

**Joseph E. Cavanaugh**

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 College of Public Health  
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**Education**

Ph.D.	Statistics	University of California, Davis	1993	(GPA: 3.98/4.00)
M.S.	Statistics	Montana State University	1988	(GPA: 4.00/4.00)
B.S.	Computer Science	Montana Tech	1986	(GPA: 3.99/4.00)
B.S.	Mathematics	Montana Tech	1986	(GPA: 3.99/4.00)

**Current Position and Appointments**

Professor of Biostatistics / Professor of Statistics and Actuarial Science,  
 University of Iowa, August, 2008 – present

- Biostatistician and Executive Committee member for the UI Injury Prevention Research Center
- Biostatistician for the UI College of Dentistry
- Associate Editor for the Reviews Section of the *Journal of the American Statistical Association* and *The American Statistician* (since January, 2005)
- Associate Editor for the *Journal of Forecasting* (since October, 1999)

**Previous Positions**

August, 2003 – August, 2008	Associate Professor of Biostatistics / Associate Professor of Statistics and Actuarial Sciences, University of Iowa
September, 2000 – August, 2003	Associate Professor of Statistics, Director of Undergraduate Studies, University of Missouri
September, 1999 – September, 2000	Associate Professor of Statistics, University of Missouri
September, 1998 – September, 1999	Assistant Professor of Statistics, Director of Graduate Studies and Graduate Admissions, University of Missouri
September, 1993 – September, 1998	Assistant Professor of Statistics, University of Missouri
September, 1988 – June, 1993	Associate-In, Graduate Teaching Assistant, University of California, Davis
June, 1991 – July, 1993	Graduate Research Assistant, University of California, Davis
Summers of 1986, 1987, 1988, 1990	Staff Research Assistant, Los Alamos National Laboratory
September, 1986 – June, 1988	Graduate Teaching Assistant, Montana State University

## Research Interests

Biostatistics	Model Selection	Time Series Analysis
Linear Models	Mixed Models	State-Space Models
Modeling Diagnostics	Discrimination and Classification	Computational Statistics

## Awards for Teaching and Advising

- Recipient of the College of Public Health Faculty Award for Teaching, University of Iowa, 2006. (\$2,000 award)
- Recipient of the William T. Kemper Fellowship for Excellence in Teaching, University of Missouri, 2000. (\$10,000 award)
- Recipient of the Gold Chalk Award (for the training and mentoring of graduate students), University of Missouri, 1998.
- Recipient of the Provost Outstanding Junior Faculty Teaching Award, University of Missouri, 1997. (\$1,000 award)
- Recipient of the Teaching Award for Outstanding Graduate Students, University of California, Davis, 1992.

## Courses Instructed

Course Title	University	Terms Instructed
Advanced Biostatistics Seminar: Model Selection	University of Iowa	1
Advanced Biostatistics Seminar: Generalized Linear Models	University of Iowa	2
Categorical Data Analysis	University of Iowa	3
Introduction to Biostatistics	University of Iowa	3 <sup>†</sup>
Advanced Linear Models	University of Missouri	4
Linear Models I	University of Missouri	5
Linear Models II	University of Missouri	5
Applied Time Series Analysis	University of Missouri	2
Categorical Data Analysis	University of Missouri	3
Introduction to Mathematical Statistics	University of Missouri	3
Statistical Analysis	University of Missouri	4
Statistical Methods in Natural Resources	University of Missouri	4
Elementary Statistics (Honors)	University of Missouri	4
Regression Analysis	University of California, Davis	1
Probability Modeling and Statistical Inference	University of California, Davis	2
Elementary Statistics	University of California, Davis	10 <sup>‡</sup>
Elementary Statistics	Montana State University	5
Linear Algebra for Business	Montana State University	1
Survey of Calculus	Montana State University	1

<sup>†</sup> Instructed large lecture sections (> 75 students).

<sup>‡</sup> Instructed large lecture sections (> 200 students) for 7 out of 10 terms.

