Society for the Study of Amphibians and Reptiles. Norman, OK, 2004.

"Morphology of Invasiveness: A Study of Seed Shape in Foxtails (Setaria spp.)." Annual Meeting of the American Institute of Biological Sciences. Washington, DC, 2004.

"Quantitative genetics of plastron shape in slider turtles (Trachemys scripta)." Joint Annual Meeting of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. Fairbanks, AK, 2005.

"Quantitative genetics of shape variation in the slider turtle (Trachemys scripta)." Annual Meeting of the Society of Integrative and Comparative Biolog. New Orleans, LA, 2004.

"Quantitative genetics of shape variation in the slider turtle (Trachemys scripta)." Joint Annual Meeting of the American Society of Ichthyologists and Herpetologists, the Herpetologist League, and the Society for the Study of Amphibians and Reptile. Norman, OK, 2004.

"Wing shape in Blepharoneura: a morphometric approach." Iowa Academy of Sciences. Mt. Vernon, IA, 2005.

ATHREYA, KRISHNA

Colloquium speaker, IIT, Chennai. Gauhati, India, 2004.

Colloquium speaker, ISI. New Delhi, 2004.

Colloquium speaker, Kartnatak University. Dharwad, India, 2004.

Invited speaker, Ramanujan Day, IIT. Chennai, 2004.

BAILEY, THEODORE B.

"Evaluation of the use of molecular markers to identify and select genotypes." Joint Statistical Meetings. American Statistical Association. Toronto, Canada, 2004.

"Oxalate and phytate concentrations in seeds of soybean (Glycine max L.)." Botany Society of America. Phytochemical Section. Snow, UT, 2004.

"Trichomes on the gynoecium of cultivar Clark (Glycine max L.), seven near-isogenic lines, and a tetraploid Clark: A comparative study of their relative numbers and types." Botany Society of America. Developmental and Structural Section. Snow, UT, 2004.

CARAGEA, PETRUTZA C.

"A collection of problems in spatial statistics and an application of standard (and non standard) tools to an environmental problem." Department of Regional and Community Planning. GIS Seminar. Iowa State University. Ames, IA, 2004.

"Alternative estimation of spatial parameters for large data sets." Séminaire Européen de Statistique 2004 Statistics of Spatio-Temporal Systems. Bernried, Germany, 2004.

"Likelihood approximations in spatial statistics." COMPSTAT, 16th Symposium of International Association for Statistical Computing. Prague, Czech Republic, 2004.

"Modeling global covariance structures using local information." ENAR 2005, Spring Meetings. Austin, TX, 2005.

CARRIQUIRY, ALICIA L.

"An analysis of the volatility of exchange rates in a financial forensic problem." Department of Economics, Iowa State University. May, 2005.

"Bayesian methods in agriculture." Conference on Statistics in Agriculture, Kansas State University. Manhattan, KS, April 24, 2005.

"Estimation of usual nutrient exposure." Workshop on Nutrient Risk Assessment. World Health Organization. Geneva, Switzerland, May 2-6, 2005.

"The analysis of microarray data." Keynote address, Conference on Statistics Applied to Agriculture. (With Tanzy Love) Kansas State University. Manhattan, KS, April 25, 2005.

"The probative value of bullet lead evidence." Sixth International Conference on Forensic Statistics. College of Law, Arizona State University. Tempe, AZ, March 17-19, 2005.

CHEN, SONG X.

"Nonparametric estimation of expected shortfall." Mathematical Forschungsinstitut Oberwolfach. Oberwolfach, Germany, 2004.

"Nonparametric specifications tests for continuous-time diffusion models." University of Iowa. Iowa City, IA, 2004.

"Nonparametric specifications tests for continuous-time diffusion models." ICSA International Statistical Conference. Singapore, 2004.

"The second order properties of empirical likelihood for generalized estimation equations." The Mid-West Econometric Group Annual Meeting, North-Western University. 2004.

COOK, DIANNE

"Exploring microarray data with plots." Poster series for the American Statistical Association Section on Statistical Graphics. (With M. Theus and H. Hofmann) University of Iowa. March 2005. http://www.amstatonline.org/sections/graphics/ .

"GENEGOBI : Visual data analysis tools for microarray data." *In* Proceedings in Computational Statistics 16th Symposium. (With H. Hofmann, E-K Lee, , E. S. Wurtele, D. Kim, J. Kim and H. An) Antoch, Jaromir (ed.). Prague, Czech Republic, 2004.

"Interactive and dynamic graphics for data analysis using XGobi/GGobi." XLSolutions. Boston, MA, July 29-30, 2004.

"Visualizing class and cluster structure beyond 3D." International Federation of Classification Societies Annual Meeting. Chicago, IL, 2004.

DAVID, H. A.

"Ranked-set sampling: 1. Early History. 2. Estimation of dispersion." International Statistical Institute meetings. Sydney, Australia, 2005.

DORMAN, KARIN.

