

# RESUME

April 2021

## DENNIS D. BOOS

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## PERSONAL

Married, 2 children

## EDUCATION

Ph.D. 1977 Florida State University Statistics

M.S. 1975 Florida State University Statistics

B.S. 1970 Florida State University Physics

## HONORS

Valedictorian (high school), Phi Beta Kappa (undergraduate), Fellow of the American Statistical Association (2001), Dave Mason Award (2005, NC State Dept. of Statistics), Dennis Boos Citizenship Award (2016, NC State Dept. of Statistics)

## EXPERIENCE

2011-Present Associate Department Head, Department of Statistics, North Carolina State University.

1989-Present Professor, Department of Statistics, North Carolina State University.

**Research interests:** robust and nonparametric statistics, bootstrap and permutation methods, biostatistics, model selection.

1989, Fall Visiting Staff Fellow, Division of Biometry and Risk Assessment, National Institute of Environmental Health Sciences, RTP, NC

1983-1989 Associate Professor, Department of Statistics, North Carolina State University.

1986, Summer Visiting Professor, Limburgs Universitaire Centrum, Diepenbeek, Belgium.

1982, Fall On sabbatical at the Department of Statistics, University of California, Berkeley.

1977-1982 Assistant Professor, Department of Statistics, North Carolina State U.

## TEACHING

1. Undergraduate: mainly introductory courses for students in engineering and physical sciences.
2. Graduate: courses in intermediate and advanced statistical inference, sampling theory, and model selection
3. Courses created:
  - (a) Six Sigma Master Black Belt Module “Distribution-Free and Robust Statistics,” Three and 1/2 Day short course offered through the School of Textiles, 2006-2008. New version in 2009 entitled “Non-Normal Data.”
  - (b) Six week summer program “Summer Institute for Training in Biostatistics (SIBS),” 2004-2009, for attracting undergraduates to careers and graduate training in statistics/biostatistics. Created with Marie Davidian in collaboration with Duke Clinical Research Institute (DCRI), and NIH Grant 1 T15 HL075859-01. See <http://www.stat.ncsu.edu/sibs/>.
  - (c) Half-day short course “Statistics Refresher” given at Diosynth in Cary, January, 2002.
  - (d) Three-day short course “Statistics for Geneticists I” as part of the annual “Summer Institute in Statistical Genetics” offered by the NCSU Statistics Department (1996-2003 with R. L. Berger except for 1999 and 2003 with J. Hughes-Oliver).
  - (e) ST370 “Probability and Statistics for Engineers” Online version created Fall 1997. Distance Version started Fall 2003.
  - (f) ST793 “Advanced Statistical Inference I” (jointly with Len Stefanski), Fall 1995.
  - (g) ST370 “Probability and Statistics for Engineers” (A one semester course designed to meet the needs of engineering students who can only take one course from the statistics department but need both probability and statistics at calculus level.) Fall 1994. Also created (with Doug Nychka) *S*-Lab for Engineers (computer lab manual in Splus), *M*-Lab (computer lab manual in MATLAB, with Chris Gotwalt, Montserrat Fuentes, and Doug Nychka), and *R*-Lab (computer lab manual in R, with Atina Brooks and Doug Nychka).
  - (h) ST380 “Probability and Statistics for the Physical Sciences” (jointly with Doug Nychka). Also created computer laboratory manual (*S*-Lab) for one day a week lab as part of this course. Fall, 1993.

- (i) Two-day short course “Robust Methods in Statistics” given at the FDA (April, 1985), Boehringer-Ingelheim (Nov., 1986, with R. J. Carroll), Merck Sharp and Dohme (Nov., 1987, with R. J. Carroll), Merrell Dow (Oct., 1989, with R. J. Carroll).
- (j) ST639 “Large Sample Theory”
- (k) ST581 “Robust and Nonparametric Statistics”
- (l) Developed videotape course available from the Association for Media-Based Continuing Education for Engineers. (1980)

## BOOKS

**Boos, D. D.**, and Stefanski, L. A. (2013), *Essential Statistical Inference: Theory and Methods*, Springer.

## JOURNAL PUBLICATIONS

**Boos, D. D.**, and Duan, S. (2021), “Pairwise Comparisons Using Ranks in the One-Way Model,” to appear in *The American Statistician*.