## Refereed Publications

- Dawson, J. D., Cavanaugh, J. E., Zamba, K. D. and Rizzo, M. (2009). Modeling lateral control in driving studies. To appear in *Accident Analysis & Prevention*.
- Thunell, D. H., Tymkiw, K. D., Johnson, G. K., Joly, S., Burnell, K. K., Cavanaugh, J. E., Brogden, K. A. and Guthmiller, J. M. (2009). A multiplex immunoassay demonstrates reductions in gingival crevicular fluid cytokines following initial periodontal therapy. To appear in *Journal of Periodontal Research*.
- Warren, J. J., Levy, S. M., Broffitt, B., Cavanaugh, J. E., Kanellis, M. J. and Weber–Gasparoni, K. (2009). Considerations on optimal fluoride intake using dental fluorosis and dental caries outcomes – A longitudinal study. *Journal of Public Health Dentistry*, **69**, 111–115.
- Shang, J., Cavanaugh, J. E. and Wright, F. T. (2008). A Bayesian multiple comparison procedure for order-restricted mixed models. *International Statistical Review*, **76**, 268–284.
- Pingel, L. C., Kohlgraf, K. G., Hansen, C. J., Eastman, C. G., Dietrich, D. E., Burnell, K. K., Srikantha, R. N., Xiao, X., Bélanger, M., Progulske–Fox, A., Cavanaugh, J. E., Guthmiller, J. M., Johnson, G. K., Joly, S. A., Kurago, Z. B., Dawson, D. V. and Brogden, K. A. (2008). Human  $\beta$ -defensin 3 binds to hemagglutinin B (rHagB), a non-fimbrial adhesin from *Porphyromonas gingivalis*, and attenuates a pro-inflammatory cytokine response. *Immunology & Cell Biology*, **86**, 643–649.
- Polgreen, P. M., Septimus, E. J., Parry, M. F., Beekmann, S. E., Cavanaugh, J. E., Srinivasan, A. and Talbot, T. R. (2008). Relationship of influenza vaccination declination statements and influenza vaccination rates for healthcare workers in 22 US hospitals. *Infection Control and Hospital Epidemiology*, **29**, 675–677.
- Shang, J. and Cavanaugh, J. E. (2008). An assumption for the development of bootstrap variants of the Akaike information criterion in mixed models. *Statistics & Probability Letters*, **78**, 1422–1429.
- Shang, J. and Cavanaugh, J. E. (2008). Bootstrap variants of the Akaike information criterion for mixed model selection. *Computational Statistics and Data Analysis*, **52**, 2004–2021.
- Kaskie, B., Imhof, S., Cavanaugh, J. and Culp, K. (2008). Civic engagement as a retirement role for aging Americans. *The Gerontologist*, **48**, 368–377.
- Kaskie, B., Gregory, D. and Cavanaugh, J. (2008). The use of public mental health services by older Californians and complementary service system effects. *Journal of Behavioral Health Sciences & Research*, **35**, 142–157.
- Burr, T., Fry, H., McVey, B., Sander, E., Cavanaugh, J. and Neath, A. (2008). Performance of variable selection methods in regression using variations of the Bayesian information criterion. *Communications in Statistics – Simulation and Computation*, **37**, 507–520.
- Polgreen, P. M., Bohnett, L. C., Cavanaugh J. E., Gingerich, S. B., Desjardin, L. E., Harris, M. L., Quinlisk, M. P. and Pentella, M. A. (2008). The duration of mumps shedding after the onset of symptoms (with editorial commentary). *Clinical Infectious Diseases*, **46**, 1447–1451.
- Kuntz, J. L., Holley, S., Helms, C. M., Cavanaugh, J. E., Vande Berg, J., Herwaldt, L. A. and Polgreen, P. M. (2008). Use of a pandemic preparedness drill to increase rates of influenza vaccination among healthcare workers. *Infection Control and Hospital Epidemiology*, **29**, 111–115.

