

A Note From The Head



Greetings to all our alumni and friends of the Department of Statistics. The faculty have several new research projects funded, and we continue to seek new initiatives to enhance our reputation as a top quality statistics program in Pennsylvania by providing outreach to the University and the State with collaboration, research and consulting services and quality

teaching. Despite the challenges this past year Penn State and the Eberly College of Science remain dynamic environments, with research activity and funding both increasing. With mixed emotions we celebrated the retirement of Eberly Professor **C.R. Rao** in June with a dinner at the Nittany Lion Inn, and launched the search for his replacement discovering the obvious in the process, that his shoes are hard to fill.

This past summer we filled two faculty positions with mid career faculty members, who bring special strength to our research capability. Professor **Steven Rathbun** fills a position partially supported by the Environmental Consortium, and Professor **Naomi Altman** brings broad experience in the agricultural and life sciences from the Biometrics Unit at Cornell University.

A most interesting trip for me this Fall was attending the International Statistical Institute in Seoul, South Korea. I met numerous friends of the department, though an especially nice surprise was discovering the President of the Korean Statistical Society, Professor **Yunkee Ahn**, Department of Applied Statistics, Yonsei University in Seoul. Professor Ahn is a 1973 graduate of Penn State University in Statistics, and over breakfast the last day, he recalled his time at Penn State in the department with **Jessica Utts**, **Bob Heckard** and **Ron Schrader**, to name a few of whom you can also surely recall.

Partly in response to an initiative supported by the Sloan Foundation, the department proposed a new professional Masters of Applied Statistics degree, officially beginning in the Fall semester of 2002. This new degree aims to

train all trained applied statisticians for industry and government. The program is built on many of our existing applied service courses, and has fewer theoretical courses and requirements than our existing M.A. and M.S. degrees in Statistics. We expect to enroll about 15 students per year in this new program in addition to the approximately 15 new students per year who enter our existing masters and Ph.D. programs. In the next few years, the World Campus would also like to include this program in their on-line programs to offer through the internet to anyone throughout the world. The first course, Stat 500, went on-line last year, taught by Senior Research Associate and Associate Professor **Mosuk Chow**, with great success, and is being offered again this Spring. See www.stat.psu.edu for more information on this course and the M.A.S. program.

The constant challenge of any university is to continually remake itself to include the exploding volume of new information, and the changing expectations of students with the rapid enhancement of technology available for the classroom. We are finishing up the evaluation of the transformation of the Stat 200 course, led by Professor **Bill Harkness**, and have discovered that by putting more responsibility on the students for their learning, incorporating more activities and projects into the course, and using the computer for organization, projects and testing, the course is practically self taught by the students and they are retaining more knowledge of the subject than in the past. Bill Harkness and the team working with him have reported on the project at several recent ASA meetings, and most recently at the annual department chairs meeting in Washington, D.C. this fall. The team, including **Patricia Buchanan**, **Mosuk Chow**, **William Harkness**, **Robert Heckard** and **Laura Simon** were the recipients of the first Schreyer Institute Collaborative Award in May, 2001, presented by the Schreyer Institute for Innovation in Learning at Penn State.

Hopefully a number of you can return for the Winter Alumni Weekend, February 8-9, to meet your colleagues. **Mark Becker**, 1985 Ph.D., was recently appointed Dean of the School of Public Health, University of Minnesota. He will be returning as the guest, keynote speaker on February 8, and will give a research seminar on February 7. See the web www.stat.psu.edu for more information and registration forms.

New Faculty & Staff

Naomi Altman, associate professor of statistics received her Ph.D. from Stanford University in 1988. Her research interests are nonparametric smoothing, model selection, longitudinal and spatial data, and functional data analysis.

Stephen Rathbun, associate professor of statistics received his Ph.D. from Iowa State University in 1990. His research interests are geostatistical data, and spatial point patterns.

Robin L.S. Hill joined our staff on April 2, 2001, as our Windows/NT/PC support person. She comes to us from U. Penn's Population Studies Center where she handled computer support in a similar environment.