"Local dynamics of virus-host interactions as a marker of disease progression: analysis of clinical data in EIAV infected horses." VII International Meeting on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases. (With M. Macedo, S. Carpenter, J. A. Richt, J. L. Oaks, R. H. Mealey, T. C. McGuire and K. S. Dorman) Valencia, Spain, July, 2004.

"Numerical methods for branching processes with applications to HIV drug resistance." Society for Mathematical Biology. University of Michigan. 2004.

"Population genetics of EIAV." Fourth Biannual All Iowa Virology Symposium. Ames, IA, 2004.

"Recombination in Hepatitis B Virus: a survey with evidence for the presence of hotspots." VII International Meeting on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases. (With F. Fang, M. Rischmiller, M. A. Suchard and K. S. Dorman) Valencia, Spain, July, 2004.

"Selection on rev during persistent EIAV infection of horses." HIV Dynamics and Evolution 12th International Workshop. Cleveland, OH, 2005.

FROELICH, AMY G.

"Alternative construction of a food insecurity and hunger measure from the 1995 Current population survey food security supplement data." Workshop on the Measurement of Food Insecurity and Hunger. Washington, DC, 2004.

"Engaging students in statistical discovery." Joint Mathematical Meetings. Atlanta, GA, 2005.

"Engaging students in statistical discovery." Joint Statistical Meetings. Toronto, Canada, 2004.

"Multidimensional item response theory." Workshop. Annual Meeting of American Research Educational Association and National Council on Measurement in Education. Montreal, Canada, 2005.

"Using hands-on methods with computer simulations to teach sampling distributions and inference." United States Conference on Teaching Statistics. Columbus, OH, 2005.

FULLER, WAYNE A.

"Analytic studies with complex survey data." R. L. Anderson Memorial Lecture. University of Kentucky. Lexington, KY, 2005.

"Fractional nearest neighbor imputation." Complex Sampling Retrospective Sampling and Missing Data. Auckland, New Zealand, 2005.

"Replicated nearest neighbor imputation." 55th Session of the International Statistical Institute. Sydney, Australia, 2005.

"Replication variance estimation for the two-phase regression estimator." Joint Statistical Meetings. Toronto, Canada, 2004.

"The National Resources Inventory." Roles of Statistics in 21st Century Monitoring and Assessment Systems. Denver, CO, 2004.

"Variance estimation in complex surveys." 55th Session of the International Statistical Institute. Sydney, Australia, 2005.

HOFMANN, HEIKE

"GENEGOBI : Visual data analysis tools for microarray data." *In* Proceedings in Computational Statistics 16th Symposium. (With E-K Lee, D. Cook, E. S. Wurtele, D. Kim, J. Kim and H. An) Antoch, Jaromir (ed.). Prague, Czech Republic, 2004.

"Graphical methods for linear models." VIGRE graphical and computational statistics working group. Iowa State University. 2004.

"Interactive biplots for visual modelling." COMPSTAT. Prague, Czech Republic. 2004.

"Viewing poll data - elections 2004." VIGRE graphical and computational statistics working group. Iowa State University. 2004.

ISAACSON, DEAN L.

Invited discussant for the SPAIG session at the JSM in Toronto. August, 2004.

KOEHLER, KENNETH J.

"Imputation and tests of independence for incomplete two-way contingency tables." Toronto, Canada, 2004.

"Prevention of fatty liver in transition dairy cows by subcutaneous glucagon injection." 12th International Conference on Production Diseases in Farm Animals. East Lansing, MI, 2004.

LAHIRI, SOUMENDRA N.

"Bootstrap methods and time sries data." Discussant. Joint Statistical Meetings of the ASA, ENAR/WNAR, IMS, SSC. Toronto, Canada, 2004.

LARSEN, MICHAEL

"Advances in record linkage theory." Survey Research Methods Section, ASA. Minneapolis, MN, 2005.

"Bayesian hierarchical modeling of National Resource Inventory survey data." Invited talk. Joint Statistical Meetings, ASA, Section on Survey Research Methods. Toronto, Canada, August, 2004.

"Bayesian record linkage." Poster presentation. International Society for Bayesian Analysis World Meeting. Vina del Mar, Chile, 2004.

"Hierarchical Bayesian record linkage at Census." Census Bureau, Statistical Research Division. Suitland, MD, 2005.

"Hierarchical Bayesian record linkage at NCHS." National Center for Health Statistics. Hyattsville, MD, 2005.

"Hierarchical Bayesian record linkage theory." National Institute of Statistical Sciences (NISS). Research Triangle Park, NC, 2005.

"Hierarchical Bayesian approaches to record linkage." Biostatistics. University of Iowa. 2005.

"Hierarchical Bayesian approaches to record linkage." Statistics. University of Missouri. Columbia, MO, 2005.

"Model-based record linkage and analysis of linked files." Institute for Statistics and Decision Sciences. 2004.

"Multiple imputation for cluster analysis." Classification Society of North America and Interface Foundation. St. Louis, MO, 2005.

