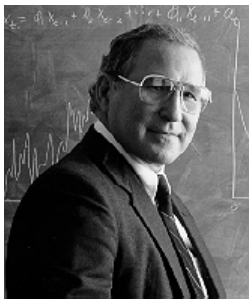
2003 - 2004 ANNUAL REPORT

Department of Statistical Science
Southern Methodist University
Dallas, Texas

SMU's *Department of Statistical Science* is committed to advancing its stature as one of the academic leaders in the theory and practice of statistical science. The 2003-2004 academic year was one of continued achievements in scholarly research, funded grants and contracts, and excellence in the classroom. Several members of the faculty received acknowledgements for their accomplishments in teaching, research, and contributions to the statistics profession. This *2003-2004 Annual Report* highlights the many advances made by the faculty, students, and graduates of our program.

Faculty Honors

William R. Schucany



Henry L. Gray

U. Narayan Bhat

Wayne A. Woodward

Department of Statistical Science Mission Statement

To advance the understanding of the theory and methodology of statistical science by engaging in the most effective educational processes and in first-class research activities.

Contents **page**

Noteworthy

Buddy Gray is on leave during calendar year 2005 and will retire from the university in December 2005.

Lynne Stokes is the *Director of Graduate Studies* for the department. She has accepted positions on the editorial boards of two journals: the *Applications Section of JASA* and *Survey Methodology*. She also served on a *Racial Profiling Task Force* for the city of University Park.

Wayne Woodward is a *University Distinguished Professor* and a member of the SMU *Academy of Distinguished Teachers*.

Monnie McGee gave birth to her second child, Adam, in May. Monnie and Stephen are now the proud parents of Adam and his older sister Erin.

Tony Ng is the webmaster for *Communications in Statistics*.

Sherry Wang advises *Bank One* on customer purchase behavior.

Ian Harris serves as the Secretary-Treasurer of the *North Texas Chapter of the American Statistical Association.* He is an Associate Editor of *The American Statistician* and the department's *Director of Undergraduate Studies*.

Dick Gunst is the 2005 Chair of the *American Statistical Association's Committee on Fellows*. He completed his service as Chair of SMU's *University Committee on Information Technology*, a twenty-five-person committee of administrators, faculty, and staff who are charged with setting direction for information technology on campus and administering a $2.3 million annual budget.

The 2004 Conference of Texas Statisticians was held in Nacogdoches and organized by *Greg Miller* (Ph.D. 1996). *Sherry Wang*, who received the award for the *Outstanding Presentation by a First-Year Faculty Member*, and Dick Gunst spoke at the conference. *Wayne Woodward* received the *Don Owen Award* and spoke at the dinner.

NSF/NBER Time Series Conference

The Department of Statistical Science and the Department of Economics sponsored the 2004 NSF/NBER Time Series Conference on the SMU campus September 18 – 18, 2004. Featured in this year's conference were joint recipients of the 2003 Nobel Prize in Economics, Professor Clive Granger of the University of California, San Diego and Professor Robert Engel of New York University.

News Conference

Granger and Engel with President and Mrs. Gerald Turner

Granger and Engel with Conference Organizers Henry Gray, Tom Fomby, and Wayne Woodward

Organized by Professors *Wayne Woodward* and *Henry Gray* of the Department of Statistical Science and Professor Tom Fomby of the Department of Economics, the 125 statisticians and economists who attended the conference from the United States and Europe heard lectures on current advances in time series theory and applications from experts in education, business, industry, and government. This is a prestigious international conference was held at the University of Chicago last year and it will be held in Heidelberg next year. Professors Engle and Granger, who have been regular participants at this conference through the years, discussed their experiences since receiving the Nobel Prize at a dinner held in their honor at SMU's Meadows Museum. SMU President Gerald R. Turner presented the two honored guests with commemorations of the conference. Speakers at the conference included David Findley (U.S. Bureau of the Census), Henry Gray (SMU), Emmanuel Parzen (Texas A&M University), Jeff Russell (University of Chicago), and Catalin Starica (Chalmers University, Gothenburg).

Faculty Honors

William R. Schucany received the American Statistical Association's (ASA) 2004 Founder's Award. This is the single most prestigious award bestowed by the ASA and was granted to only 4 of the Associations' 18,000 members this year. Bill's meriting this honor is indicated by the following accomplishments that have benefited the Association and more broadly the statistics profession.

> He has served the *Association* and the statistics profession for 35 years in a wide variety of capacities. He was one of the key organizers of the *Section on Nonparametric Statistics* and served in a variety of capacities on the *Section on Statistical Education*. He participated in and contributed to the work of an ad-hoc *Committee on the Economic Status of the Profession*, the *Committee on Publications*, the *ASA Nominating Committee*, the *Publications Management Committee*, and the *Search Committee for the Editor of the American Statistician*. Bill has been an active contributor to the *North Texas Chapter* of the ASA, serving as its Secretary, Vice President, and President. He has been very active in the annual *Conference of Texas Statisticians*.
>
> He was one of the founders of the *Communications in Statistics* series of journals and served as an Associate Editor and now as a Senior Editor. He also was the Coordinating Editor of Marcel Dekker's *Statistics Textbooks and Monographs*. He was the Editor of *The American Statistician* and was an Associate Editor of the *Journal of Educational Statistics and* the *Journal of the American Statistical Association*.
>
> Bill's scholarship and his service to the *Association* and the statistics profession has been recognized by his being selected a *Fellow of the American Statistical Association* and his being selected to receive the *Don Owen Award* from the San Antonio Chapter of ASA.