James Lockwood joined our department on October 2, 2001, as the new Manager of Network and Information Systems. James comes from sunny California where he was employed at a start-up company called Quick Dog. In that position he was responsible for system administration, information technology and statistical data and clustering.

We extend a warm welcome to all of them!

Alumni Workshop

The Fourth Annual Alumni Workshop will be held on February 8-9, 2002. This is a great opportunity for past, present and future members of the department to get together for a day of collegiality, conviviality, and statistics.

Mark Becker, Dean and Professor of Biostatistics, School of Public Health, University of Minnesota, will be the keynote speaker. Mark received his Ph.D. from our department in 1985. His research on statistical methodology has appeared in leading journals of biometrics, medical statistics, sociology, and statistics, and he has co-authored publications in journals of accident analysis and prevention, dentistry, epidemiology, health services research, medicine, nursing, nutrition, and occupational health. Mark will also present at the department colloquium on Thursday at 4PM (remember tea and cookies at 3:30!).

Alumni of the department will be invited to give short presentations about their current research and/or professional careers, whether in academia or in industry. By providing exposure to statistical careers, these talks will be of value to current and prospective students in making their own school and career decisions. Masters and Ph.D. students in our department will also be given the opportunity to present short talks on their ongoing research providing prospective students with an introduction to the research of our department. Graduate classes will be canceled on Friday so that students can attend the workshop.

Alumni will display recruiting information and privately interview interested students throughout the Workshop. Alumni and current students are expected to mutually benefit from participation in the Workshop.

This year we are also planning a group lunch, gallery tour and evening reception. The workshop will be held in the Eisenhower Auditorium building, next to Thomas.

The Workshop is made possible through the combined efforts of students, faculty and staff of the department. **Andrea Piccinin** and **KB Boomer** are responsible for overall organization, SAC represents the students, and Professor **Steve Thompson** represents the prospective students. Please do not hesitate to contact them about your questions or suggestions.

Please check our web page for additional details and schedule updates and to complete a survey regarding your preferences: <http://www.stat.psu.edu/sac/workshop2002/alumniworkshop2002.html>

Congratulations

Several members of the department, who designed and implemented changes to an introductory class taken by more than 2,600 students each year, were honored with a Schreyer Institute Collaborative Award by the Schreyer Institute for Innovation in Learning. The award recognizes the efforts of the individuals and the impact of the restructured class, which made the educational process more engaging and meaningful to students, thereby improving their retention and understanding of course material.

Collaborators on the project were: **Patricia Buchanan**, instructor; **Mosuk Chow**, assistant professor; **William Harkness**, professor of statistics; **Matthew Herbison**, graduate assistant; **Robert Heckard**, senior lecturer; and **Laura Simon**, instructor.

Although the Schreyer Institute usually honors individuals with awards for innovation, it instituted a group award for the Department of Statistics because of the "remarkable collaboration" on the project.

The redesigned class, Stat 200, was initially implemented during the Fall 2000 semester as a result of a grant from the Pew Foundation's Learning and Technological Program with support from the Center for Academic Computing and several years of preliminary planning and work. As a result, the class was transformed from its traditional classroom-and-lecture format to a highly interactive, technology-based environment that encouraged group activities and team learning. Instead of three lectures and two recitation

sections per week, students attended one lecture and two computer laboratory sessions each week.

Members of the course-redesign team created more than 50 laboratory activities from which students could select assignments to meet the needs of their individual groups. Some web-based instruction was included and students worked more frequently with problems simulating real-life applications than with theoretical equations and formulas. The design allowed students to become more active participants in the educational process.

According to ongoing assessment efforts, the Schreyer Institute observed about a 20 percent improvement in tests of basic concepts compared to the traditional course and a reduction in the number of necessary teaching assistants from twelve to six.

There was a small ceremony and reception held in the department in recognition of these efforts. The plaque is hanging in the conference room - 327 Thomas.

Special Honors

Dr. **G.P. Patil**, distinguished professor of mathematical statistics and director of the Center for Statistical Ecology and Environmental Statistics, has been invited to serve on the UNEP Science Advisory Board chaired by Nobel Laureate Mario Molina in the UNEP Initiative on its annual State of the Environment Report. The UNEP Assembly has recently passed the resolution to initiate such an annual report.

