UNIVERSITY OF TENNESSEE KNOXVILLE
DEPARTMENT OF STATISTICS
ANNUAL REPORT
August 1, 1996 - July 31, 1997

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September 26, 1997

Dear Friends of the Department of Statistics,

We suspect that 1997 has been a year of change for you, hopefully for the better. We have undergone a few changes here as well.

Bill Parr completed his service as department head, a responsibility he cheerfully relinquished at the end of July. I am most grateful for the leadership Bill gave the department during the last four years. He says it is fun to be (only) a professor again. We wish him well in his goals for the year, which include recruiting students to our new Statistics concentration for the Ph.D. in Business Administration - a program which Bill shepherded through to final approval a year ago.

These changes in Bill's responsibilities have meant an obvious change for me. I appreciate the support of my colleagues in urging me to take this new responsibility. Even more so, I appreciate their assistance during my first two months.

During the last year, all nine of our 2nd year M.S. students graduated with a Master of Science in Statistics, and are now gainfully employed. Three are working in Tennessee, at Blue Cross in Chattanooga, Fort Sanders Hospital in Knoxville, and Howmet in Morristown. The other graduates went to ADVANTA Corp. in PA, AT&T in NJ, Norwest Financial in MD, Anheuser Busch in MO, Harris Semiconductor in FL and Hitachi in Japan. Eight more students graduated with a Bachelor of Science in Statistics.

We continue to look for good students at all levels. If you know of prospective students, please direct them our way. The specific faculty in charge of recruiting are Frank Guess for undergraduates, Esteban Walker for the M.S. program and Bill Parr for the Ph.D. program. Since demand for well-trained graduates continues to exceed supply, our greatest constraint is recruiting qualified students. The fact that we had to turn away several companies last April who were seeking M.S. interns, together with the fact that all our recent graduates have accepted excellent positions, demonstrates the opportunities for those with a graduate degree from our department.

Last year the Department received approval for a Statistics Micro Computing Lab in Glocker. Ham Bozdogan had the vision for such a facility and took the lead in seeking funding. When the lab is completed in the next few months, it will contain 12 state-of-the-art workstations with 300 MHz Pentium PCs operating under Windows NT, and a collection of modern statistical software including: SAS, JMP, MATLAB, S-Plus, to mention a few, along with Scientific Workplace, a scientific word processor for the students to be able to write their technical reports and independent projects.

The Statistics Department at UT has a long-standing reputation for beneficial work with industry. This Fall we have begun a Statistical Engineering Service through the Statistics Department to facilitate additional collaboration with industry. Mary Leitnaker is taking the lead in launching this new service, with the support of other faculty.

Finally we are contemplating a distance learning program at the first year M.S. level. If all goes well we will begin in Fall 1998. We will keep you posted as to the details.

Through the Statistical Engineering Service, Distance Learning offerings, and/or Alumni services coordinated through Gina Keeling, we hope to be of service to you. Please let us know how we can be of help.

Sincerely,

Robert Mee
THE FACULTY, STAFF, AND STUDENTS

Professors

Hamparsum Bozdogan, Ph.D., University of Illinois at Chicago

Frank M. Guess, Ph.D., Florida State University

Robert A. McLean, Emeritus, Ph.D., Purdue University

Robert Mee, Department Head, Ph.D., Iowa State

William C. Parr, Ph.D., Southern Methodist University

John W. Philpot, Ph.D., Virginia Tech

Richard Sanders, Ph.D., University of Texas, Austin

David Sylwester, Ph.D., Stanford University

Charles C. Thigpen, Emeritus, Ph.D., Virginia Tech

Associate Professors

Mary G. Leitnaker, Ph.D., University of Kentucky

Ramon Leon, Ph.D., Florida State University

Esteban Walker, Ph.D., Virginia Tech

Mary Sue Younger, Ph.D., Virginia Tech

Lecturer

James L. Schmidhammer, Ph.D., Pittsburgh

Instructors

Charles M. Cwiek, M.S., University of Tennessee, Knoxville

Sharon R. Neidert, M.S., Miami University, Ohio

S. Paul Wright, M.S., University of Tennessee, Knoxville

Adjunct and Part-time Faculty

John J. Beauchamp, Ph.D., Florida State University, Adjunct Professor

Kimiko O. Bowman, Ph.D., Virginia Polytechnic Institute & State University, Adjunct Professor

Darryl J. Downing, Ph.D., University of Florida, Adjunct Professor

Val V. Fedorov, Ph.D., Moscow State University, Adjunct Professor

Stephen A. McGuire, Ph.D., Kansas State University, Part-time Assistant Professor, Adjunct Professor