Henry L. Gray was honored with the 2004 SMU *Phi Beta Kappa Lawrence Perrine Prize for Outstanding Teaching and Scholarship*. Gray is the first member of the department to receive this honor. He was recognized for the following achievements.

> He is an outstanding teacher and scholar, as well as a wonderful mentor to graduate students. It is rare that his graduate classes do not award him perfect scores in every category on course evaluations. This is especially impressive because of the diversity of backgrounds, culturally and educationally, of the graduate students he teaches and because he maintains very high standards for the awarding of grades. He is a professor who genuinely cares about his students and who spends countless hours with students one-on-one. As a mentor to his Ph.D. students, he naturally works very closely with them to ensure that they will all be successful in their research. He also has a unique ability to befriend them in a very frightening period of their education without losing the advisor/student relationship.

As a scholar, he is internationally renowned for his long and continuous research record, notably his accomplishments in statistical time series. His works on the generalized jackknife statistic, spectral estimation, and mathematical and statistical transformations are especially impressive and have resulted in wide acclaim. His recent work on time deformation processes is not only novel but offers potential for the solution to times series modeling and analysis issues that will again result in international recognition. An external indicator of the level of scholarship he has achieved is the $3.5 million in research contracts he has been awarded while at SMU.

U. Narayan Bhat was named a 2004 *Institute for Operations Research and the Management Sciences (INFORMS) Fellow*. The Fellow Award is reserved for distinguished individuals who have demonstrated outstanding and exceptional accomplishments and experience in operations research and the management sciences (OR/MS). Narayan's accomplishments were evaluated in each of the following five categories in order for him to receive this exceptional honor.

Research -- includes theoretical, empirical, or computational innovations in OR/MS
Practice-- includes substantial application of OR/MS to significant practical problems;
Management-- includes significant responsibility for and direction of the development and application of OR/MS techniques and knowledge, within an organization of any type (e.g. academic, for-profit, nonprofit, governmental, military, health care), over an extended period of time, that have had a major impact both internal and/or external to the organization;
Education-- includes activities that had significant impact on the growth and development of OR/MS education;
Service-- includes significant work over an extended period of time on behalf of INFORMS and its functions and/or significant contributions that advanced the stature and recognition of the OR/MS profession.

Wayne A. Woodward received the 2004 *Don Owen Award* from the San Antonio Chapter of the ASA. He was nominated by the *North Texas Chapter* of ASA and the *Department of Statistical Science*. The following brief list of accomplishments summarizes a much longer list that was used to demonstrated his merit for this award.

He truly embodies the threefold accomplishments of Don Owen in that he has excelled in scholarship, dissemination of statistical knowledge, and service to the profession. He has published over 50 scholarly articles in refereed statistical journals and has received over $3.5 million in joint research contracts and grants for his research and consultative expertise. He has taught statistics courses for all levels, from first-year undergraduates to senior graduate students, for 30 years. He has excelled as a statistical consultant for his entire professional career. Finally, he has substantively contributed to the statistics profession through a variety of activities in the American Statistical Association.

He was selected this year to be one of only 8 members of SMU's *Academy of Distinguished Teachers*, an appointment he richly deserves because of his devotion to his

teaching and to his students. The research contracts and refereed publications are external testimonies to his scholarly achievements. The contracts with the defense department and his appointments to consulting centers are external recognition of his effectiveness as a statistical consultant.

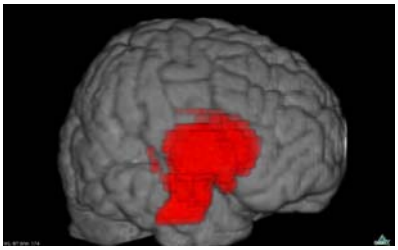
Narayan Bhat Retires

U. Narayan Bhat retired from the SMU faculty at the end of May, 2004, after over three decades of dedicated service to the university. On the occasion of his retirement *President Gerald R. Turner* and *Provost Ross Murfin* sponsored the customary retirement reception and then, in collusion with Narayan's wife *Girija*, held a surprise dinner in his honor. During the dinner celebration some of his closest "friends" in the university (including *Buddy Gray*, *Dick Gunst*, and *Bill Schucany*) roasted, then toasted, select highlights and "lowlights" of his career at SMU. It is with the mixed feelings of happiness for Narayan, Girija and their children *Girish* and *Gouri*, and sadness for the university and his many colleagues that we note his retirement. The following are but a few of Narayan's many achievements in his dedicated service to SMU.