Dr. **G.P. Patil** was invited to give a plenary lecture to the Portuguese Statistical Congress held in Ponte Delgada, Portugal on November 5, 2001. He was invited to give a plenary lecture at the Brazilian Ecological Congress held in Porto Alegre, Brazil on November 8, 2001. He was also invited to give a plenary lecture at the International Environmetrics Society at its annual meeting in Portland, OR on August 14, 2001.

Dr. Patil was invited to chair and organize a special session at the National EPA Conference on Statistics and Information held in Philadelphia during May 2001. The major theme of the session was: Multivariate Advanced Raster Map Analysis for Sustainable Environment and Development.

Dr. **Michael G. Akritas** was named a Fellow of the American Statistical Association in a presentation ceremony during the ASA Presidential Address at the Joint Statistical Meetings held August 5-9, 2001 in Atlanta, GA.

Visitors

During the past year the Statistics Department has had a few visitors from other universities who have come to Penn State to do research or teach some of our statistics classes.

Professor **Wilson Khaemba** of MOI University has been visiting with Dr. **Steve Thompson** since December 2000 and will be working in the SCC during January, 2002.

Fulvia Mecatti and **Sonia Migliorati**, graduate students at the Università degli Studi di Milano Bicocca visited our department in May 2001 and did research with Dr. **Steve Thompson**.

Professor **Neal Rogness**, Assistant Dean of the Science and Math Department at Grand Valley State University in Allendale, MI was a visitor in the Statistical Consulting Center August 27 - October 26, 2001.

Esa Ollila, post-graduate researcher in the Statistics Program of the Graduate School in Computing and Mathematical Science (COMAS) at the University of Jyväskylä, Finland visited Dr. **Thomas Hettmansperger** from August 2001 through December 31, 2001.

Martin Hillebrand, graduate student from the University of Oldenburg in Germany, visited the Center for Likelihood Studies from November 10-December 12, 2001. We thank them for their interest in our department.

Statistical Centers

Center for Statistical Ecology & Environmental Statistics

Graduate research assistant, **Sonia Rodriguez**, has completed her Ph.D. with her dissertation on "Statistical data mining of remote imagery for characterization, classification and comparison of landscape and watersheds of Pennsylvania" and has continued to be on the faculty of the University of Costa Rica.

Graduate intern, **Amy Burnicki**, has completed her M.S. thesis on "Comparison of absolute and conditional entropy profiles for assessing landscape fragmentation," and has accepted a graduate research assistantship for her Ph.D. degree at the University of Michigan.

Center for Likelihood Studies

The work of the Center has continued to thrive over the last year. In August, the National Science Foundation funded a three-year grant that will continue support to the director and graduate students within the center as well as assistant professor Francesca Chiaromonte.

At this time, most of the research focus of the center is on statistical distance, mixture models, and estimating equations. In the last year, considerable new focus has been placed on applications of these methods in genomics.

Another important new development this year was the creation of an expanded website, complete with downloadable technical reports.

A formal library for the center was created in August 2000. The collection includes 300 books in 20 categories and 20 of the most popular statistical journals.

Jerry Maples, graduate student, gave a talk at the Joint Statistical Meetings in Atlanta, GA, in August 2001. His talk was entitled "How to incorporate subject specific effects into a response curve for marginal mean models under a GEE setting."

Surajit Ray, graduate student, presented a poster at the Case Studies in Bayesian Statistics Workshop on September 28-29, 2001 at Carnegie Mellon University, Pittsburgh, PA. The title was "Multivariate mixture models: a tool for analyzing gene expression data."