"Normal mixture models with covariance structure fit to infant temperament data with missing values." VIGRE Computational and Graphical Statistics Working Group. Iowa State University. 2004.

"Record linkage of administrative files and analysis of linked files." IMS-ASA's SRMS Joint Mini-Meeting on Current Trends in Survey Sampling and Official Statistics. Raichak, West Bengal, 2004.

"Record linkage and counter terrorism." Invited Talk. International Federation of Classification Societies. Chicago, IL, July, 2004.

LORENZ, FREDERICK O.

"Husband and wife differences in response to stressful life events." A paper presented at the Rural Sociological Society meetings. (With Xia Xu and K. A. S. Wickrama.) Sacramento, CA, August 11-16. 2004.

"Multiple regression in two independent variables: Examining the algebra of collinearity.", "'Structural equations in latent variables,' or 'What can you learn from path analysis?'", and "Modeling growth and decline with structural equations." Invited workshop. A series of three presentations presented as day-long workshops to the faculty of St. Cloud State University. April 1, 2005.

"The effects of divorce on women's physical and emotional health." Presented as part of a symposium on "Rural families: How family structure and process are related to mental and physical outcomes". Eighteenth Biennial Meeting of the International Society for the Study of Behavioral Development. Ghent, Belgium, July 11-15, 2004.

"The short-term and decade long effects of divorce on health outcomes." International Society for the Study of Behavioral Development. Ghent, Belgium, 2004.

MAITI, TAPS

"Resampling based empirical prediction: An application to small area estimation." National Center for Heath Statistics. Washington, DC, 2005.

MAITRA, RANJAN

"Clustering massive datasets from arbitrary Gaussian mixtures." International Statistical Institute Meetings. Sydney, Australia, 2005.

MEEKER JR., WILLIAM Q.

"Advanced statistical methods for assessment of probability of detection." International Statistical Institute Meeting. Sydney, Australia, Apri1, 2005.

"Failure amplification method: An information maximization approach to categorical response optimization." Invited discussion of V. Roshan Joseph and C. F. J. Wu., Joint Statistical Meetings. Toronto, August 7-12, 2004.

"Statistical methods for accelerated testing." Short course. 3M Company. St.Paul, MN, October 12-14, 2004.

"Statistical methods for accelerated testing." Short course, HP. Corvallis, OR, August 2-4, 2004.

"Statistical methods for accelerated testing." Short course, HP. Vancouver, WA, August 16-18, 2004.

"Statistical methods for accelerated testing." Short course. Marine Corps Program Development. Fallbrook, CA, November 22-24, 2004.

"Statistical methods for reliability data." Invited tutorial. Eighth International Conference on Probability Methods Applied to Power Systems. Ames, IA, September 13, 2004.

"Statistical methods for reliability data." Short course. Agricultural Construction Equipment Conference. Davenport, IA, March 8, 2005.

"Statistical Methods for Product Life Analysis." Short course. Procter and Gamble. March 15-17, 2005.

"Use of graphics and simulation to better understand concepts of reliability data analysis." Invited talk. JMP User's Conference. Cary, NC, August 29-31, 2004.

"Use of a transfer function model to predict field reliability from accelerated test data." General Electric Global Research Center. Schenectady, NY, September 15, 2004.

"Using accelerated tests to predict service life of organic materials subjected to outdoor qeathering." Service Life Prediction meeting, National Institute of Standards and Technology. July 26, 2004.

"Using simulation and graphics as an aid in planning complicated experiments." International Society for Business and Industrial Statistics 4 Conference. Palm Cove, Australia, April 15, 2005.

MORRIS, MAX

"Input sampling based on balanced incomplete block designs." SAMO Summer School in Sensitivity Analysis. Venice, Italy, 2004.

"Input screening using 'elementary effects'." SAMO Summer School in Sensitivity Analysis. Venice, Italy, 2004.

"Input uncertainty and potential-to-validate: Sampling plans for Monte Carlo assessment." VVA Foundations 2004 (Verification, Validation and Accreditation of computer models). Tempe, AZ, 2004.

NETTLETON, DANIEL S.

"Clustering and classification analysis of microarray data." Plant Microarray Short Course on Design and Analysis of Microarray Experimentation. Madison, WI, 2005.

"Mixed linear model analysis of two-color microarray data." Workshop. Plant Long-Oligonucleotide Microarray. University of Arizona. Tucson, AZ, 2004, 2005.

"Some example microarray experimental designs and analyses." NCR170: North-Central Regional Research Project and USSES: University Statisticians of Southern Experiment Stations Meeting. University of Florida. Miami, FL, 2004.

"Statistical design and analysis of microarray experiments." International Symposium on Heterosis in Plants. University of Hohenheim. Stuttgart, Germany, 2005.

"Using observed p-values to estimate the number of true null hypotheses when conducting many tests." Department of Statistics, Arizona State University. Tempe, AZ, 2005.

"Using observed p-values to estimate the number of true null hypotheses when conducting many tests." Cornell University. Ithaca, NY, 2004.