Professor U. Narayan Bhat was born in India. He received a Bachelor of Arts degree in Mathematics from Madras University and a Master of Arts degree in Statistics from Karnatak University. He received a Ph.D. degree in Mathematical Statistics from the University of Western Australia. Following the receipt of his doctorate degree he moved to the United States and taught for a year at Michigan State University before moving to Case Western Reserve University for a three-year tenure. Narayan joined Southern Methodist University in 1969 as an Associate Professor in Statistics and Operations Research and was promoted to Professor in 1971. During his service at SMU, he has held various administrative appointments, including Chair of the Department of Operations Research and Engineering Management, the Division of Mathematical Sciences, and the Department of Statistics. He was an Associate Dean of the School of Engineering and Applied Science and also of Dedman College. He also served for 2 years as Vice Provost and Dean of Graduate Studies. Since 1992, Narayan has been the Dean of Research and Graduate Studies. During 1996-97 he also held the position of Dean *ad interim* of Dedman College of Humanities and Sciences. Narayan's research interests are in applied probability and stochastic processes, and he has made extensive contributions to queuing theory. He supervised ten doctoral students and has been the recipient of research grants from the National Science Foundation and the Office of Naval Research. He is a member of the International Statistical Institute and a Fellow of the American Statistical Association. He is the author or co-author of four books and more than seventy articles in refereed journals.

Research Programs

Dick Gunst and Bill Schucany, along with four graduate students are continuing the three-year project in which Gunst and Schucany have collaborated with Dr. Robert Haley, world-renowned epidemiologist at the *University of Texas Southwestern Medical Center at Dallas* who was instrumental in identifying and substantiating the existence of the *Gulf War Syndrome*. Their recent work has confirmed differences between syndrome and control groups in areas of the deep brain that likely were affected by exposure to sarin gas and insect repellants that were used in the 1991 Gulf War. This work is intended to highlight areas of the deep brain that can be targeted in functional magnetic resonance imaging experiments that will soon be conducted to determine the extent and nature of the damage to these brain areas. From a broader perspective, it is anticipated that



the experimental design and data analytic techniques that are being developed for the fMRI project should be applicable to other brain function studies such as those for Alzheimer's disease.

Lynne Stokes and *Ian Harris* received a *National Assessment of Educational Progress (NAEP)* Secondary Analysis grant. The grant is entitled *Use of Sampling Weights in Multilevel Models Fit to NAEP Data* and is funded by the *Institute of Educational Sciences*, which is the research arm of the *U.S. Department of Education*. The project is designed to develop methodology for estimating parameters of multilevel models from data that have been collected according to complex sampling designs. NAEP data, used to produce school achievement summaries referred to as the *Nation's Report Card*, are collected using a multistage design. Educational research questions often call for fitting of hierarchical models, and this work will develop methods so that these researchers can analyze NAEP data correctly.

Lynne Stokes also continues to work with *Dr. Patricia Mathis*, Director of SMU's *Institute for Reading Research*, on novel methods for teaching English to Spanish-speaking elementary and secondary school children. This five-year project is supporting graduate students from the *Department of Statistical Science* to create a comprehensive database that they will use, under the guidance of Professors Mathes and Stokes, to assess the effects of various training programs in the Houston Independent School District.

Ian Harris is also initiating collaborative research activities with Dr. Mathes and Dr. Jill Alors of the *Institute for Reading Research*. They received a *US Department of Education* grant entitled *Maximizing Literacy Learning Among Children with Mild to*

Moderate Mental Retardation (Project Maximize). The project is designed to determine whether reading methods taught to students with reading difficulties would be similarly beneficial to students who have mild or moderate mental retardation. The project is a 4-year randomized longitudinal study of approximately 150 children in the Fort Worth Independent School District, and will compare the effectiveness of different reading interventions on reading ability.

Wayne Woodward and Buddy Gray continue to advance their research program in time deformation methods for the modeling and analysis of time series that have unequally spaced time points. They and several of their doctoral students meet weekly and are applying their results to novel data sets ranging from Doppler effects to bat signals.

Monnie McGee is pursuing the development of new approaches to the analysis of categorical time series data. She and *Ian Harris* are investigating how classical times series properties like stationarity can be adapted to time series data in which the responses are categorical, not quantitative.

Hon Keung (Tony) Ng continues to develop theory and applications for reliability methods based on progressively censored sampling. Exact and approximate maximum likelihood estimators are being used to develop optimal censoring schemes and progressively censored reliability sampling plans for industrial applications that make use of the logistic distribution. He is also developing inverse sampling schemes in which one continues to sample until a sufficient number of individuals or items possess and attribute of interest.

Xinlei (Sherry) Wang's current research emphasis is on Bayesian approaches to variable selection, capture-recapture models, estimating the number of clusters in sampling data, and data mining techniques. She is interested in applying the methods developed to biostatistical applications and is actively pursuing new opportunities with the Dallas biostatistics community. Sherry recently began collaborating with faculty in the SMU Physics Department on developing strategies to search for new particles in the field of high-energy physics.