Colloquium

Under the direction of Drs. **David Hunter** and **Jouni Kuha**, assistant professors of statistics (Spring 2001) and Drs. **Jaeyong Lee** and **Jia Li**, assistant professors of statistics (Fall 2001) the department once again enjoyed excellent speakers for our colloquium series throughout the year. Those presenting from outside Penn State included, **Yongdai Kim**, Hankuk University of Foreign Studies, South Korea, **Frank Hampel**, ETH, Zurich, Switzerland, **Naomi Altman**, Cornell University, **Gary Flake**, NEC Research Institute, New Jersey, **Laszlo Markus**, Eotvos Lorand University, Budapest, Hungary, **Kathryn Roeder**, Carnegie Mellon, **Melanie Filas**, Anheuser-Busch, **Christopher Winship**, Harvard University, **Stephen Rathbun**, University of Georgia, **David Siegmung**, Stanford University, **Susan Murphy**, Michigan State University, **Nikolaos Papadatos**, University of Athens, **Ingrid Van Keilegom**, Universite Catholique de Louvain, Belgium, **Abram Kagan**, University of Maryland, **Ken Lange**, UCLA School of Medicine; **Rainer Von Sachs**, Universite Catholique de Louvain, Belgium, **Von Bing Yap**, University of California, Berkeley, **Leo Breiman**, University of California, Berkeley, **J. Sunil Rao**, Case Western Reserve University, **Michael Lin**, Ben-Gurion University, Israel, **David Ruppert**, Cornell University, **Zhezhen Jin**, Columbia University, **Doug Nychta**, National Center for Atmospheric Research, Boulder, Colorado, **Anil Bera**, University of Illinois at Urbana-Champaign, **Feifang Hu**, University of Virginia,

Jian Huang, University of Iowa, **Simon Sheather**, University of New South Wales & University of Sydney, **Manisha Desai**, Columbia University, **Dipak Dey**, University of Connecticut, **William Hunt**, North Carolina State University, **Garud Iyengar**, Columbia University, **Tong Zhang**, IBM Watson Research Center, **Kesar Singh**, Rutgers University.

Speakers from Penn State included **Michael Rendall**, **Ottar Bjornstad**, **Charles Cao**, **G.P. Patil**, **Arkady Tempelman**, and **C.R. Rao**

Faculty Talks

Dr. **Bruce Lindsay**, distinguished professor of statistics and director of the Center for Likelihood Studies gave several talks this year including Oregon State and Portland State University in June, 2001. In October, 2001, Dr. Lindsay spoke at Rutgers University. He gave a workshop in Edinburgh entitled "Workshop on statistical mixtures and latent structure modeling" on March 28-30, 2001 and another in Hamburg entitled "recent developments in mixture modeling," July 23-28, 2001.

Dr. **G.P. Patil**, distinguished professor of mathematical statistics and director of the Center for Statistical Ecology and Environmental Statistics spoke to the colloquium of CDC National Center for Health Statistics on October 9, 2001 and to the colloquium of EPA National Center for Environmental Assessment on October 23, 2001. Each colloquium was videotaped, videoprojected, and webcast to several interested sites of the respective agencies.

He also spoke to the colloquia of the University of Maryland, George Washington University and the Penn State University mathematics department, environmental and occupation health, and geography respectively during the month of October 2001.

Dr. **Joseph Schafer**, associate professor of statistics, presented a three day short course on missing-data techniques at the University of Southampton, UK, in May, 2001.

Dr. Schafer delivered the keynote address at the biannual meeting of the Netherlands Society for Statistics and Operations Research in Utrecht in November, 2001. The theme of the conference was "Symposium on incomplete data."

Faculty News

Dr. **G.J. Babu**, professor of statistics, received a three year \$1 million grant from the National Science Foundation to direct a Focus Research Group to develop a statistical methodology for the

National Virtual Observatory. The group includes Dr. **Eric Feigelson**, professor of astronomy and astrophysics at Penn State and colleagues at California Institute of Technology and Carnegie Mellon University, with collaborators in its departments of astronomy, computer science, and statistics.

Dr. **G. P. Patil**, distinguished professor of mathematical statistics and director of the Center for Statistical Ecology and Environmental Statistics, was invited to serve on the peer review panel for the STAR Grants competition on landscapes and ecosystems fellowships of the U.S. EPA during Spring 2001.

Dr. Patil was invited to serve on the Futures Panel of the International Environmetrics Society at its annual meeting in Portland, OR, in August 2001, along with Dr. **Ed Sondik**, Director of NCHS and Dr. **Reggie Cheatham**, Director of EPA, OIAA.