Max. D. Morris, Ph.D., Virginia Polytechnic Institute, Adjunct Professor

William L. Seaver, Ph.D., Texas A&M, Part-time Associate Professor
Intercollegiate Graduate Statistics Program Faculty

Statistics Department Associate and Full Professors plus:

Dewey L. Bunting, Professor Ecology
Arun Chatterjee, Professor of Civil and Environmental Engineering
Carl Dyer, Associate Professor of Textiles, Retailing, and Interior Design
Ben G. Fitzpatrick, Assistant Professor of Mathematics
Henry A. Fribourg, Professor of Plant and Soil Science
Michael M. Gant, Associate Professor of Political Science
Charles A. Glisson, Professor of Social Work
Louis J. Gross, Associate Professor of Mathematics
Larry James, Professor of Management Science
Robert T. Ladd, Associate Professor of Management, Industrial/Organizational Psychology Program
John Lounsbury, Professor of Psychology
William Lyons, Professor of Political Science
Dan L. McLemore, Associate Professor of Agricultural Economics
M. Mark Miller, Professor of Journalism
John Orme, Associate Professor of Social Work
Donald Ploch, Professor of Sociology
Balram S. Rajput, Professor of Mathematics
Lillard Richardson, Assistant Professor of Political Science
Jan Rosinski, Associate Professor of Mathematics
Fumiko Samejina, Professor of Psychology
Arnold Saxton, Professor of Animal Science
Michael W. Singletary, Professor of Mathematics
Julius Smith, Professor of Mathematics
Carl G. Wagner, Professor of Mathematics
Mary Sue Younger, Professor of Statistics

Support Staff

Gina Keeling, Office Supervisor
Karen Poland, Senior Secretary
Karen Welch, Student Assistant

Graduate Students

2nd Year Graduate Students

Patrice Burley
Atlanta, GA
University of Tennessee
B.S. in Mathematics
1996 Internship: UT Energy Environment & Resource
Employment: Covenant Health
Knoxville, TN

Yiting Ding
Shanghai, China
East China Normal University
B.S. Statistics
1996 Internship: Masonite Laurel, Laurel, MS
Employment: ADVANTA, CORP.
Philadelphia, PA
Jeffrey Freyer
Delmar, NY
University of South Carolina
B.S. in Statistics
1996 Internship: Eastman Chemical Co., Longview, TX
Employment: AT&T, Florham Park, NJ

Dawn Heaney
Blacksburg, VA
Virginia Tech
B.S. in Mathematics
1996 Internship: Eastman Chemical Co., Kingsport, TN
Employment: Norwest Financial, Frederick, Maryland

Scott Nix
Columbia, SC
University of South Carolina
B.S. in Statistics
1996 Internship: BTR Sealing Systems, Reidsville, SC
Employment: Anheuser Busch, St. Louis, MO

Marta Peralta
Spain
University of Tennessee
B.S. in German
1997 Internship: Howmet, Morristown, TN
Employment: Howmet, Morristown, TN

Wakana Shinke
Knoxville, TN
University of Tennessee
B.S. in Math/Statistics
Employment: Hitachi, Tokyo, Japan

Yuki Taketani
Kawasaki, Japan
University of Tennessee
B.S. Biology
1996 Internship: Ocean Spray, Inc., Kenosha, WI
Employment: BlueCross Blueshield, Chattanooga, TN

Philip Yates
Fayetteville, NC
North Carolina State University
B.S. in Mathematics
1996 Internship: Pratt & Whitney, West Palm Beach, FL
Employment: Harris Semiconductor, Melbourne, FL

1st Year Graduate Students

Mark Austen
Little Rock, AR
University of Arkansas
B.A. in Mathematics
1997 Internship: Univ. of Ark. Medical Sciences

Scott Ayers
Knoxville, TN
The University of Tennessee
B.A. in Statistics
1997 Internship: Ocean Spray, Kenosha, WI

Arika Blankenship
Knoxville, TN
Roanoke College
B.S. in Mathematics
1997 Internship: Progress Casting Group, Plymouth, MN

Candace Brooks
Knoxville, TN
The University of Tennessee
B.S. in Statistics
1997 Internship: C.N.A. Insurance, Chicago, IL

Matt Donovan
Atlanta, GA
The University of Tennessee
B.S. in Mathematics
1997 Internship: AT&T, Atlanta, GA