Graduate Student Awards

The first annual *Scheuren Awards for Outstanding First-year Performance* were given to *Tracy Xu* and *Kinfemichael Gedif* on the basis of their excellent performance in our first-year graduate courses in mathematical statistics and statistical methods, respectively. These awards are made possible through the generosity of *Fritz Scheuren*, President-elect of the American Statistical Association, and his wife *Elizabeth Lam-Scheuren*. The awards enable two first-year graduate students to receive free membership in the American Statistical Association. The *Department of Statistical Science* is extremely grateful to the Fritz and Elizabeth for making this award possible.

Yan Wang received the 2004 *Paul D. Minton Award*. The Minton Award, named after the founder of the department, is a competitive award that is given to the first-year student who is judged by the faculty to have excelled in coursework and on the written basic statistics qualifying exam given at the end of the year.

Catherine Lin received the 2004 *John E. Walsh Award*. The Walsh Award, named after one of the early prominent scholars on the department's faculty, is awarded to an advanced graduate student who is judged by the faculty to have the most outstanding performance on the Ph.D. written qualifying exam. This exam is a weeklong take home examination that is structured to assess the potential for advanced graduate students to conduct research necessary to complete a doctoral dissertation.

Shuyi Shen received an SMU *Research Day Award* from *Narayan Bhat*, Dean of Research and Graduate Studies. These awards are for outstanding poster presentations during the university-wide science and engineering research day that is held in the spring.

Aaron Camp and Shuyi Shen were awarded graduate stipends by the SMU *Altshuler Learning Enhancement Center* for excellence as graduate teaching assistants. These awards are given to graduate students with outstanding teaching abilities. The recipients spend a semester in the ALEC providing one-on-one assistance to SMU undergraduates who require or desire individualized learning experiences.

Liansheng Tang received a second place award at the graduate student poster session at this year's Conference of Texas Statisticians in Nacogdotches.

The *Department of Statistical Science* graduated 7 Ph.D. students during the 2003-2004 academic year. This is the largest number of doctoral students from any unit of the university this year. Congratulations to *Krista Blevins Cohlmia, Eunha Choi, An Jia, Huiping Jiang, Sergio Juarez, Abu Minhajuddin*, and *Jeffrey Spence*.

Alumni News

Pat Carmack (Ph.D. 2004), *Abu Minhajuddin* (Ph.D. 2003), and *Jeff Spence* (Ph.D. 2004) have joined the faculty of the new *Center for Biostatistics and Clinical Science* at the *University of Texas Southwestern Medical Center at Dallas*. The Center also has *Joan Reisch* (Associate Director, Ph. D. 1974) and *Bill Frawley* (Ph.D. 1972) on the faculty.

Sergio Juarez (Ph.D. 2003) has just been granted tenure and promoted to Full Professor at the University of Veracruz in Mexico. Sergio was on the faculty of the university prior to his coming to SMU to pursue his doctorate.

Mike Morton (Ph.D. 1981) now works for Phillip Morris USA in Richmond, VA.

Steve Robertson (M.S. 1999) married Aimee Rhodes in July. They met while Steve was a T.A. and Aimee a student in *Wayne Woodward's* Stat 1301 class.

Alumni Support

The faculty and graduate students of the Department of Statistical Science are extremely grateful to the Alumni of the Department who contributed so generously to our *Alumni Graduate Student Support Fund*. This fund is the only financial support in the department's budget that is explicitly targeted for graduate student professional development. Without Alumni support, we would not be able to defray travel costs to professional meetings, purchase books and other awards for superior graduate student performance, and provide other professional enhancements and opportunities to graduate students.

We acknowledge with great pleasure and pride the generous contributions from Alumni *Dennis Dixon* (M.S. 1968), *Euikyoo Lee* (Ph.D. 2001), *Young Ha Lee* (Ph.D. 1983), *Robert Mason* (Ph.D. 1971), *Alan Polansky* (Ph.D. 1995), *Paula Roberson* (B.S. 1974), and *Jinping Wang* (Ph.D. 1996).

Departmental Centers

Center for Statistical Research in the Environmental, Earth, and Life Sciences

The *Center for Statistical Research in the Environmental, Earth, and Life Sciences* is the focal point for research interests that involve collaboration with both on-campus and off-campus colleagues in the biosciences, environmental sciences, and earth sciences. A very promising initiative is underway for faculty and graduate student collaboration with the new *Center for Biostatistics and Clinical Science* at the University of Texas Southwestern Medical Center at Dallas. *Bill Schucany* is coordinating the emerging relationship with *Dr. Milton Packer*, Director, and *Dr. Joan Reisch*, Associate Director (SMU Ph.D. 1974).

The initiative with the UTSWMCD Center for Biostatistics and Clinical Science broadens the department's relationship with that institution. Research collaboration is already being conducted on brain imaging, as reported on p. 7.