**Boos, D. D.**, and Duan, K. (2021), “Pairwise Comparisons for Levene-Style Variability Parameters,” to appear in *Communications in Statistics - Simulation and Computation*.

Cowger, C., Smith, J., **Boos, D.**, Bradley, C. A., Ransom, J., and Bergstrom, G. C. (2020), “Managing a Destructive, Episodic Crop Disease: A National Survey of Wheat and Barley Growers’ Experience with Fusarium Head Blight,” *Plant Disease*, <https://doi.org/10.1094/PDIS-09-18-1582-RE>.

Green, C. L., Brownie, C., **Boos, D. D.**, Lu, J.-C., Krucoff, M. W. (2016), “Maximum Likelihood Estimation of Time to First Event in the Presence of Data Gaps and Multiple Events,” *Statistical Methods in Medical Research*, **25**, 775-792.

**Boos, D. D.**, and Osborne, J. A. (2015), “Assessing Variability of Complex Descriptive Statistics in Monte Carlo Studies using Resampling Methods,” *International Statistical Review*, **83**, 228-238.

**Boos, D. D.**, and Stefanski, L. A. (2011), “P-Value Precision and Reproducibility,” *The American Statistician*, **65**, 213-221.

Tamura, R. N., Huang, X., and **Boos, D. D.** (2011), “Estimation of Treatment Effect for the Sequential Parallel Design,” *Statistics in Medicine*, **30**, 3496-3506.

- Crews, H. B., **Boos, D. D.**, Stefanski, L. A. (2011), "FSR Methods for Second-Order Regression Models." *Computational Statistics and Data Analysis*, **55**, 2026-2037.
- Boos, D. D.**, and Stefanski, L. A. (2010), "Efron's Bootstrap," *Significance*, **7**, 186-188.
- Boos, D. D.**, Stefanski, L. A., and Wu, Y. (2009), "Fast FSR Variable Selection with Applications to Clinical Trials," *Biometrics*, **65**, 692-700.
- Wang, Q., Genton, M. G., Stefanski, L. A., and **Boos, D. D.** (2009), "Robust Estimation via Measurement Error Model Likelihoods with Applications to Location-Scale Models." *Statistica Sinica*, **19**, 1263-1280.
- Boos, D. D.**, Hoffman, D., Kringle, R., and Zhang, J. (2007), "New Confidence Bounds for QT Studies," *Statistics in Medicine*, **26**, 3801-3817.
- Wu, Y., **Boos, D. D.**, and Stefanski, L. A. (2007), "Controlling Variable Selection by the Addition of Pseudo Variables," *Journal of the American Statistical Association*, **102**, 235-243.
- Luo, X., Stefanski, L. A., and **Boos, D. D.** (2006), "Tuning Variable Selection Procedures," *Technometrics*, **48**, 165-175.
- Isik, F., **Boos, D. D.**, Bailian, Li (2005), "The Distribution of Genetic Parameter Estimates and Confidence Intervals from Small Disconnected Diallels," *Theoretical and Applied Genetics*, **110**, 1236-1243.
- Johnson, B. A. and **Boos, D. D.** (2005), "A Note on the Use of Kernel Functions in Inverse Weighted Estimators," *Statistics & Probability Letters*, **72**, 345-355.
- Fuentes M. and **Boos, D. D.** (2005), editors for "Special issue - Environmental and health statistics," *Environmetrics*, **16**.
- Boos, D. D.**, and Brownie, C. (2004), "Comparing Variances and Other Measures of Dispersion," *Statistical Science*, **19**, 571-578.
- Luo, X., **Boos, D. D.**, and Tamura, R. N. (2004), "Score Tests for Dose Effect in the Presence of Non-Responders," *Statistics in Medicine*, **23**, 3581-3591.
- Presnell, B., and **Boos, D. D.** (2004), "The IOS Test for Model Adequacy," *Journal of the American*

*Statistical Association*, **99**, 216-227.