"Using observed p-values to estimate the number of true null hypotheses when conducting many tests." Statistical Genomics. University of Alabama. Birmingham, AL, 2005.

NORDMAN, DANIEL

"Empirical likelihood under long-range dependence." Department of Statistics, Iowa State University. Ames, IA, 2005.

"Optimal blocks for a spatial subsampling method." Statistics Group. U.S. Geological Survey. La Crosse, WI, 2004.

NUSSER, SARAH M.

"Computer-assisted data collection for geographic features." Joint Statistical Meetings. Toronto, Canada, 2004.

"Evaluating sample designs for monitoring chronic wasting disease." Department of NREM, Iowa State University. Ames, IA, 2005.

"Using data from the National Resources Inventory." REAP Alliance. Ankeny, IA, 2004.

"Sample designs for quality control monitoring in surveys." 55th International Statistical Institute. Syndey, Australia, 2005.

OPSOMER, JEAN D.

"A nonparametric analysis of the distribution of Convolvulus arvensis in wheat-sunflower rotations." Computational Environmetrics Workshop. Chicago, IL, 2004.

"A nonparametric test for detecting local deviations from a parametric model." Bureau of Labor Statistics. Washington DC, March 11, 2005.

"Estimation par régression non paramétrique dans les enquêtes complexes." Quatrième Colloque Francophone sur les Sondages. Québec, Canada, May 27, 2005.

"Nonparametric small area estimation using penalized spline regression." International Biometric Society Easter North American Region meeting. Austin, TX, March 21, 2005.

"Nonparametric small area estimation using penalized spline regression." Joint Statistical Meetings. Toronto, Ontario, Canada, 2004.

"Penalized splines and small area estimation." Universidade da Coruna. La Coruna, Spain, 2004.

"Two applications of nonparametric regression in survey estimation." Texas A&M University. 2004.

"Two applications of nonparametric regression in survey estimation." University of Lund. Lund, Sweden, 2004.

ROBERTS, CARL W.

"TCA: General purpose software for semantic and thematic text analysis." Sixth International Conference on Social Science Methodology. Amsterdam, 2004.

ROLLINS SR., DERRICK K.

"An improved PCA approach for microarray data analysis." AIChE annual meeting. (With D. Zhai and R. Gonzalez.) Indianapolis, IN, 2005.

"A tutorial in system identification under serially correlated noise using statistically design data and plant data." AIChE spring meeting. Atlanta, GA, 2005.

"Continuous-time block-oriented adaptive on-line modeling for time varying systems." (With S. Loveland.) AIChE Annual Meeting. Indianapolis, IN, 2005.

"Continuous-time dynamic exogenous modeling from plant data." NOBCChE annual meeting. (With N. Bhandari, S. W. Mohn, N. M. Matos (speaker), and S. Chin.) Orlando, FL, 2005.

"The role of EVOP in combinatorial sciences." NOBCChE annual meeting. (With Timcke, Lanaire, (speaker)). Orlando, FL, 2005.

SHELLEY II, MACK C.

"Cardiovascular disease risk reduction efforts among law enforcement officers: An application of the precede-proceed planning model." National Institute for Occupational Safety and Health symposium, Steps to a Healthier U.S. Workforce 2004 Integrating Protection and Promotion. George Washington University. Washington, DC, 2004.

"Congressional earmarks and higher education: An impact study of federal 'pork' funding." Association for the Study of Higher Education Conference. Kansas City, MO, 2004.

"Do NCTM reform practices matter? Predicting precollege student mathematics achievement using NAEP 2000 data." Joint Statistical Meetings. Toronto, Ontario, Canada, 2004.

"Effects of learning team characteristics on first-year undergraduate retention: Evidence from structural equation models." American Educational Research Association. Montréal, Quebec, Canada, 2005.

"Effects of learning communities on undergraduate student outcomes." 7th Annual Learning Communities Institute. Ames, IA, 2005.

"E-political empowerment: Age effects and attitudinal barriers." Midwest Sociological Society. Minneapolis, MN, 2005.

"E-political empowerment: Age effects and attitudinal barriers." Summer Institute for Digital Government. Syracuse, NY, 2004.

"Evaluation of the Iowa behavioral alliance: SWIS, PBS, RISE, and aeIou." Iowa Educational Research and Evaluation Association Annual Conference. Waterloo, IA, 2004.

"Factors that influence retention and graduation: How to keep 'em and complete 'em." Iowa Educational Research and Evaluation Association Annual Conference. Waterloo, IA, 2004.

"Give the people what they want: Research notes from the hunt for better electronic rulemaking." National Conference on Digital Government Research. Atlanta, GA, 2005.

"Glove liner wear study." Midwest Rural and Agricultural Safety and Health Forum. Coralville, IA, 2004.

"Grant writing." Iowa State University Residence Halls System. Ames, IA, 2005.

"Housing and rural community vitality." American Association of Family & Consumer Sciences 2005 Annual Conference and Exposition. Minneapolis, MN, 2005.