- Polgreen, P. M., Chen, Y., Beekmann, S., Srinivasan, A., Neill, M. A., Gay, T. and Cavanaugh, J. E. (2008). Elements of influenza vaccination programs that predict higher vaccination rates: Results of an Emerging Infections Network survey. *Clinical Infectious Diseases*, **46**, 14–19.
- Bengtsson, T. and Cavanaugh, J. E. (2008). State–space discrimination and clustering of atmospheric time series data based on Kullback information measures. *Environmetrics*, **19**, 103–121.
- Cavanaugh, J. E., Davies, S. L. and Neath, A. A. (2008). Discrepancy–based model selection criteria using cross validation. In *Statistical Models and Methods for Biomedical and Technical Systems*, edited by F. Vonta, M. Nikulin, N. Limnios and C. Huber, 473–485. Birkhäuser, Boston, Massachusetts.
- Fethke, N. B., Anton, D. C., Cavanaugh, J. E., Gerr, F. and Cook, T. M. (2007). Bootstrap exploration of surface electromyography sampling duration in relation to exposure estimate precision. *Scandinavian Journal of Work, Environment & Health*, **33**, 358–367.
- Kuntz, J. L., Cavanaugh, J. E., Becker, L. K., Ward, M. A., Appelgate, D. M., Herwaldt, L. A. and Polgreen, P. M. (2007). *Clostridium difficile*–associated disease among patients in a small rural hospital. *Infection Control and Hospital Epidemiology*, **28**, 1236–1239.
- Broffitt, B., Levy, S. M., Warren, J. J. and Cavanaugh, J. E. (2007). An investigation of bottled water use and caries in the mixed dentition. *Journal of Public Health Dentistry*, **67**, 151–158.
- Lu, X., Pingel, L. C., Burnell, K. K., Cavanaugh, J. E. and Brogden, K. A. (2007). Carbamoylcholine chloride induces a rapid elevated IL–6 response in the nasal cavity of C57BL/6 mice. *Comparative Medicine*, **57**, 350–355.
- Tiesman, H., Zwerling, C., Peek–Asa, C., Sprince, N. and Cavanaugh, J. E. (2007). Nonfatal injuries among urban and rural residents: The National Health Interview Survey, 1997–2001. *Injury Prevention*, **13**, 115–119
- Polgreen, P. M., Chen, Y., Cavanaugh, J. E., Ward, M., Coffman, S., Hornick, D. B., Diekema, D. J. and Herwaldt, L. A. (2007). An outbreak of severe *Clostridium difficile*–associated disease possibly related to inappropriate antimicrobial therapy for community–acquired pneumonia. *Infection Control and Hospital Epidemiology*, **28**, 212–214.
- Neath, A. A. and Cavanaugh, J. E. (2006). Bayesian estimation of linear statistical model bias. *International Journal of Pure and Applied Mathematics*, **32**, 255–264.
- Hong, L., Levy, S. M., Warren, J. J., Broffitt, B. and Cavanaugh, J. (2006). Fluoride intake levels in relation to fluorosis development in maxillary central incisors and first molars. *Caries Research*, **40**, 494–500.
- Davies, S. L., Neath, A. A. and Cavanaugh, J. E. (2006). Estimation optimality of corrected AIC and modified  $C_p$  in linear regression. *International Statistical Review*, **74**, 161–168.
- Bengtsson, T. and Cavanaugh, J. E. (2006). An improved Akaike information criterion for state–space model selection. *Computational Statistics and Data Analysis*, **50**, 2635–2654.
- Neath, A. A. and Cavanaugh, J. E. (2006). A Bayesian approach to the multiple comparisons problem. *Journal of Data Science*, **4**, 131–146.