Robarge W. P., **Boos D.**, and Proctor C. (2004), "Determination of trace metal content of fertilizer source materials produced in North America," *ACS SYM SER* **872**, 75-89.

Kim, H.-J., and **Boos, D. D.** (2004), "Variance Estimation in Spatial Regression Using a Nonparametric Semivariogram Based on Residuals," *Scandinavian Journal of Statistics*, **31**, 387-401.

**Boos, D. D.** (2003), "Introduction to the Bootstrap World," *Statistical Science*, **18**, 168-174.

Stefanski, L. A., and **Boos, D. D.** (2002), "The Calculus of M-Estimation," *The American Statistician*, **56**, 29-38.

Wu, C. T., Gumpertz, M., and **Boos, D. D.** (2001), "Comparison of GEE, MINQUE, ML, and REML Estimating Equations for Normally Distributed Data," *The American Statistician*, **55**, 125-130.

**Boos, D. D.** (2000), Comment on "P Values for Composite Null Models" by Bayarri and Berger and "Asymptotic Distribution of P Values in Composite Null Models" by Robins, van der Vaart, and Ventura, *Journal of the American Statistical Association*, **95**, 1163-1164.

**Boos, D. D.**, and Zhang, J. (2000), "Monte Carlo Evaluation of Resampling-Based Hypothesis Tests," *Journal of the American Statistical Association*, **95**, 486-492.

**Boos, D. D.**, and Hughes-Oliver, J. M. (2000), "How Large Does n Have to Be for Z and t Intervals?," *The American Statistician*, **54**, 121-128.

Berger, R. L., and **Boos, D. D.**, (1999) "Confidence Limits for the Onset and Duration of Treatment Effect," *Biometrical Journal*, **41**, 517-531.

Boos. D. D., and Hughes-Oliver J. (1998), "Applications of Basu's Theorem," *The American Statistician*, **52**, 218-221.

**Boos D. D.** (1998), "Bartlett's Test," in *Encyclopedia of Biostatistics*, eds. Peter Armitage and Theodore Colton, John Wiley & Sons, **1**, p. 252-253.

Zhang, Jie., and **Boos, D. D.** (1997), "Generalized Mantel-Haenszel test statistics for correlated categorical data," *Communications in Statistics*, **26**, 1813-1837.

Zhang, Jie., and **Boos, D. D.** (1997), "Mantel-Haenszel test statistics for correlated binary data," *Biometrics*, **53**, 1185-1198.