"Housing in rural communities." Department of Human Development and Family Studies, Iowa State University. Ames, IA, 2005.

"Iowa council of the homeless committee to discuss methodology issues pertaining to forthcoming Iowa homeless study." Iowa Department of Public Health. Des Moines, IA, 2004.

"Path analysis." Greenlee School of Journalism and Communication Research Friday Seminar. Ames, IA, 2005.

"Predictors of e-political involvement: Are seniors slipping through the digital cracks?" 57th Annual Scientific Meeting of the Gerontological Society of America. Washington, DC, 2004.

"Preliminary evaluation of CVD morbidity risk factors and perception of health among law enforcement officers employed by the Milwaukee police department." National Institute for Occupational Safety and Health symposium, Steps to a Healthier U.S. Workforce 2004 Integrating Protection and Promotion. George Washington University. Washington, DC, 2004.

"Rural community vitality: A housing perspective." Housing Education and Research Association annual meeting. Chicago, IL, 2004.

"The effects of obesity intervention and selected covariates on self-esteem at time 2 (among 9th grade students in the adolescent health dataset)." American Educational Research Association Institute on Statistical Analysis for Education Policy. Montréal, Quebec, Canada, 2005.

"The role of housing in rural community vitality." Midwest Sociological Society. Minneapolis, MN, 2005.

"VIE: Vertical integration of computer, electrical, and mechanical engineering education." National Science Foundation Engineering Education and Centers Grantees Conference. Washington, DC, 2005.

SHERMAN, PETER J.

"Statistical signal processing tools applied to elements of quantum computing." University of Vienna. 2004.

STEPHENSON, W. ROBERT

"Engaging students in statistical discovery." Joint Mathematics Meetings. Atlanta, GA, 2005.

"Engaging students in statistical discovery." Joint Statistical Meetings. Toronto, Canada, 2004.

"TEAMS: A statistician's perspective." Joint Statistical Meeting. Toronto, Canada, 2004.

VARDEMAN, STEPHEN B.

"Developmental and operational testing and "standard" statistical methodologies and philosophy." National Academy of Sciences Workshop on Testing for Dynamic Acquisition of Defense Systems. Washington, DC, 2004.

"Engineering statistics and statistical process control." Genencor Corporation. Cedar Rapids, IA, 2005.

WU, HUAIQING

"Compromise plans with clear two-factor interactions." Department of Statistics and Actuarial Science. Simon Fraser University. Burnaby, British Columbia, Canada, 2005.

"Compromise plans with clear two-factor interactions." The International Conference on Design of Experiments: Theory and Applications. Memphis, TN, 2005.

CONTRACTS & GRANTS 2004-05

AMERICAN HEART ASSOCIATION

Koehler, Kenneth J., Co-PI.
With: Manju B. Reddy (PI). Soy isoflavones and cardiovascular disease risk. 2003-06.

AMERICAN JUDICATURE SOCIETY AND THE FOUNDATION FOR THE ADVANCEMENT OF AN INDEPENDENT JUDICIARY AND THE RULE OF LAW

Shelley II, Mack C., PI. Evaluation of judicial branch education project. 2005-06.

ATLAS MATERIAL TESTING TECHNOLOGY, SHERWIN WILLIAMS COMPANY

Meeker Jr., William Q. Statistical modeling of service life prediction. 2004-06.

CIAG RESEARCH SUPPORT PROGRAM

Dorman, Karin, PI. Building a comprehensive model of pathogen-host interactions during persistent infection. 2004-06.

DES MOINES INDEPENDENT COMMUNITY SCHOOL DISTRICT

Shelley II, Mack C. Evaluation of the early reading first program. 2005-07.

DUXBURY PRESS

Larsen, Michael D., PI. Contract with Duxbury/Wadsworth/Thompson publishing for book Internet companion to statistics. 2002-05.

IOWA AGRICULTURE AND HOME ECONOMICS EXPERIMENT STATION

Koehler, Kenneth J., Co-PI.
With: Jack Dekkers (PI). Genetic enhancement of domesticated animal species. 2004-10.

IOWA BOARD OF REGENTS

Shelley II, Mack C., PI. Evaluation study of board of regents Title IIa. 2004-05.

IOWA DEPARTMENT OF EDUCATION

CSSM. **Anderson, Dianne**
With: B. Guy, P. Sitlinton and A. Frank. Senior exit surveys and transcript studies. 2004-06.

Shelley II, Mack C., PI. Evaluation of Des Moines independent community school district positive behavioral support implementation. 2005-06.

Shelley II, Mack C., Co-PI.
With: Brian Hand and Lori Norton-Meier (Co-PIs). Improving elementary science by connecting science inquiry and language arts. 2004-07.

Shelley II, Mack C., Co-PI.
With: Carl Smith, Marion Panyan and Kelli Tallman. Iowa positive behavioral supports for children and youth. 2003-08.

IOWA DEPARTMENT OF ELDER AFFAIRS

Shelley II, Mack C., PI. Evaluation of the aging and disability resource center project. 2005-07.