Additional developmental activities are occurring with the *Baylor Health Care System*. Plans are being developed for collaboration between our faculty and graduate students and *Dr. Giovanni Filardo*, a newly hired epidemiologist with *Baylor Health Care Research, Inc*. *Bill Schucany* and *Dr. David J. Ballard*, BCHS Senior Vice President, Health Care and Improvement, are coordinating the development of these collaborative activities.

Center for Statistical Consulting and Research

N. Shirlene Pearson (SMU Ph.D. 1979) has completed her fifth year as the Director of the *Center for Statistical Consulting and Research*. The *Center for Statistical Consulting and Research* (CSCR) enjoys a long history of providing high-quality consulting services on a fee-paying basis to regional corporate and academic communities.

Clients of CSCR receive expert statistical consulting services in data collection, statistical analysis, interpretation of the results, and presentation of conclusions using state-of-the-art statistical methods. A wide variety of statistical computing and graphics software is used to ensure the most effective analyses and presentation of results.

These consulting activities also benefit graduate students in the Department of Statistical Science. All graduate students are required to take a one-semester course in statistical consulting taught by Dr. Pearson. Students learn the art of consulting through classroom instruction, discussion of case studies, and actual experience with clients under Dr. Pearson's supervision.

Faculty Research Expertise

Henry L. Gray, C. F. Frensley Professor of Mathematical Sciences, Ph.D. University of Texas (Austin), 1966. Fellow ASA. Time series, spectral estimation, prediction and forecasting, robust procedures for estimation and testing, distribution theory, integral transform theory, multivariate outlier detection, testing for trend, mixture models.

Richard F. Gunst, Ph.D. Southern Methodist University, 1972. Fellow ASA. Regression analysis, linear models, statistical design and analysis of industrial experiments, statistical methods for modeling spatial-temporal environmental processes, chemical mass balance modeling, analysis of medical imaging data.

Ian R. Harris, Ph.D. University of Birmingham, U.K., 1989. Robust estimation, minimum divergence methods, nonparametric methods, variance components, mixed models.

Monnie McGee, Ph.D. Rice University, 1994. Markov Chain Monte Carlo methods, mixture transition distributions, spectral analysis of time series, and applications of statistics to the biosciences

Hon Keung (Tony) Ng, Ph.D. McMaster University, 2002. Statistical inference, reliability theory, nonparametric statistics, operations research, data analysis.

S. Lynne Stokes, Ph.D. University of North Carolina, 1976. Fellow ASA. Sampling, survey methods, interface of statistics and computer science, database performance, methods of disclosure limitation.

William R. Schucany, Ph.D. Southern Methodist University, 1970. Fellow ASA and Member ISI. Data analysis with applications in legal evidence, medical research, survey sampling of business records; nonparametric curve estimation, local linear and kernels, adaptive bandwidths; resampling methodology including jackknife, bootstrap, randomization tests, analysis of medical imaging data.

Xinlei (Sherry) Wang, Ph.D. University of Texas (Austin), 2002. Bayesian modeling, Markov Chain Monte Carlo methods, variable selection, data mining.

Wayne A. Woodward, Ph.D. Texas Tech University, 1974. Fellow ASA. Time series analysis, robust estimation, statistical analysis of data related to climate change, testing for trend, mixture models, analysis of medical imaging data, directional multivariate testing.

A list of faculty publications over the last three calendar years is provided below. More information on faculty research interests and publications can be obtained from individual faculty web sites, all of which can be accessed through the departmental web site, www.smu.edu/statistics.

Faculty Scholarship

"Their research demonstrates strong technical skills and contributions to methodology plus concern for providing solutions to important scientific issues." "The balance between methodological contributions and the applications of statistics is impressive."
2003 Departmental Program Review Committee

2003

Bhat, U. N. (2003). "Parameter Estimation in M/G/1 and GI/M/1 Queues Using Queue Length Data", *Stochastic Point Processes* (Eds. S. K. Shrinivasan and A. Vijayakumar), Narosa Publ. New Delhi, 96-107.

Gunst, R. F. (2003). *Statistical Design and Analysis of Experiments, Second Edition*. York: John Wiley and Sons, Inc. (with J. L. Hess and R. L. Mason)

Gunst, R. F. (2003). "Identification of Model Components for a Class of Continuous Spatiotemporal Models," *Journal of Agricultural, Biological and Environmental Statistics*, 8, 105-121. (with M.I. Hartfield).

Gunst, R. F. (2003). "Evaluation of the Effects of Air Conditioning Operation and Associated Environmental Conditions on Vehicle Emissions and Fuel Economy," *Society of Automotive Engineers*, *SAE Technical Paper Series No. 2003-01-2247*, 1-16. (with J.S. Welstand, H.H. Haskew, and O.M. Bevilacqua)

Gunst, R. F. (2003). "One Way to Moderate Ceiling Effects," *Quality Progress*, 36, 84-86. (with T.E. Barry)

Ng, H. K. T. (2003). "Point and interval Estimation for Gaussian Distribution, Based on Progressively Type-II Censored Samples, *IEEE Transactions on Reliability,* 52, 90-95 (with Balakrishnan, Kannan and Lin).