- Lamb, R. H., **Boos, D. D.**, and Brownie, C. (1996), "Testing for effects on variance with factorial treatment structure and nested errors," *Technometrics*, **38**, 170-177.
- Boos, D. D.**, and Brownie, C. (1995), "ANOVA and rank tests when the number of treatments is large," *Statistics and Probability Letters*, **23**, 183-191.
- Berger, R. L., and **Boos, D. D.** (1994), "Letter to the Editor" on "The difference between two normal means" by Sprott and Farewell (1993, *The American Statistician*), *The American Statistician*, **48**, 268.
- Berger, R. L., and **Boos, D. D.** (1994), "P-values maximized over a confidence set for the nuisance parameter," *Journal of the American Statistical Association*, **89**, 1012-1016.
- Zhang, J., and **Boos, D. D.** (1994), "Adjusted power estimates in Monte Carlo experiments," *Communications in Statistics-Simulation*, **23**, 165-173.
- Brownie, C., and **Boos, D. D.**, (1994), "Type I error robustness of ANOVA and ANOVA on ranks when the number of treatments is large," *Biometrics*, **50**, 542-549.
- Zhang, J., and **Boos, D. D.** (1993), "Testing hypotheses about covariance matrices using bootstrap methods," *Communications in Statistics*, **22**, 723-739.
- Boos, D. D.** (1993), "Analysis of dose response data in the presence of extra-binomial variation," *Applied Statistics, JRSS C*, **42**, 173-183.
- Dinse, G. E., **Boos, D. D.**, Piegorsch, W. W. (1993), "Confidence statements about the time range over which survival curves differ," *Applied Statistics, JRSS C*, **42**, 21-30.
- Boos, D. D.** (1992), "On generalized score tests," *American Statistician*, **46**, 327-333.
- Zhang, J., and **Boos, D. D.** (1992), "Bootstrap critical values for testing homogeneity of covariance matrices," *Journal of the American Statistical Association*, **87**, 425-429.
- Monahan, J. F., and **Boos, D. D.** (1992), "Proper likelihoods for Bayesian analysis," *Biometrika*, **79**, 271-278.
- Boos, D. D.**, and Brownie, C. (1992), "A rank-based mixed model approach to multisite clinical trials," *Biometrics*, **48**, 61-72.
- Hudson, R. R., **Boos, D. D.**, and Kaplan, N. (1991), "A Statistical test for detecting geographic

- subdivision,” *Molecular Biology and Evolution*, **9**, 138-151.
- Zhang, J., Pantula, S. G., and **Boos, D. D.** (1991), “Robust methods for testing the pattern of a single covariance matrix,” *Biometrika*, **78**, 787-795.
- Boos, D. D.**, and Brownie, C. (1991), “Mixture models for continuous data in dose-response studies when some animals are unaffected by treatment,” *Biometrics*, **47**, 1489-1504.
- Brownie, C., **Boos, D. D.**, and Hughes-Oliver, J. (1990), “Modifying the t and ANOVA F tests when treatment is expected to increase variability relative to controls,” *Biometrics*, **46**, 259-266.
- Boos, D. D.**, Janssen, P., and Veraverbeke, N. (1989), “Resampling from centered data in the two-sample problem,” *Journal of Statistical Planning and Inference*, **21**, 327-345.
- Boos, D. D.** and Brownie, C. (1989), “Bootstrap methods for testing homogeneity of variances,” *Technometrics*, **31**, 69-82.
- Berger, R., **Boos, D. D.**, and Guess, F. (1988), “Tests and confidence sets for comparing two mean residual life functions,” *Biometrics*, **44**, 103-115.
- Boos, D. D.** (1987), Review of “Empirical Processes with Applications to Statistics by Shorack and Wellner,” *Journal of the American Statistical Association*, **82**, 1193-1194.
- Boos, D. D.** (1987), “Detecting skewed errors from regression residuals,” *Technometrics*, **29**, 83-90.
- Boos, D. D.** (1986), “Rates of convergence for the distance between distribution function estimators,” *Metrika*, **33**, 197-202.
- Boos, D. D.** (1986), “Comparing k populations with linear rank statistics,” *Journal of the American Statistical Association*, **81**, 1918-1925.
- Boos, D. D.** and Brownie, C. (1986), “Testing for a treatment effect in the presence of non-responders,” *Biometrics*, **42**, 191-197.
- Boos, D. D.** and Monahan, J. F. (1986), “Bootstrap methods using prior information,” *Biometrika*, **73**, p. 77-83.
- Tamura, R. and **Boos, D. D.** (1986), “Minimum Hellinger distance estimation for multivariate location and covariance,” *Journal of the American Statistical Association*, **81**, 223-229.
- Boos, D. D.** (1985), “L-statistics,” in *The Encyclopedia of Statistical Sciences* edited by N. L. Johnson

and S. Kotz, **5**, 161-166.