IOWA DEPARTMENT OF PUBLIC HEALTH

Shelley, Mack C., Co-PI.
With: Mary Jane Oakland and Grace Marquis (Co-PIs). Improving how WIC teaches nutrition: Using stages of change criteria and critical thinking skills to teach about vegetbles. 2002-04.

IOWA DEPARTMENT OF REVENUE

Vardeman, Stephen B., PI.
With: **M. D.Larsen** (Co-PI). Research collaboration agreement between tax research and program analysis section. 2005.

IOWA DEPARTMENT OF TRANSPORTATION

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

IOWA STATE UNIVERSITY (ISU)

Dorman, Karin. Women's enrichment fund. Women in mathematical sciences distinguished lecture series. 2005-06.

ISU, AGRONOMY DEPARTMENT

Opsomer, J. D.
With: R. Cruse, James D. Krajewski, J. M. Laflen and D. Todey. Daily soil erosion and water runoff estimates in Iowa. 2001-04.

ISU INSTITUTE OF SCIENCE & SOCIETY

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

ISU, UNIVERSITY RESEARCH GRANT

Caragea, Petrutza C., Co-PI. Spatial analysis for local public finance decision support. 2004-05.

JOHN DEERE FOUNDATION

Cook, Dianne, Co-PI. Visualization of high-dimenisonal control systems.
With: Julie Dickerson and Carolina Cruz-Neira. 2001-04.

Vardeman, Stephen B., PI. Quality and reliability research. 2003-05.

NATIONAL CENTER FOR HEALTH STATISTICS

Larsen, Michael D., PI. Advanced record linkage using hierarchical mixture models applied to health survey and administrative data. 2004-05.

NATIONAL INSTITUTE OF HEALTH (NIH)

Maiti, Taps, Co-PI. Bayesian neural networks for a prostrate cancer study. (Subcontract with University of Florida.) 2001-04.

Maitra, Ranjan, PI. Neuroimaging written language treatment and recovery, (Subcontract with Johns Hopkins University.) 2004-09.

NIH, NATIONAL INSTITUTE ON AGING (NIA)

Lorenz, Frederick O., Consultant. Ethnicity and socioemotional functioning in later life. 2002-07.

NIH, NATIONAL INSTITUTE ON ALCOHOL ABUSE & ALCOHOLISM (NIAAA)

Michael Larsen, Co-PI.
With: Laura DeHahn (PI). Community influences in rural adolescent alcohol use. 2005.

NIH, ISU/UI CENTER FOR RESEARCH ON BOTANICAL DIETARY SUPPLEMENTS

Koehler, Kenneth J., Co-PI.
With: D. Lee Alekel (PI). Effect of soy isoflavones on body composition in postmenopausal women. 2004-05.

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. 2002-07.

NIH, NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

Dixon, Philip, Co-PI.
With: D. Birt (PI). Integrated research on echinaceae and hypericum herbal medicines. 2002-07.

NIH, NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES (NIGMS)

Dorman, Karin, PI. Statistical, computational, and genetic analysis of HIV recombination. 2003-07.

NIH, NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH)

Bonnet, Doug G., Co-PI. Physiological effects of marital conflict. 2003-04.

Lorenz, Frederick O., Co-PI. Critical transitions in rural families at risk. 2001-04.

Lorenz, Frederick O., Co-PI. Factors influencing African-American Youths' health behaviors. 2001-04.

Lorenz, Frederick O., Consultant.
With: Cheryl Beuchler (PI). Interparent conflict and youth maladjustment. 2000-05.

NIH, NATIONAL SCIENCE FOUNDATION (NSF)

Brendel, Volker, PI.
With: **Dan Nettleton** (Colaborator) and **Karin Dorman** (Co-PI). BBSI Summer institute in bioinformatics and computational biology. 2002-07.

NATIONAL INSTITUTE OF JUSTICE

Morris, Max D., Co-PI. Characterization of toolmarks. 2004-06.

NATIONAL INSTITUTE OF STATISTICAL SCIENCES (NISS), NATIONAL SCIENCE FOUNDATION (NSF)

Larsen, Michael D., Co-PI.
With: Alan F. Karr (PI). Data confidentiality, data quality and data integration for federal databases: Foundations to software prototypes. Research on interagency data sharing, confidentiality, and record linkage. 2004-05.

NATIONAL SCIENCE FOUNDATION (NSF)

Adams, Dean C., PI. CAREER: Evolutionary community ecology in Plethodon salamanders. 2005-10.

Adams, Dean C., PI. REU supplement: Evolutionary community ecology in Plethodon salamanders. 2005-06.

Adams, Dean C., PI. ROA supplement: Evolutionary community ecology in Plethodon salamanders. 2005-06.

Bonett, Douglas G., Co-PI.
With: B. J. Bushman. Using prior kurtosis information to improve confidence intervals for standard deviations. 2003-04.