In June 2001, the National Center for Health Statistics (NCHS) released a multiply-imputed version of the Third National Health and Nutrition Examination Survey (NHANES III). This represents the first use of multiple imputation in public-use data files from a major U.S. survey. Dr. **Joseph Schafer**, associate professor of statistics, who has consulted on this project with NCHS since 1992, played a key role in developing the statistical methodology, creating the imputations and documenting the procedures. This is also available at: <http://www.cdc.gov/nchs/about/major/nhanes/nh3data.htm>.

In August, 2001, S-Plus Version 6, was released, containing a new Missing Data Library that implements the multiple imputation procedures described in Dr. Schafer's 1997 book *Analysis of Incomplete Multivariate Data* (Chapman and Hall). Some of Dr. Schafer's methods have also appeared in a new SAS procedure (Proc MI) and in the latest version of LISREL. Minitab, beware!

Eberly Professor Emeritus **C.R. Rao** and **Bhargavi Rao** have established an endowment titled "C.R. and Bhargavi Rao Prize for Outstanding Research in Statistics". The purpose of this endowment is to honor and recognize outstanding and influential innovations in theory and practice of mathematical statistics, international leadership in directing statistical research, and pioneering contributions by a recognized leader in the field. An announcement regarding the endowment is forthcoming.

The Department of Statistics has received an anonymous gift for enhancement of the graduate program which helps provide funds to travel to meetings and other professional functions. We are very thankful for this gift because it provides quality enhancement to our program.

Awards

Congratulations to the following students who received departmental travel award funds: **Jean Recta**, **Jim McDermott**, **Shu-Chuan Chen**, **Jerry Maples**, **Hwan**

Chung, **Hakan Demirtas**, **Michele Shaffer**, **Ryan Elmore**, and **Surajit Ray**.

Congratulations Students

Doctorates

Martin Felix Medina (Fall 2000) accepted a position as assistant professor of statistics at the University of Senoloa, Mexico. His thesis, titled *Contributions to the Theory of Adaptive Sampling* was conducted under the direction of associate professor of statistics **Steven Thompson**.

Mark Leeds (Fall 2000) accepted a position as Quantitative Analyst at Bear Stearns & Co., New York, NY. His thesis, titled *Error Structures for Dynamic Linear Models: Single Source Versus Multiple Source* was conducted under the direction of Professor **J. Keith Ord**.

Chanseok Park (Fall 2000) accepted a position as assistant professor of mathematical sciences at Clemson University. His thesis titled *Robust Statistical Procedures Based on Quadratic Inference Function* was conducted under the direction of distinguished professor of statistics **Bruce Lindsay**.

Haritini Tsangari (Fall 2000) accepted a position as lecturer in the Management Sciences Department at the University of Cyprus, Cyprus. Her thesis, titled *Nonparametric Models and Procedures for Nonlinear Analysis of Covariance with Independent and Dependent Data* was conducted under the direction of professor of statistics **Michael Akritas**.

Isidro Roberto Cruz Medina (Spring 2001) accepted a position as professor at the Instituto Tecnológico de Souora, Mexico. His thesis, titled *Almost Nonparametric and Nonparametric Estimation in Mixture Models* was conducted under the direction of professor **Thomas Hettmansperger**.

Sonia Rodriguez (Spring 2001) accepted a position as professor at the University of Costa Rica, Costa Rica. Her thesis titled *Statistical Data Mining of Land-Cover Maps for Characterization, Classification and Comparison of Landscapes and Watersheds of Pennsylvania* was conducted under the direction of distinguished professor **G. P. Patil**.

Masters

Brenda Phillips (Fall 2000) accepted a position as senior research specialist at Penn State Milton S. Hershey Medical Center, Hershey, PA.

Jiping Wang (Fall 2000) is pursuing his Ph.D. in statistics at Penn State.

Lan Wang (Fall 2000) is pursuing her Ph.D. in statistics at Penn State.

Alicia Ambrose (Spring 2001) has not accepted a position but relocated to Oregon.

Bryan Crissinger (Spring 2001) accepted a position as an instructor at the University of Maryland.