Nathan Hardiman
Tucker, GA
Furman University
B.S. in Mathematics
1997 Internship: Pratt & Whitney West Palm Beach, FL
Lance Milner  
Foxgrove, IL  
Brigham Young University  
B.S. in Statistics  
1997 Internship: Intel, Corp., Chandler, AZ

Alonzo Parker  
Knoxville, TN  
Savannah State College  
B.S. in Chemistry

June Wang  
Knoxville, TN  
Lanshou University  
B.S. in Biology  
1997 Internship: Glaxo Wellcome, Research Triangle Park, NC

Graduates with Masters in Statistics  
Through Intercollegiate Graduate Statistics Program

Greg Kellar, Ph.D. in Logistics

Graduates with Minor in Statistics  
Through Intercollegiate Graduate Statistics Program

Todd Allen, M.S. Wildlife & Fisheries Sci.  
Jay Franklin, M.A. Anthropology  
Derek Martin, M.A. Sociology

Bachelor of Science Graduates-  
College of Liberal Arts

Azlinda Abd Aziz, Malaysia  
Sonny Bolton, Knoxville, TN  
Robert Cosey, Knoxville, TN  
Azalin A. Rahaman, Malaysia

Enrolled Undergraduate Students

Amy Cuccia  
Donna Erny-Weaver (Evening School)  
David Kreyling  
Paul Larson  
Elizabeth Parlier  
Elizabeth Pyda

Enrolled Intercollegiate Graduate Statistics Program Students

Candidates for Minor in Statistics

Paul Dillingham, Ph.D. in Anthropology  
Deanna Flinchum, M.S., in Civil Engineering  
Amy McCaskill, M.S. in Entomology & Plant Pathology  
Karen McGowan, Ph.D. in Human Ecology  
Stephen Page, Ph.D. in Cultural Studies  
Nikki Rodgers, M.S. in Anthropology  
Megan Wilson, M.S. in Psychology
Enrolled MBA Students with Statistics Minor

Doris Manwaring, China
Margaret Mayall, Virginia

SCHOLARLY ACTIVITIES
PUBLICATIONS

Refereed Publications – Including those in press

Bozdogan, H., Bearse, P.M., Schlottmann, A., “Empirical Econometric Modeling of Food Consumption Using a New Informational Complexity Approach.” This paper is concerned with empirical econometric modeling of food consumption in the U.S. and the Netherlands. Using autoregressive distributed lag models (ADLS) selected via the Informational Complexity (ICOMP) criterion, we study the relationship between food consumption and income. Whether food consumption obeys the homogeneity postulate is tested using information theoretic techniques, we identify the optimal information set and lag order for a Vector Autoregressive VAR forecast of food consumption in the Netherlands. We demonstrate how multisample cluster analysis, a combinatorial grouping of samples or data matrices, can be used to determine when the pooling of data sets is appropriate, and how ICOMP can be used in conjunction with the Genetic Algorithm (GA) to determine the optimal predictors in the celebrated seemingly unrelated regressions (SUR) model framework. Journal of Applied Econometrics, October 1997. Invited world title winning paper.

Bozdogan, H., Bearse, P.M., “Model Selection Using Informational Complexity with Applications to Vector Autoregressive (VAR) Models.” This paper introduces and explicitly derives a new information-theoretic measure of complexity called ICOMP of Bozdogan (1988, 1990, 1994, 1997) as a decision rule for automatic model selection of vector autoregressive (VAR) models. The development of ICOMP is based on the generalization and utilization of the covariance complexity index of van Emden (1971) in estimation of multivariate linear or nonlinear models. ICOMP provides a trade-off between the fit, the accuracy of parameter estimates, and the interaction of the residuals of a model via a measure of complexity of their respective covariances. Using quarterly macroeconomic data on unemployment, prices, interest rates, and money supply from the U.S. economy, we illustrate the workings of the various model selection criteria in the VAR model setting. VAR models are a very important class of linear dynamic models of a group of time we develop a computationally feasible approach for choosing the best predictors in Vector Autoregressive (VAR) models. A p-dimensional VAR process with lag order k augmented by a constant term admits to possible vexing problem in the VAR literature and almost all the work to date in this area acknowledges the “impossibility” and/or “tremendous computational expense” of automatic model generation using complete search techniques. We show how a genetic algorithm (GA) can be used to determine the optimal subset of predictors in VAR models using the information-theoretic-measure of complexity (ICOMP) criterion of Bozdogan (1988-1990,1994d) as a fitness function. As a random search algorithm, the GA allows us to globally search for the best subset model even when the set of potential predictors is very large. We demonstrate that the GA along with the aid of ICOMP as the fitness function is an efficient approach that mitigates this expense sizably and provides a new and novel method for subset VAR model selection. We illustrate our approach using a macroeconomic data set. Invited paper to appear in Systems Analysis, Modeling, Simulation (SAMS), 1997.