- Davies, S. L., Neath, A. A. and Cavanaugh J. E. (2005). Cross validation model selection criteria for linear regression based on the Kullback–Leibler discrepancy. *Statistical Methodology*, **2**, 249–266.
- Kim, H.–J. and Cavanaugh, J. E. (2005). Model selection criteria based on Kullback information measures for nonlinear regression. *Journal of Statistical Planning and Inference*, **134**, 332–349.
- Cavanaugh, J. E. and Shang, J. (2005). A diagnostic for assessing the influence of cases on the prediction of random effects in a mixed model. *Journal of Data Science*, **3**, 137–151.
- Ferguson, A. C., Davis, C. H. and Cavanaugh, J. E. (2004). An autoregressive model for analysis of ice sheet elevation change time series. *IEEE Transactions on Geoscience and Remote Sensing*, **42**, 2426–2436.
- Cavanaugh, J. E. (2004). Criteria for linear model selection based on Kullback’s symmetric divergence. *Australian and New Zealand Journal of Statistics*, **46**, 257–274.
- Cavanaugh, J. E., Wang, Y. and Davis, J. W. (2003). Locally self–similar processes and their wavelet analysis. In *Stochastic Processes: Modeling and Simulation (Handbook of Statistics 21)*, edited by D.N. Shanbhag and C.R. Rao, 93–135. Elsevier Science, Amsterdam, The Netherlands.
- Cavanaugh, J. E. and Oleson, J. J. (2001). A diagnostic for assessing the influence of cases on the prediction of missing data. *Journal of the Royal Statistical Society, Series D*, **50**, 427–440.
- Wang, Y., Cavanaugh, J. E. and Song, C. (2001). Self–similarity index estimation via wavelets for locally self–similar processes. *Journal of Statistical Planning and Inference*, **99**, 91–110.
- Neath, A. A. and Cavanaugh, J. E. (2000). A regression model selection criterion based on bootstrap bumping for use with resistant fitting. *Computational Statistics and Data Analysis*, **35**, 155–169.
- Cavanaugh, J. E. and Johnson, W. O. (1999). Assessing the predictive influence of cases in a state–space process. *Biometrika*, **86**, 183–190.
- Cavanaugh, J. E. (1999). A large–sample model selection criterion based on Kullback’s symmetric divergence. *Statistics & Probability Letters*, **44**, 333–344.
- Cavanaugh, J. E. and Neath, A. A. (1999). Generalizing the derivation of the Schwarz information criterion. *Communications in Statistics – Theory and Methods*, **28**, 49–66.
- Cavanaugh, J. E. and Shumway, R. H. (1998). An Akaike information criterion for model selection in the presence of incomplete data. *Journal of Statistical Planning and Inference*, **67**, 45–65.
- Bradley, J. S., Phillips, J. O., Cavanaugh, J. E. and Metzler, M. H. (1998). The clinical utility of pH paper versus pH meter in the measurement of critical gastric pH in stress ulcer prophylaxis. *Critical Care Medicine*, **26**, 1905–1909.
- Cavanaugh, J. E. (1997). Unifying the derivations of the Akaike and corrected Akaike information criteria. *Statistics & Probability Letters*, **33**, 201–208.
- Cavanaugh, J. E. and Shumway, R. H. (1997). A bootstrap variant of AIC for state–space model selection. *Statistica Sinica*, **7**, 473–496.
- Neath, A. A. and Cavanaugh, J. E. (1997). Regression and time series model selection using variants of the Schwarz information criterion. *Communications in Statistics – Theory and Methods*, **26**, 559–580.

- Cavanaugh, J. E. and Shumway, R. H. (1996). On computing the expected Fisher information matrix for state–space model parameters. *Statistics & Probability Letters*, **26**, 347–355.
- Huang, Y., Palaniappan, K., Zhuang, X. and Cavanaugh, J. E. (1995). Optic flow field segmentation and motion estimation using a robust genetic partitioning algorithm. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, **17**, 1177–1190.