Brendel, Volker, PI. Plant GDB - plant genome database and analysis tools. 2004-06.

Brendel, Volker, Co-PI.
With: Sarah Hake (PI). Regulation of inflorescence architecture in maize. 2001-06.

Brendel, Volker, Co-PI.
With: Virginia Walbot (PI). Maize gene discovery, sequencing and phenotypic analysis. 2002-04.

Carriquiry, A. L. Ninth Latin American congress on probability and mathematical statistics. Punta del Este, Uruguay. 2004.

Carriquiry, A. L. International society for Bayesian analysis. Vina del Mar, Chile. 2004.

Carriquiry, **Alicia,** PI.
With: **William Meeker**, **Max Morris, Stephen Vardeman** and **Huaiqing Wu** (Co-PIs). Statistics for physical and engineering sciences: A plan for the establishments of a research training group. 2005-09.

Cook, Dianne, Co-PI.
With: Eve Wurtele and Julie Dickerson. Visualizing and modelling global expression data in Arabidopsis. 2002-05.

Cook, Dianne, PI.
With: **Heike Hofmann**, Eve Wurtele, Julie Dickerson, Dan Berleant and Les Miller. Arabidopsis 2010: MetNet: Integrated software for aribidopsis systems biology research. 2005-07.

Hofmann, Heike, Co-PI. Functional genomics of the biotin metabolic network of Arabidopsis. 2004-06.

Isaacson, Dean L. and **Kaiser, Mark**, Co-PIs. VIGRE. Department of Statistics. 2001-06.

Isaacson, Dean L., Co-PI.
With: Phil Kutzko. Iowa alliance for graduate education and the professoriate. 2002-07.

Isaacson, Dean L., Co-PI.
With: Phil Kutzko. The alliance for the production of African American PhD's in the mathematical sciences. 2002-05.

Lahiri, Soumendra N., PI. Resampling methods for temporal and spatial processes. 2000-04.

Lahiri, Soumendra N., PI. Higher order accuracy of bootstrap methods for temporal and spatial processes. 2003-07.

Larsen, M. D., Co-PI.
With: S. Kang and **F. O. Lorenz** (Co-PIs). Fractional imputation in social surveys. 2005.

Maiti, Tapabrata, PI. Topics in small area estimation. 2003-06.

Maitra, Ranjan, PI. CAREER.: Methodology for statistical computing in massive datasets–parallel approaches to clustering and MCMC estimation. 2003-08.

Meeker Jr., William Q., PI.
With: **A. L. Carriquiry**, **D. H. Cook, R. Maitra, D. S Nettleton** and **J. D. Opsomer** (Co-PIs). Computing equipment to support research in statistics. SCREMS program. 2004-06.

Nettleton, Daniel S., Co-PI.
With: Scanlon, Buckner, Janick-Buckner, Timmermans, Schnable (PI). Functional analyses of genes involved in meristem organization and leaf initiation. 2003-07.

Nettleton, Daniel S., Co-PI.
With: Stephen H. Howell (PI). Regulation of shoot development in Arabidopsis. 2003-06.

Nusser, Sarah M., PI.
With: L. M. Miller, M. F. Goodchild and K. Clarke (Co-PIs). Collecting and using geospatial data in the field: An extensible framework and testbed. 2000-04.

Nusser, Sarah M., PI.
With: L. M. Miller (Co-PIs). Enabling the creation and use of GeoGrids for next generation geospatial information. (Subcontract with University of Maine.) 2001-05.

Nusser, Sarah M., PI.
With: L. Miller, M. Goodchild and K. Clarke (Co-PIs). Geospatial knowledge in complex mobile field settings. 2003-06.

Opsomer, Jean D.,
With: H. Asbjornsen, R. M. Cruse, C. L.Kling, M. Z Liebman. Biocomplexity of integrated perennial-annual agroecosystems.

Opsomer, Jean D., Co-PI.
With: F. Jay Breidt (Co-PI). Theory and methods for nonparametric survey regression estimation. 2002-05.

Shelley II, Mack C., Co-PI.
With: Stuart Shulman (PI). Digital citizenship: expanding information technology literacy with a service-learning approach. *(*ITR grant.) 2001-04.

Shelley II, Mack C., PI.
With: Brian Hand (Co-PI). Education research meets the gold standard: Statistics and mathematics applications in science, reading, and research methodology. 2004-07.

Shelley II, Mack C., Co-PI.
With: Rover, Dickerson, Mina and Flugrad. Vertical integration of computer, electrical and mechanical engineering education. 2004-05.

Stephenson, W. Robert, PI.
With: **William M. Duckworth II** and **Amy G. Froelich** (Co-PIs). Conceptual statistics: Engaging students in statistical discovery. (Curriculum and Laboratory Improvement Program.) 2003-05.

Yang, Yuhong, PI. Adaptive regression for dependent data by combining different procedures. (Faculty Early Career Development (CAREER) Program.) 2001-06.

NATIONAL UNIVERSITY OF SINGAPORE

Chen, Song X. PI. Computer-intensive statistical methods for testing specifications of financial market models. 2001-04.