Bozdogan, H., Bearse, P. M., “Subset Selection in Vector Autoregressive Models Using the Genetic Algorithm with Informational Complexity as the Fitness Function.” In this paper, for the first time,
series which have become popular in studying dynamic relationships in economic data. In this paper, we use AIC, MDL, MML87, ICOMP, and ICOMP(IFIM) to select the "optimal" choices of process dimension, data transformation, lag order, and deterministic trend degree. We then examine the forecasts generated by the selected models. The application demonstrates the utility and versatility of the new approach. Invited book chapter to appear in Information, Statistics and Induction in Sciences (ISIS) Anthology. MIT Press, 1997.

Mee, R.W., and Eberhardt, K., “A Comparison of Criteria for Calibration Intervals.” Calibration consists of using a fitted regression line to estimate the value of an unobserved independent variable \( x \) corresponding to a observed dependent variable \( y \). To construct a confidence interval for a single \( x \), Eisenhart introduced a procedure that consists of inverting prediction intervals around the regression line. Numerous other inference procedures have been proposed for multiple-use calibration, in which a single fitted regression line is used repeatedly to estimate many \( x \)'s. We provide a synthesis of this literature and offer some numerical comparisons. We also attempt to motivate the use of various criteria based on the particular points of view of those involved in determining the calibration or using the results. Technometrics, vol. 38, pp. 221–229, August 1996.

Wright, S.P., Wolfinger, Russell D., “Repeated Measures Analysis Using Mixed Models: Some Simulation Results.” The MIXED procedure in SAS makes it easy to analyze repeated measures data having such “non-standard” features as incomplete observations and structured covariance matrices. Unfortunately, in small samples, the asymptotically valid F tests in MIXED can be grossly inaccurate. This paper reports simulation results showing that accurate tests are obtained from adjusted F statistics using both univariate (Greenhouse-Geisser and Huynh-Feldt) and multivariate (Lawley-Hotelling trace) approaches to adjustment. Theses results hold when covariances are estimated using REML or using sums of squares and products of residuals, but not when using MIVQUEO. Modeling Longitudinal and Spatially Correlated Data, Springer-Verlag, 1997.

Wright, S.P., Horn, Sandra P., Sanders, William L., “Teacher and Classroom Context Effects on Student Achievement: Implications for Teacher Evaluation.” The Tennessee Value-Added Assessment System (TVAAS) uses mixed-model methods to conduct multivariate, longitudinal analyses of student achievement data. This paper examines the relative magnitude of teacher effects on student academic growth while simultaneously considering the influences of intraclassroom heterogeneity, student achievement level, and class size. The results show that teacher effects are dominant factors affecting student academic gain and that classroom context variables (heterogeneity among students, class size) have relatively little influence. Journal of Personnel Evaluation in Education, 1997.

Younger, M.S., Corral, P.D., Howley, E.T., Hartsell, M., Ashraf, M., “Metabolic Effects of Cortisol During Exercise in Humans.” This study examined the physiological effect of reduced plasma cortisol (C) during prolonged exercise in humans. The effects of normal C (NC) were compared to metyrapone-induced low C (LC) on plasma substrate availability and the RER during 2 h of exercise @ ~60% VO_{2peak} in 9 subjects. The C responses were compared to pre-exercise (PRE) levels and to a rest day (CON). We conclude that during exercise: 1) C accelerates lipolysis, ketogenesis and proteolysis; 2) under LC glucoregulatory hormone adjustments maintain glucose homeostasis; and 3) LC does not alter whole-body substrate utilization or the ability to complete 2 h of moderate exercise. Journal of Applied Physiology, July, 1997.
Papers and Reports


Bozdogan, H., Luh, H-K, Minesky, J.J., "Choosing the Best predictors in Regression Analysis via the Genetic Algorithm with Informational Complexity as the Fitness Function." For Data Mining and Knowledge Discovery.

Bozdogan, H., "Univariate Mixture of Cubic B-Spline Approach to Detecting Multivariate Modality Using Model Selection Criteria."