**Boos, D. D.** (1985), "A converse to Scheffe's theorem," *Annals of Statistics*, **13**, 423-427.

**Boos, D. D.** (1984), "Using extreme value theory to estimate large percentiles," *Technometrics*, **26**, 33-39.

**Boos, D. D.** and Monahan, J. F. (1983), "The Bootstrap for robust Bayesian analysis: An adventure in computing," in *Computer Science and Statistics: Proceedings of the Fourteenth Annual Symposium on the Interface*, Troy, NY.

**Boos, D. D.** (1982), "Minimum Anderson-Darling estimation," *Communications in Statistics*, **11**, 2747-2774.

**Boos, D. D.** (1982), "A test for asymmetry associated with the Hodges-Lehmann estimator," *Journal of the American Statistical Association*, **77**, 647-651.

**Boos, D. D.** (1981), "Minimum distance estimators for location and goodness-of-fit," *Journal of the American Statistical Association*, **76**, 633-670.

**Boos, D. D.** and Serfling, R. J. (1980), "A note on differentials and the CLT and LIL for statistical functions, with application to M-estimates," *Annals of Statistics*, **8**, 618-625.

**Boos, D. D.** (1980), "A new method for constructing approximate confidence intervals from M-estimates," *Journal of the American Statistical Association*, **75**, 142-145.

Schreuder, H., **Boos, D. D.**, and W. Hafley (1979), "Some potential uses of robust estimation in forestry," in Proceedings, Forest Resources Inventories Workshop, Fort Collins.

**Boos, D. D.** (1979), "A differential for L-statistics," *Annals of Statistics*, **7**, 955-959.

MANUSCRIPTS not included above

**Boos, D. D.**, and Duan, K. (2020), "Pairwise Comparisons Using Ranks in Block Designs," in review.

**Boos, D. D.**, and Chen, J. X. (2021), "Analysis of Likert-Type Data Using Metric Methods," in review.

Choi, B. S., **Boos, D. D.**, and Osborne, J. A. 2017, "Confidence Intervals in Block Designs with Hidden Activity."

Reyes, E. M., Stefanski, L. A., and **D. Boos, D. D.** (2014), "Complete Least Squares with Applications



to Variable Screening.”.

Duan, J., **D. Boos, D. D.**, and Stefanski, L. A. (2014), “Bootstrap Variance Estimates for Bagged Predictors.”

**Boos, D. D.**, and Osborne, J. (2012), “The Jackknife in Monte Carlo Studies,” NC State Department of Statistics Technical Report #2648.

**Boos, D. D.**, and Rothenberg, L. (2009), “Goodness-of-Fit Tests in Minitab and JMP and Suggested Improvements.”

Hardy, S. W., Nychka, D. W., **Boos, D. D.**, Haaland, P. D. (2000), “Variable Selection for Response Surface Modeling Using R-Splines,” Institute of Statistics Mimeo Series #2526.

Zhang, Jie., and **Boos, D. D.** (1996), “Estimating the Magnitude of Interactions,” Institute of Statistics Mimeo Series #2285.

Lau, L. C., and Boos. D. D. (1994), “A fast and Low-storage algorithm for finding quantiles,” Institute of Statistics Mimeo Series #2268.

**Boos, D. D.**, and Brownie, C. (1988), “Bootstrap p-values for tests of nonparametric hypotheses,” Institute of Statistics Mimeo Series #1919.

**Boos, D. D.** (1985), “Robust methods in statistics,” notes for FDA short course.

**Boos, D. D.** (1982), “Estimating nonparametric parameters from stratified samples.”

**Boos, D. D.** and Serfling, R. J. (1979), “On Berry-Esseen rates for statistical functions, with application to L-estimates,” Florida State University Statistics Report M499.

**Boos, D. D.** (1978), “Gini’s mean difference as a nonparametric measure of scale,” Institute of Statistics Mimeo Series #1166.

**Boos, D. D.** (1977), “Limiting second order distributions for first order functionals, with application to L- and M-statistics,” Institute of Statistics Mimeo Series #1152.

**Boos, D. D.** and Serfling, R. J. (1976), “Development and comparison of M-estimators for location on the basis of the asymptotic variance functional,” Florida State University Statistics Report M380.