Ng, H. K. T. (2003). " Modified Moment Estimation for the Two-parameter Birnbaum-Saunders Distribution", *Computational Statistics and Data Analysis*, 43, 283-298 (with Kundu and Balakrishnan).

Gray, H. L. (2003). "Approximation of Tail Probabilities Using the G-Transform," C*ommunications In Statistics-Simulation and Computation,* 33, 1-17 (with McWilliams and Balusek).

Stokes, L. S. (2003), "Using Auxiliary Information for Improving Estimation in the Number of Species Problem," *Statistica Sinica* 13, 655-671.

Stokes, Lynne (2003) "Interviewer Effects," in *Encyclopedia of Research Methods for*

the Social Sciences, M. Lewis-Beck, A. Brayman and T.F. Liao, Editors, Sage Publications.

Woodward, W. A. (2003), "Testing for Outliers from a Mixture Distribution when Some Data are Missing", *Computational Statistics and Data Analysis*, 44, 193-210 (with S. R. Sain).

2002

Bhat, U. N. (2002), "Maximum Likelihood Estimation in Queueing Systems," *Advances on Methodological and Applied Aspects of Probability and Statistics* (Ed. N.Balakrishnan), 13-29. New York: Francis and Taylor (with I.V. Basawa).

Bhat, U.N. (2002). *Elements of Applied Stochastic Processes, Third Edition*. New York: John Wiley and Sons, Inc. (with G.K. Miller).

Bhat, U. N. (2002). "Estimation of the coefficient of variation for unobservable service times in M/G/! queue", *Journal of Math. Sci.*, Vol. 1 (with G. K. Miller).

Gray, H.L. (2002). "Testing for Multivariate Outliers in the Presence of Missing Data," *Pure and Applied Geophysics*, *159,* 889-903. (with S.R. Sain, W.A. Woodward, M.D. Fisk, and B. Zhao)

Gunst, R. F. (2002). "Identification of Model Component for a Class of Continuous Spatiotemporal Models," *Journal of Agricultural, Biological and Environmental Statistics*, *8*, 105-121. (with M. I. Hartfield).

Gunst, R. F. (2002). "Find Confidence in Statistical Significance," *Quality Progress*, *35*, 107-108.

Ng, N.K.T. (2002). "A Test of Exponentiality Based on Spacings for Progressively Type -II Censored Data." *Goodness-of-Fit Tests and Model Validity* (C. Huber-Carol et al., eds.), 89-110. (with N. Balakrishnan, N. and N. Kannan)

Ng, H.K.T. (2002). "Wilcoxon-type Rank-sum Precedence Tests: Large-sample Approximation and Evaluation," *Applied Stochastic Models in Business and Industry*, *18*, 271-286. (with N. Balakrishnan)

Ng, H.K.T. (2002). "Estimation of Parameters from Progressively Censored Data Using EM Algorithm," *Computational Statistics and Data Analysis*, *39*, 371-386. (with N. Balakrishnan, N. Kannan, and C.T. Lin)

Schucany, W. R. (2002). "Combining Population Density Estimates in Line Transect Sampling using the Kernel Method," *Journal of Agricultural, Biological and Environmental Statistics, 7*, 233-242. (with P. Gerard)

Schucany, W. R. (2002). "The Mixture Approach for Simulating Bivariate Distributions with Specified Correlations", *The American Statistician*, *56*, 48-54. (with J.R. Michael)

Woodward, W. A. (2002). "Testing for Multivariate Outliers in the Presence of Missing Data," *Pure and Applied Geophysics*, *159,* 889-903. (with S.R. Sain, H.L. Gray, M.D. Fisk, and B. Zhao)

2001

Gunst, R. F. (2001). "Inferences on Percentage Changes". *Quality Progress*, *34*, 56-57.

Harris, I. R. (2001). "Closed-form Approximations to the REML Estimator of a Variance Ratio (or Heritability) in a Mixed Linear Model," *Biometrics*, *57***,** 43-51. (with B.D. Burch)

Harris, I. R. (2001). "A Comparison of Related Density-based Minimum Divergence Estimators," *Biometrika*, *88*, 865-873. (with M.C. Jones, N. Hjort, and A.P. Basu)

Harris, I. R., (2001). "A Blended Estimator for a Measure of Agreement with a Gold Standard," *Journal of Agricultural, Biological and Environmental Statistics, 6*, 326-339. (with B.D. Burch and R.T. St. Laurent)

Harris, I. R. (2001). "Tests of Hypotheses in Multiple Samples Based on Penalized Disparities," *Journal of the Korean Statistical Society*, *30*, 347-366. with (C. Park and A. Basu)

McGee, M. (2001). "Effect of Bright-Light Therapy Directed Toward the Eyes for the Pruritus of Cholestasis: Results of a Pilot Study," *American Journal of Gastroenterology*, *96*, 1563-1570. (with N. V. Bergasa, M. J. Link, M. Keogh, G. Yaroslavsky, and R. N. Rosenthal)