Theses and Independent Projects of Graduate Students


In order to identify the most contaminated sites to receive funding for cleanup, the Underground Storage Tank Division in Nashville has developed a ranking system to identify those sites which are high priority from those which are less harmful. This ranking system assigns a numerical score to each site. It is based on four geologic factors, seven receptor factors, and four contaminant factors. The purpose of this study is to find a parsimonious subset of these predictor variables that is most stable across a variety of selection techniques to help identifying priority sites in an efficient manner.

Advisor: Dr. John Phlipot

Ding, Y., “Variable Selection In Multiple Regression Analysis With Non-Normal Errors”

In many practical problems such as in industry, engineering process control, econometrics, and in design of experiments, when linear regression models are used, the error terms are assumed normally and independently distributed, each with zero mean and common variance. Often in the analysis of linear regression data, the assumption of the usual normality on the distribution of the error terms may not be achievable. If we assume the distribution of the error terms wrong, then our results of the analysis may be misleading and could have adverse effects on the inferences made. In this independent project, we, therefore, will introduce and consider a broader distributional assumption, namely, that the error terms have a joint multivariate Student-t distribution with zero location vector.
With this assumption, the marginal distribution of each error is univariate Student-t, a distribution that includes the Cauchy and normal distributions as special cases. This class of distribution is a reasonable way of modelling tails that are fatter than those of the normal distribution.

Advisor: Dr. Hamparsum Bozdogan

Freyer, J., “Fitting Circles and Measuring Degree of Roundness”

Degree of roundness is very important in many industrial processes. This paper deals with fitting a model to determine degree of roundness. Using ordinary least squares, a circle is fitted to a series of points measured on the surface of a circular part. The deviations or residuals are then used to assess the degree of roundness. Several ways of using the residuals for this purpose are discussed. This technique is illustrated in data from metal balls and a shaft alignment process.

Advisor: Dr. Esteban Walker

Heaney, D., “Sequential Experimentation and The Sliding Cube Design: An Example”

Sequential Experimentation is well known in experimental design, typically in fractional factorial experiments. The type of follow-up design depends highly on the process being investigated. Discussed here is an example investigating how to maximize the flight time of a paper gyrocopter. Along with the typical steepest ascent and foldover follow-up designs, a compromise of these two methods known as the sliding cube design is performed. While the steepest ascent and foldover design approaches are beneficial in certain applications, the sliding cube is the best follow-up design for this example and should be considered in other $2^{k-p}$ experiments for the lessons learned and practical applications.

Advisor: Dr. Robert Mee

Nix, S., “A New Multivariate Process Capability Index”

Univariate capability indices have been used in industry for many years to measure the extent of which processes are making product that conforms to specifications. However, these indices only measure individual characteristics of a product. In reality, a product’s quality may be described by several different characteristics. Hence, a multivariate analog of $C_p$ and $C_{pk}$ is needed to adequately measure capability. This paper introduces a new multivariate capability index that is a simple extension of the univariate case. This index is compared to existing methodology on multivariate process capability.

Advisor: Dr. John Philpot

Peralta, M., “Fractions of Foldover Designs”

Follow-up experiments of the same size as an original fractional factorial experiment are often performed to resolve the aliasing of factorial effects present in the first experiment. These follow-up experiments are generally some type of foldover design, ie, a fractional factorial design for which one or more of the factors has its low and high levels reversed. This project considers the utility of smaller follow-up designs obtained as a fraction of a foldover design. Semifolding is a term that refers to follow-up designs half the size of an original design. The precision of effects is studied in detail and two examples are analyzed.

Advisor: Dr. Robert Mee

Shinke, W., “Reliability and Process Improvements in Semiconductor Industry”

This article discusses two reliability approaches, a testing-in reliability (TIR) and a building-in reliability (BIR). It describes how each approach works and compares the characteristics of two approaches. It reveals how deficient and limited the traditional TIR approach is and discusses the BIR approach as an alternative approach to respond to the continuous and
rapid improvement in technology and ever-more-aggressive market-entry demands facing today’s semiconductor industry, where new products have to be qualified by demonstrating ever-lower failure rates in ever-shorter times. The building-in reliability (BIR) approach was introduced officially by the International Reliability Physics Symposium (IRPS) in 1990. It is an ongoing, comprehensive, and integrated approach to “build reliability into” the product.

Advisor: Dr. Frank Guess
Second Reader: Dr. Mary Leitnaker

Taketani, Y., “Customizing a SAS Procedure”

A SAS program was written to augment the output from the REG procedure by computing and printing confidence intervals for regression parameters in a multiple regression. The entire program is divided into 2 parts: (1) the user-created file, which contains data, the input statement, and a few additional SAS statements which invoke (2) a separate SAS Macro program file stored in the SAS main directory. The features of this particular program are: (1) the user has freedom to choose any desired confidence level, (2) the user can have any number of independent variables for multiple regression, and (3) using a Macro program stored separately makes the process reasonably user friendly.