Chinhua Liu accepted a position as an associate with Towers Perrin in Philadelphia, PA.

Welcome New Students

The department welcomes the following new students who were admitted into our graduate program Fall 2000:

John Dziak, Eliza Geier, Jennifer Hellman, Illie Bogdan, Hyekyung Jung, Heather Ma, Makhtar Sarr, Brian Steinmeyer, Eli Walters, Yang Wang, Wei Wan, Fengjuan Xuan, Hong Xu, and Qin Xue.

Alumni News

The University of Minnesota School of Public Health began the year 2001 with a new Dean, **Mark Becker**, Ph.D. (Penn State 1985). Prior to his position at the University of Minnesota, Dr. Becker was associate dean for academic affairs and professor of biostatistics at the University of Michigan School of Public Health.

Congratulations, Mark!

The annual Fall Picnic was held on Sunday, September 30, 2001 at Stone Valley Lodge. The fun, camaraderie and especially the food was great. Thanks to Kellie Karaky and the SAC Committee for all of their hard work.

See you next year on October 3, 2002.

Faculty Positions

Positions Available:

One Assistant Professorship in any area of statistics.
One Professorship at any level in connection with the Eberly Endowed Chair.

Starting Date:

Fall 2002

Application Deadline:

Applications considered from January 6, 2002, until positions are filled.

Essential Qualifications:

A doctorate in Statistics, or related area.
Excellence in research, teaching and collaboration

Interest and demonstrated ability in teaching.
Demonstrated computing skills.

Responsibilities:

Engage in research and scholarship.
Teaching graduate and undergraduate levels.
Advising students.
Collaborating with other disciplines.

Send letter of application, curriculum vitae, transcripts, and three letters of reference to:
Search Committee Chairman
Department of Statistics
325N Thomas Building
Penn State University
University Park, PA 16802-2111

One non-tenure track, (fixed-term 1-3 years) open rank TEACHING FELLOW faculty position starting July 2002. Excellence in teaching and web-based instruction required. Duties include teaching service courses in Masters program and course development for the online/continuing education World Campus program. Research and professional development encouraged. Qualifications include a Ph.D. in Statistics, Applied Statistics, Biostatistics, or related field. Salary is competitive and commensurate with experience. Send a cover letter including a written statement of teaching philosophy and experience, CV, and contact information of three references to: Dr. James L. Rosenberger, Department of Statistics, 326FN Thomas Building, Penn State University, University Park, PA 16802-2111. Applications considered from February 15 until position filled.

For additional information: <http://www.stat.psu.edu>

Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

R. Rao Special Recognition

As many of you are aware, Eberly Professor **C.R. Rao** retired from the University in June, 2001. Dr. Rao has continued to collaborate on his research and is continuing his work as Director of the Center For Multivariate Analysis.

We would like to honor Dr. Rao with this photo collage of his many years in our department.

ALUMNI REPLY FORM

Please complete and return this form for our alumni files.

Include news (professional and/or personal) of your current activities, or suggestions for the next *Statnews*.

Name _____ Degree(s) & year(s) _____

Residence Address _____ Home Phone _____

City, State, Zip _____

Business Address _____ Business Phone _____

_____ Fax Number _____

City, State, Zip _____

Internet/Electronic Mail Address _____

Position _____

Information About Yourself:

(Unless you request otherwise, we will assume it may be mentioned in future Newsletters.)

9 I do not wish to have this information in Statnews or alumni directory.

Employment Information:

If you work for a company which may be interested in employing statisticians, either at the undergraduate or graduate level, please let us know. We will make this information available to our graduates.

WE APPRECIATE YOUR SUPPORT

In this time of decreasing support from the State of Pennsylvania and the extreme difficulty in obtaining enhancement funds, contributions to the department become increasingly more important in permitting us to pursue our departmental goals. I'm sure you are aware that if you make donations to the University you can direct them to whatever program you wish. If you would like to make a donation to the Department of Statistics, please direct it to our fund to enhance the department: Statistics Department Research Fund, Room 326 Thomas Building, University Park, PA 16802-2111

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This publication is available in alternative media on request.

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