PEW FOUNDATION GRANT

Shelley II, Mack C., Co-PI.
With: Wolfgang Kleimann (PI). Course redesign for revising delivery of discrete mathematics. 2002-04.

PIONEER HI-BRED INTERNATIONAL, INC., ISU

Koehler, Kenneth J., PI. Research opportunity agreement to support plant breeding research. 2004-05.

PRATT & WHITNEY

Meeker Jr., William Q. Dual angle phased array multiple axis ultrasonic testing system-reliability calculations and inspectability support. 2003-05.

U.S. BUREAU OF THE CENSUS

Larsen, M.D., PI. Record linkage research. 2004-05.

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Brendel, Volker, Cook, Dianne and **Nettleton, Daniel**, Co-PIs.
With: Roger Wise and Julie Dickerson (PI). BarleyBase, a prototype online database for cereal microarrays with integrated tools for data visualization and statistical analysis. 2002-05.

Nettleton, Daniel S., Co-PI.
With: Tuggle, Geisert, Lunney, Reecy (Co-PIs). Identifying molecular genetic mechanisms controlling pig litter size: Expression profiling of peri-implantation conceptus and endometrium. 2003-06.

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

USDA, AGRICULTURE RESEARCH SERVICE

Brendel, Volker, PI. Database of maize genome information (DBMGI) - a new generation maize genome database. 2001-06.

USDA, CENTER FOR VETERINARY BIOLOGICS

Koehler, Kenneth J., PI. Consulting with biometrics section. Research Agreement to support development of statistical methodology. 2004-05.

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. 2001-05.

USDA, NATIONAL AGRICULTURAL STATISTICS SERVICE

Fuller, Wayne A., PI. Survey design and estimation. 2000-04.

USDA, NATIONAL RESEARCH INITIATIVE (NRI)

Dixon, Philip M. Co-PI.
With: K-J Yoon (PI). Genetic and antigenic evolution of PRRS virus in persistently infected pigs. 2002-05.

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. 2002-05.

USDA, NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

Nusser, Sarah M., PI.
With: **Jean D. Opsomer**, **Tapabrata Maiti**, **Michael D. Larsen** and **Cindy Yu (Co-PIs)**. Statistical and survey methods for the National Resources Inventory. 2003-04, 2004-09.

U.S. DEPARTMENT OF DEFENSE, AIR FORCE RESEARCH LABORATORY/SOLID STATE SCIENTIFIC CORPORATION

Vardeman, Stephen B., PI.
With: **Max D**. **Morris** (Co-PI)**.** Modeling and decision analysis for threat warning based on the time evolution of sensed electromagnetic spectra. 2004-05.

U.S. DEPARTMENT OF EDUCATION, NATIONAL CENTER FOR EDUCATION STATISTICS, IOWA ASSOCIATION OF SCHOOL BOARDS

Shelley II, Mack C., Co-PI.
With: Mari Kemis (PI). Evaluation of the lighthouse model. 2002-07.

U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS

Nusser, Sarah, M., PI. Strategies for improving abilities to use digital maps. 2002-04.

Opsomer, J. D. Evaluation of small area estimation approaches for the current employment survey. 2003-05.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Breidt, F. J.
With: **J. D. Opsomer**. Nonparametric model-assisted survey estimation for aquatic resources. Subcontract for STARMAP grant from Environmental Protection Agency to Oregon State University. 2001-06.

U.S. FEDERAL AVIATION ADMINISTRATION

William Q. Meeker. Thermal acoustic studies of engine disk materials source of support. 2004-07.

U.S. GEOLOGICAL SURVEY

Dixon, Philip M., PI. Analysis of Missouri River fish community data. 2004-05.

Kaiser, Mark S., PI.
With: **Philip Dixon (Co-PI)**. Spatial prediction of sediment categories for use in ecological response modeling. 2002-04.

WELLS FARGO, INC.

Koehler, Kenneth J., PI. Research Agreement to support development of statistical methodology. 2004-05.

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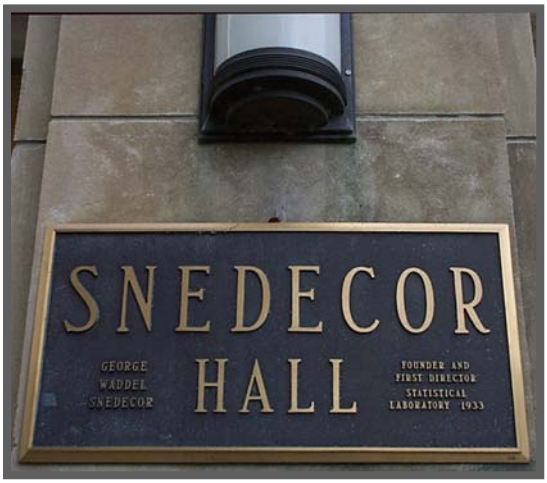

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Ken Koehler, Chair and Director

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