Major Advisor: Dr. Mary Sue Younger
Co-Advisor: Mr. Paul Wright

Yates, P., “Fractional Factorial Designs with Minimal Numbers of Treatment Combinations for Factor Subsets”

Designs are constructed which limit the number of treatment combinations within subsets of factors. Such designs, attributed to Marvin Smoak, came to our attention in the context of machine assembly experiments. For example, to improve a stepper motor, we plan a $2^{4-1}$ design to investigate four rotor factors and a similar $2^{4-1}$ design to investigate four stator factors. The product of these two arrays - to study the eight factors of these motors - would involve 64 combinations. However, a resolution IV design is possible in only 16 treatments combinations. This example, and four others, appear in Diamond (1989). We also suggest alternative applications of these designs and cite related literature.

Advisor: Dr. Robert Mee

Presentations


Neidert, S., “In-Service Workshop Using Microsoft EXCEL and WORD.” Presented to faculty of Sacred Heart School, Loretto, TN, October, 1996.


Seaver, W.L., “Fuzzy Methods and Influential Subsets in Regression.” Annual Meeting of the American Statistical Association, Chicago, IL, August, 1996.


Walker, E., and Voit, J., “Evaluating the Quality of Sound (poster).” Joint Statistical Meetings, Chicago, IL, August, 1996.


Grants and Contracts

Bozdogan, H., Principal Investigator of project: Statistics Microcomputer Laboratory (SMCL). A three-way matching grant sponsored by the Division of Information Infrastructure (DII), College of Business Administration, and the Department of Statistics to establish a Statistics Microcomputer Laboratory (SMCL). Amount received: $110,000.


Younger, M.S., Performance Funding for Major Field Testing, Tennessee Higher Education Commission, $4000 in one-time funds to Statistics Department, 1996.


Conferences


Bozdogan, H., Co-Chair of the 5-th World Meeting of the International Society for Bayesian Analysis (ISBA), Istanbul, Turkey, August 15-18, 1997.


Books


Younger, M.S., “Running SAS Programs on Unix Computers at UTK.” Graphic Creations, Knoxville, TN.

HONORS AND AWARDS

Faculty

Bozdogan, H., Worldwide research competition award on “The Experiment in Applied Econometrics.” . Reported in the following press release. UT Faculty Team Wins World Title. KNOXVILLE, Tenn.-- A team of business administration faculty members at the University of Tennessee-Knoxville has won a world competition for economic modeling. Drs. Hamparsum Bozdogan, Peter Bearse and Alan Schlottmann will be honored at Tilburg University in the Netherlands in December. Their work will also be published in the Journal of Applied Econometrics next year. Bozdogan, UT-Knoxville team leader and Professor of Statistics, said 28 research teams looked at new econometric models to forecast U.S. and Dutch food consumption. "The purpose of this experiment was to come up with new and credible applied econometric and statistical modeling techniques," Bozdogan said. Bearse and Schlottmann are faculty members in UT-Knoxville’s Economics Department.

Bozdogan, H., Small grant award, Office of Research, College of Business Administration, and the Department of Statistics to present the results of “Empirical Econometric Modeling of Food Consumption Using a New Informational Complexity Approach” at the University of Tilburg, the Netherlands, October 2, 1996, $1,200.

Bozdogan, H., Small grant award, Office of Research, College of Business Administration, and the Department of Statistics to Co-Chair ISBA-97 and present the results of “Subset Selection in Bayesian Highest Predictive Density Vector Autoregressive Models Using the Genetic Algorithm” at the Session on Bayesian Multivariate Analysis and Model Selection,
the 5-th World Meeting of the International Society for Bayesian Analysis (ISBA), Istanbul, Turkey, October 2, 1996, $3,000.

Bozdogan, H., Nominated to the UTK Team Excellence Award of the Chancellor by Dean C. Warren Neel of the College of Business Administration on the teamwork of Worldwide research competition award on “The Experiment in Applied Econometrics.” November 14, 1996

Bozdogan, H., University of Tennessee Professional Development Award for the proposal: “Choosing the Best Predictors in Bayesian Regression Model Using the Genetic Algorithm with Informational Complexity as the Fitness Function,” January 14, 1997, $1,800. Evaluated and ranked among the 115 proposals submitted across the campus.