## RECENT INVITED PRESENTATIONS

“Noise-Addition Methods and the False Selection Rate (FSR) Approach,” Department of Statistics, Johns Hopkins, April 18, 2016.

“Reproducibility and Statistical Significance,” invited talk at the National Academies workshop “Statistical Challenges in Assessing and Fostering the Reproducibility of Scientific Results,” February 26-27, 2015, Washington, DC.

“Variable Selection in Second-Order Models using the False Selection Rate (FSR) Approach,” joint colloquium of the Department of Statistics and Department of Epidemiology and Biostatistics, University of Georgia, September, 2010.

“Instability Measures and Model Averaging,” invited session at the 2009 Joint Statistical Meetings, Washington, D.C.

“Recent Advances in False Selection Rate Methods in Variable Selection: Fast FSR,” invited session at the 2007 Joint Statistical Meetings, Salt Lake City (actually presented by Yujun Wu due to my back problems).

“Tuning Variable Selection Procedures,” in the School of Industrial and Systems Engineering, Georgia Tech, Oct. 12, 2006.

“A New Strategy for Variable Selection,” invited *Technometrics* session at the August 2006 Joint Statistical Meetings, Seattle.

“Two Programs to Attract Students to Statistics/Biostatistics,” invited talk at ENAR in Pittsburgh, March 2004.

“Robust M-Estimation Methods in Clinical Trials,” invited session at the August 2003 Joint Statistical Meetings, San Francisco.

“The IOS Statistic for Testing Model Adequacy,” Department of Statistics, North Carolina State University, April, 2002, Raleigh.

## **Ph.D. STUDENTS**

Bong Seog Choi, “Testing and Estimation under Hidden Additivity,” Completed December, 2016 (with Jason Osborne).

Alana Unfried, “Variable Selection in Factor Analysis,” Completed August, 2016 (with Len Stefanski).

Eric Reyes, “Complete Least Squares: A New Variable Screening and Selection Method,” Completed December, 2011 (with Len Stefanski).

Jiangtao Duan, “Bootstrap-based variance estimators for a bagging predictor,” Completed May, 2011 (with Len Stefanski).

David Schumann, “Robust variable Selection,” Completed May, 2009 (with Len Stefanski).

Hugh Crews, “Fast FSR methods for second-order linear regression models,” Completed August, 2008 (with Len Stefanski).

Julius Dasah, “Estimating the Number of Clusters in Cluster Analysis,” Completed December, 2006 (with Len Stefanski).

Xiaoni Liu, “New Methods Using Levene Type Tests for Hypotheses about Dispersion Differences,” Completed August, 2006 (with Cavell Brownie).

Yun Chen, “False Selection Rate Methods in the Cox Proportional Hazards Model,” Completed August, 2006 (with Len Stefanski).

Yujun Wu, “Controlling Variable Selection By the Addition of Pseudo-Variables,” Completed August, 2004 (with Len Stefanski).

Christopher Gotwalt, “Model-Robust Interval Estimation,” Completed May, 2003.

David Wilson, “Signed Scale Measures: An Introduction and Application,” Completed December, 2002 (with Jackie Hughes-Oliver).

Xiaohui Luo, “Tuning Variable Selection Procedures and Score Tests for Dose Effect in the Presence of Non-Responders,” Completed June, 2002. (with Len Stefanski).

Hyon-Jung Kim, “Nonparametric Spatial Analysis in Spectral and Space Domains,” Completed August, 2000. (with Montserrat Fuentes).

Cindy Green, “Information Lost or Gained: A New Parametric Estimation Method for Failure Time Data.” Completed May, 1999. (with C. Brownie and J. C. Lu)

C. T. Wu, “Generalized Estimating Equations for Spatially Correlated Data.” Completed Summer, 1998. (with M. Gumpertz)

Jie Zhang, "Inference for Correlated Categorical Data and Analysis of Interaction between Treatments and Patient Subsets." Completed May, 1996.