Ng, H. K. (2001). "Improved Estimation of the Correlation Coefficient in a Bivariate Exponential Distribution," *Journal of Statistical Computation and Simulation*, *68*, 173-184. (with N. Balakrishnan)

Ng, H. **K.** (2001). "A General Model for Consecutive-k-out-n: F repairable system with exponential distribution and (k-1)-step Markov dependence," *European Journal of Operational Research*, *129*, 663-682. (with Y. Lam)

Ng, H. K. (2001). "A General Maximum Precedence Test," in *System and Bayesian Reliability*, 105-122. Singapore: World Scientific Publishing Co. (with N. Balakrishnan)

Stokes, L. (2001). "Comment on ‘Can a Statistician Deliver?’," *Journal of Official Statistics, 17,* 103-106.

Stokes, L. (2001). "Acceptance Sampling with Rectification when Classification Errors are Present," *Journal of Quality Technology 33*, 493-505. (with M. Anderson and B. Greenberg)

Lectures

Henry Gray, "Nonstationary Time Series Analysis Through Time Deformation", SMU Dept. of Statistical Science Seminar, March 2003.

Henry Gray, "Nonstationary Data Analysis by Time Deformation," presented at Joint Statistical Meetings, San Francisco, CA., August 2003.

Henry Gray, "Wave-Matched Filter Application to Time-Frequency Analysis" (with Jiang and Woodward) presented at ASA/JSA Joint Statistical Meeting, San Francisco, CA, August 2003.

Henry Gray, "Analysis of Long Memory Processes due to Time-Varying Frequency," (with Choi and Woodward) Joint Statistical Meetings, San Francisco, CA., August 2003.

Henry Gray, "Nonstationary Time Series by Time Deformation," (with Vijverberg and Woodward) Joint Statistical Meetings, San Francisco, CA., August 2003.

Henry Gray, "Nonstationary Data Analysis Through Time Deformation," Texas A&M University Department of Statistics Seminar, College Station, TX, September 2003.

Richard Gunst, “Improved Agreement Between Talairach and MNI Coordinate Spaces in Deep Brain Regions,” 2003 Joint Statistical Meetings, San Francisco, CA (with P. Carmack, W.R. Schucany, J. Spence, and W.A. Woodward)

Richard Gunst, “White Matter Count Standardization in SPECT Brain Imaging,” 2003 Joint Statistical Meetings, San Francisco, CA (with P. Carmack, W.R. Schucany, J. Spence, and W.A. Woodward)

Ian Harris, "Density Power Divergence", University of Texas at Dallas, November, 2003.

Monnie McGee, “Early Classification of Pregnancy Outcome Using Hormone Levels in IVF Patients,” 2003 Joint Statistical Meetings, San Francisco, CA (with G. Kovalevskaya and J. O’Connor).

Monnie McGee, “Mixture Transition Monte Carlo: Making MCMC Move”, Working Group on Model Based Clustering, Department of Statistics, University of Washington, Seattle, Washington, July 25, 2003.

Tony Ng, "Progressive Censoring – Introduction, Inference and Applications”, Department of Mathematical Sciences, University of Texas at Dallas, Texas, February 12, 2003.

Tony Ng, “Selecting the Best Population Using a Test for Equality Based on a

Precedence Statistic", *Conference of Texas Statisticians*, April 4, 2003, College Station, Texas, USA.

Tony Ng, "Optimal Progressive Censoring Plans for the Weibull Distribution", *International Conference in Reliability and Survival Analysis*, May 22, 2003, Columbia, South Carolina.

Tony Ng, "Point Estimation for A Modified Weibull Distribution based on Progressively Type-II Censored Data", *Mini-conference on Distribution Theory and Inference*, June 24, 2003, McMaster University, Hamilton, Canada.

Tony Ng, "Statistical Inference based on Start-up Demonstration Tests with Rejection of Units Upon Observing Failures", *2003 Joint Statistical Meetings*, San Francisco, USA.

Tony Ng, "Up-and-down designs for phase I trials; an evaluation of different designs and estimators", *Workshop on Adaptive Designs,* September 27, 2003, The Fields Institute for Research in Mathematical Sciences, Toronto, Canada.

Tony Ng, "Progressive Censoring – Likelihood inference and optimal censoring schemes", *International Conference on Recent Developments in Theoretical and Applied Statistics,* December 16, 2003, Tamkang University, Taiwan.

William Schucany, "Treed Kernel Smoothers: Recursive Partitioning of Bandwidths for Local-Linear Regression", Nonparametric Research Conference, Florida State University, Jan. 17-18, 2003 and Conference of Texas Statisticians, April 4, 2003.

Xinlei Wang, "Bayes Variable Selection for Generalized Linear Models," Department of Statistics, Iowa State University, Ames, Iowa, January 2003.

Xinlei Wang, "Adaptive Fully Bayes Criteria for Generalized Linear Models", Conference of Texas Statisticians, April 4, 2003.