Bozdogan, H., Received the 1997 Hoechst Roussel Teaching and Research Award of the College of Business Administration of the University of Tennessee-Knoxville. This award is given each year to an outstanding faculty member in the College of Business Administration who uniquely combines and demonstrates the importance and effectiveness of their teaching and research in the classroom by what they have created through their research program.

Mee, R.W., Finalist for the John B. Ross Teaching Award, College of Business Administration.

Philpot, J., Finalist for Alumni Teaching Award.


**Graduate Scholarships**

Mark Austen
Scott Ayers
Arika Blankenship
Patrice Burley
Yiting Ding
Matt Donovan
Jeffrey Freyer
Nathan Hardiman
Dawn Heaney
Lance Milner
Scott Nix
Marta Peralta
Wakana Shinke
Yukiko Takegami
June Wang
Phillip Yates

**Undergraduate Scholarships**

Matthew Hagaman

**COLLOQUIUM SERIES**

April 17, 1997, Dan Meyer, Manager, Statistical Services, The Lubrizol Corporation, “Analysis of Large or Complicated Fractional Multi Fractional Multi-factor Experiments.”

November 6, 1996, A. Blanton Godfrey, Chairman and CEO, The Juran Institute, “Godfrey, Hoadley & Eisenhart Efficiency.”


September 6, 1996, Dr. Peter M. Bearse, Department of Economics and Center for Business and Economic Research, The University of Tennessee, “Empirical Econometric Modeling of Food Consumption Using a New Informational Approach.”

STUDENT ACTIVITIES

Sigma Mu Alpha

President: Dawn Heaney
Secretary/Treasurer: Dawn Heaney
Faculty Advisor: David Sylwester

Student Seminar Series

April, 1997
Kevin White, Eastman Chemical Company.

March, 1997
Leslie Bloom, Martin Marietta.

March, 1997
Steve Bloom, TVA.

October, 1996
Internship Presentation, Patrice Burley.

September, 1996
Internship Presentation, Jeffrey Freyer, Dawn Heaney, Scott Nix.

FACULTY SERVICE TO THE UNIVERSITY

University and College Committees

Hamparsum Bozdogan
• UT Faculty Senate Research Council
• CBA Management Science Programs Committee
• CBA I/O Program Committee

Frank Guess
• Stokely Task Force for Undergraduate Innovations Curriculum, College of Business Administration

Robert Mee
• CBA and Tenure Promotion Committee

William Parr
• Head, Department of Statistics
• Executive Committee
• MDC Strategy Committee

John Philpot
• Department 50th Birthday Committee.
• Chair, Executive Committee of the IGSP Program

David L. Sylwester
• University Committee for Administrative Review of Associate Dean H. Howard
• Chair, Graduate Committee
• Faculty Development Committee
• Chair, Distance Learning Committee
• Chair, Department 50th Birthday Celebration Committee

S. Paul Wright
• Technology and Computing Committee

M.S. Younger
• CBA Representative, Intercollegiate Graduate Statistics Program
• Department 50th Birthday Committee
• Undergraduate Programs Committee
• Distance Learning Committee
• Chair, Major Field Testing subcommittee
• Undergraduate Scholarship Committee

**Thesis and Dissertation Committees**

Hamparsum Bozdogan
- Xi Chen, Ph.D., Management Science
- Cheryl Hild, Ph.D., Management Science
- Z Jim Minesky, Ph.D., Department of Ecology

David Sylwester
- Thomas J. Douglas, Ph.D., Strategic Management
- Derek Martin, M.S., Sociology

M.S. Younger
- Kris Koehne, Ph.D., Child and Family Studies
- Molly Meighan, Ph.D., Nursing
- Ryan Phirman, M.S., Fisheries
- Terrence Scott, Ph.D., Communications
- Janet Secrest, Ph.D., Nursing
- Steven Trotter, Ph.D., Civil and Environmental Engineering

**Service to the Department**

**Graduate Program**

Hamparsum Bozdogan
Mary Leitnaker
Robert Mee
David Sylwester (Chair)
Esteban Walker

**Undergraduate Student Affairs**

Frank Guess
Sharon Neidert (Chair)
John Philpot
S. Paul Wright
Mary Sue Younger

**Faculty Development**

Hamparsum Bozdogan (Chair)
Frank Guess
Sharon Neidert
John Philpot
Technology

Hamparsum Bozdogan
Ramon V. Leon (Chair)
Jim Schmidhammer
Esteban Walker
Paul Wright

Colloquium Program

Hamparsum Bozdogan (Coordinator)

External Relations Committee

Gina Keeling
Mary Leitnaker (Chair)
Robert Mee
Charles M. Cwiek
Mary Sue Younger

Sigma Mu Alpha Advisor

David Sylwester

Statistics 201 Coordinator

Sharon Neidert

Service to the Profession

Hamparsum Bozdogan
• The Classification Society of North America (CSNA).
• Research Association of Statistical Sciences (RASS) Kyushu University, Fukuoka, Japan
• Japan Statistical Society (JSS) (elected member)
• International Society for Bayesian Analysis (ISBA)

Robert Mee
• Associate Editor for Technometrics

Sharon Neidert
• Secretary and Treasurer, ETASA.