Lap-Cheung Lau, "Generalized Score Tests in Linear Models." Completed May, 1995.

Gerry Gray, "Misspecification bias and tests for the number of components in finite mixtures." Completed Fall, 1992. (with C. Brownie)

Ron Lamb, "Testing for treatment effects on variance in designed experiments." Completed Summer, 1991. (with C. Brownie)

Ji Zhang, "Bootstrap methods for tests about covariance matrices." Completed Spring, 1990. (with S. Pantula)

Roy N. Tamura, "Minimum Hellinger distance estimation for multivariate location and scatter." Completed Fall, 1983.

## **GRANTS**

NSF Grant DMS 1303942 for the Symposium on "Advances in Statistical Methods for the Analysis of Observational and Experimental Data," July 12-13, 2013, \$10,000. Co-pi.

NIH 1 Grant P01 CA142538-01, 2010-2015 \$2,444,504, "Statistical Methods for Cancer Clinical Trials," co-inv.

NSF Grant DMS-0906421, 2009-2012, \$200,00, "Stability, Inference, and Weighting in Model Selection," co-pi with Len Stefanski.

NIH Grant T15 HL 075859 2007-2010 \$758,328, "Engaging the Next Generation of Biostatisticians." Co-PI with Marie Davidian

NSF Grant DMS-0504283, 2005-2008, \$300,000, "New Approaches to Variable Selection," co-pi with Len Stefanski.

NIH Grant 1 T15 HL075859-01, 2003-2006, \$802,560, "Engaging the Next Generation of Biostatisticians," Co-pi with Marie Davidian

NSF Grant DMS-0204297, 2002-2005, \$179,186, "Robust Statistics for Correlated Data," co-pi with Marc Genton and Len Stefanski.

Cooperative Agreement with EPA, joint with M. Fuentes, 2001-2003, “Statistical Methodology for Spatial Modeling and Interpolation of Air and Deposition Pollutants.”

The Fertilizer Institute, “Evaluation of Elemental Composition of Fertilizer Source Material,” \$320,784, 1997-2001, co-pi with Wayne Robarge.

NCSU University Outreach and Extension Committee Grant,\$3,000, 1997-98, joint with J. C. Lu. “An Industrial Statistics Outreach Program for North Carolina.”

NCSU Teaching Excellence Initiative Grant, 1993, \$10,000, joint with J. C. Lu.

Member of investigator group for successful NSF SCREMS grant, 1991.

### **PROFESSIONAL SERVICE**

ASA Noether Awards Committee, 2009-2015, Chair, 2014-2015.

Associate Editor for the *Journal of the American Statistical Association*, 1988 - 1990, 2008 - 2011.

Associate Editor for *Biometrics*, 2000-2004.

ASA Representative to the ASA-SRCOS Summer Research Conference Planning Committee, Jan. 1, 2001-Dec. 31, 2003.

Member of Nominations Committee, ASA Council of Sections, 1991.

Representative for Section on Physical and Engineering Sciences on ASA Council of Sections, 1991.

Associate Editor for *Technometrics*, 1985 - 1989.

Executive Committee of Section on Statistical Education, ASA, 1984 - 1987.

Refereed many articles for the *Annals of Statistics*, *Journal of the American Statistical Association*, *Technometrics*, *Biometrics*, and other statistics journals. Reviewer for NSF.

### **RECENT EXTERNAL CONSULTING**

With Public Consulting Company (PCG) on a contract with the State of NC sampling for evidence of Medicaid fraud, 2011-present.

Statistician on Data Monitoring Committee for Synta Pharmaceuticals trials 5326-4 and 5326-05 for Chronic Moderate to Severe Plaque Psoriasis, 11/04-9/05.

Created report “Statistical Analysis of ICH E14 Suggestions for ‘Negative Thorough QT/QTc Studies,’  
for Sanofi-Aventis, 8/05.