Wayne Woodward, "Nonstationary Time Series by Time Deformation", 2003 Joint Statistical Meetings, San Francisco (with Gray and Vijverberg).

Wayne Woodward, "Wave-Matched Filter Application to Time-Frequency Analysis", 2003 Joint Statistical Meetings, San Francisco (with Jiang and Gray).

Wayne Woodward, "Analysis of Long Memory Processes due to Time-Varying Frequency", 2003 Joint Statistical Meetings, San Francisco (with Choi and Gray).

Wayne Woodward, "A Spatial Analysis of Brain Imaging Data", 2003 Joint Statistical Meetings, San Francisco (with Spence, Carmack, Gunst, and Schucany).

Wayne Woodward, "Detecting and Analyzing the Presence of Changing Periods in Time Series Data," NSF/NBER Time Series Conference, September 19-20, 2003, University of Chicago (with Gray and Vijverberg).

Departmental Seminars
Fall 2003

Date	Speaker and Affiliation	*Title*
Sept 23	Huiping Jiang	*Time-Frequency Analysis: G(λ) Stationary Process*
Aug 29	Henry L. Gray	*A New Approach to the Analysis of Nonstationary Time Series with Time Varying Frequencies*
Sept 5	Jeff Spence	*Spatial Modeling of Brain Imaging Data*
Sept 12	Tony Ng, SMU	*Up-and-down designs for Phase I trials: An evaluation of different designs and estimators*
Sept 19	Matthew S. Mayo, Kansas Cancer Institute	*A Randomized Two-Arm Phase II Clinical Trial Design with Multiple Constraints*
Sept 26	Alex Liu, SMU	*On Estimation of Number of Species, Prospectus*
Oct 9	Patrick Odell (North Texas ASA Meeting)	*Mathematics Education in Texas*
Oct 10	JoAnn Lan & Cynthia Standfield, SMU	*A Demonstration of Course Management Software*
Oct 17	Brent Burch, University of Northern Arizona	*Closed-form Approximations to the REML Estimator of a Variance Ratio (or Heritability) in a Mixed Linear Model*
Oct 24	Michael Karonski, Emory Univ.	*The Power of Randomization*
Oct 31	Gil Walter, University of Wisconsin	*Wavelet like behavior of Slepian functions and their use in density estimation,*
Nov 6	Fritz Scheuren, President of ASA	*Statistics in the Achievement of Human Rights*
Nov 7	Fritz Scheuren, President of ASA	*Stratified Median Balanced Sampling*
Nov 14	Tom Fomby, Economics Dept, SMU	*The Value Line Dow Jones Stock Evaluation Model: Does it have Predictive Content?*
Nov 21	Pat Carmack, SMU	*Recursive Partitioning in Spatially Correlated Data with Application to Brain Imaging*

Spring 2004

Date	Speaker and Affiliation	Title
Jan 9	Professor Marcel Neuts, Professor Emeritus, University of Arizona	*Genesis and properties of the phase-type distribution*
Jan 23	Ed George, Univ of Pennsylvania	*Improved Prediction Under Kullback-Leiber Loss*
Jan 30	Zhu Wang, SMU	*From Non-stationary to Stationary Continuous Time ARMA and the Kalman Filter*
Feb 6	Tom Nichols, Dept of Biostatistics, University of Michigan School of Public Health	*Validity and Power of Small Group Inference in Functional Neuroimaging*
Feb 13	Ed Binkowski, Hunter College	*PQRST: Pitman, Quotients, Robustness, Santayana, and Tukey*
Feb 19	Clif Chamberlain, American Airlines	*Estimating the Elasticity of Demand for Airline Travel*
Feb 27	Vernon M. Chinchilli, Penn State College of Medicine	*Measuring Agreement Via the Concordance Correlation Coefficient*
March 5	Nandini Kannan, UTSA	*Modeling Altitude Decompression Sickness,*
April 2	Martina Pavilcova, Ohio State University	*Statistical Detection of Signals based on FMRI Data*
April 16	**SMU ALUMNI DAY:** Joan Reisch UTSWMCD	*Statistics in Practice at a Major Medical Research Facility*

Current Graduate Students

Continuing Students

Prabhu Bhagavatheeswaran
Zhongxue Chen
Ye Fang
Kinfemichael Gedif
Kangxia Gu
M.D. Jobayer Hossain
Ariful Islam
Yue Jia
Julia Kozlitina
Quihua (Katherine) Lin
Liangsheng Tang
Yan Wang
Mengyuan (Tracy) Xu
Yan Zhong

New Students

Jerilyn Boykin
Lisa Cannon
Darcie Delzell
Jeffrey Gannon
Vivian Guo
James Haney
Andrew Hardin
Vandhana Luthra
Luke Peterson
Jon Sanders
Kim Williamson

ALUMNI LIST

As always if you have a new address, new email, new position, etc. we would very much like to hear from you so we can keep up with our alumni and have current addresses for each of you. Information may be sent to scrain@mail.smu.edu**.**