David L. Sylwester
• Associate Editor of the Journal of Statistical Education.
1996 - 1997 COURSE OFFERINGS

Undergraduate Courses
201  Introduction to Statistics
251  Probability and Stat for Scientists and Engineers I
252  Probability and Stat for Scientists and Engineers II
261  Computing for Data Management and Analysis
302  Statistical Methods
321  Elementary Sampling Techniques
365  Industrial Statistics
461  Applied Regression Analysis
462  Analysis of Variance and Experimental Design
471  Random Processes and Probability Models
483  Special Topics

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### Graduate Courses

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CONTINUING EDUCATION AND STATISTICAL CONSULTING

UT Hospital and Medical Research Center (E. Walker)

The use of the statistical consulting service by the medical community at UTMC is growing. Among the many projects in which we were involved are:

- Sample size determination for experiment. (Drs. Laughrey and Enderson, Surgery)
- Sample size to determine the presence of a particular gene. (Dr. Reeves, Vascular Surgery)
- Analysis of AIDS data. (Dr. Ichiki, Research)
- Design of survey to determine nutrition habits. (Dr. White, Family Practice)
- Study of the customer satisfaction survey. (Dr. Thomas, Administration)

Management Development Center Programs

The University of Tennessee’s Institutes for Productivity through Quality began in 1981, in response to an outcry from industry for help in responding to the challenges presented by their international competitors. One goal of these Institutes, as they have now evolved, is to offer organizations a comprehensive set of integrated courses in managing. These courses revolve around a set of central themes:

- Management of strategic organizational suprasystems
- Customer value
- Managing in the presence of variation

The first course, the Three Week Institute for Productivity Through Quality, has been in operation since 1981, with participants from operational levels in organizations from virtually all segments of the U.S. economy. Courses currently offered are:

- Practical Strategies for Process Improvement: (Previously Three Week Institute for Productivity Through Quality). A three-week course focused on subgrouping plans for data collection, operational definitions, measurement, capability and design experiments, and control charts.
- The Senior Executive Institute: A one-week course on the management strategic organizational suprasystems, in the interest of providing best-net-comparative customer value, featuring extensive use of statistical thinking.
- The Service Institute: A two-week course covering philosophy and tools of continuous improvement for mid-level managers from service organizations.
- The Government Services Institute: A two-week course covering philosophy and tools of continuous improvement for mid-level managers from government.
• **The Cost Management Institute**: A one-week program providing an understanding of the changing responsibilities of managers of accounting and financial information in the operating environment of today’s globally competitive firms.

• **The Design of Experiments Institute**: A three-week course providing advanced statistical techniques for designing experiments for product, process, and systems improvement.

• **The Logistics Institute**: A two-week course applying systems management for improving customer value to logistics and physical distribution.

• **The Building Customer Value Institute**: A two-week course applying systems management for improving customer value to marketing, with an overview of the strategic interactions of marketing and other functions.

• **The Institute for Continuous Process Industries**: A two-week course focused on the direct and indirect costs of variation for processes, which discusses both short and long term strategies to manage the variation for continuous improvement.

• **Lean Production Institute**: A one-week course teaching the concepts and principles needed to improve product delivery, process design and performance.

• **Response Surface Methodology**: A one-week course teaching statistical methods for optimizing the performance of product and process through designed experimentation.

These programs have had a profound impact on the curriculum offered to students in the Department of Statistics. Numerous students have the opportunity to be exposed to these programs, and the participants in these programs, as part of their work for financial support. This gives them valuable exposure to organizational reality. Statistics 566 involves coverage of an extensive collection of cases which are used in the Institutes for Productivity through Quality, and is taken by virtually all M.S. students in Statistics. Statistics 365 also involves several cases from the Institutes, and is taken by virtually all undergraduate Statistics Majors.

The following Statistics faculty participated in teaching these programs:

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<th>David Sylwester</th>
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