### Encyclopedia Entries

- Cavanaugh, J. E. and Foster, E. D. (2009). Likelihood Ratio Statistic. To appear in *Encyclopedia of Research Design*, edited by N. Salkind. Sage Publications, Thousand Oaks, California.
- Cavanaugh, J. E. and Foster, E. D. (2009). Margin of Error. To appear in *Encyclopedia of Research Design*, edited by N. Salkind. Sage Publications, Thousand Oaks, California.
- Cavanaugh, J. E. and Foster, E. D. (2009). Odds. To appear in *Encyclopedia of Research Design*, edited by N. Salkind. Sage Publications, Thousand Oaks, California.
- Cavanaugh, J. E. (2006). Akaike Information Criterion. In *Encyclopedia of Measurement and Statistics*, edited by N. Salkind. Sage Publications, Thousand Oaks, California.

### Book Reviews

- Cavanaugh, J. (2009). Review of *Linear Models and Generalizations: Least Squares and Alternatives (Third Edition)*, by C.R. Rao, H. Toutenburg, Shalabh and C. Heumann. *Journal of the American Statistical Association*, **104**, 870.
- Cavanaugh, J. (2009). Review of *Sample Size Calculations in Clinical Research (Second Edition)*, by S.-C. Chow, J. Shao and H. Wang. *Journal of the American Statistical Association*, **104**, 425.
- Cavanaugh, J. (2008). Review of *An Introduction to the Mathematics of Money*, by D. Lovelock, M. Mendel and A. L. Wright. *The American Statistician*, **62**, 185.
- Cavanaugh, J. (2008). Review of *100 Statistical Tests (Third Edition)*, by G. K. Kanji. *Journal of the American Statistical Association*, **103**, 435.
- Cavanaugh, J. (2008). Review of *Series Approximation Methods in Statistics (Third Edition)*, by J. E. Kolassa. *Journal of the American Statistical Association*, **102**, 1481.
- Cavanaugh, J. (2007). Review of *Encyclopedia of Statistical Sciences (Second Edition)*, edited by S. Kotz, C. B. Read, N. Balakrishnan and B. Vidakovic. *Journal of the American Statistical Association*, **102**, 1074.
- Cavanaugh, J. (2007). Review of *Seeing Through Statistics (Third Edition)*, by J. M. Utts; and *Mind on Statistics (Third Edition)*, by J. M. Utts and R. F. Heckard. *The American Statistician*, **61**, 95.
- Cavanaugh, J. (2007). Review of *Statistics: The Exploration and Analysis of Data (Fifth Edition)*, by J. L. Devore and R. Peck. *The American Statistician*, **61**, 97–98.
- Cavanaugh, J. (2006). Review of *Survival Analysis: A Self–Learning Text (Second Edition)*, by D. Kleinbaum and M. Klein. *Journal of the American Statistical Association*, **101**, 1318–1319.

- Cavanaugh, J. (2006). Review of *Advances in Minimum Description Length: Theory and Application*, edited by P. D. Grünwald, I. J. Myung and M. A. Pitt. *Journal of the American Statistical Association*, **101**, 859.
- Cavanaugh, J. (2006). Review of *Encyclopedia of Biostatistics (Second Edition)*, edited by P. Armitage and T. Colton. *Journal of the American Statistical Association*, **101**, 844.
- Cavanaugh, J. (2006). Review of *Handbook of Epidemiology*, edited by W. Ahrens and I. Pigeot. *Journal of the American Statistical Association*, **101**, 402–403.
- Cavanaugh, J. (2004). Review of *Regression Models for Time Series Analysis*, by B. Kedem and K. Fokianos. *Journal of the American Statistical Association*, **99**, 299.

### Scientific Reports

- Cavanaugh, J. E., McQuarrie, A. D. R. and Shumway, R. H. (1993). Parametric and nonparametric discriminants for regional earthquakes and explosions. Published and distributed by Phillips Laboratory, Hanscom Air Force Base, Massachusetts. (Report PL–TR–93–2164.)

### Policy Reports

- Kaskie, B., Imhof, S., Culp, K. and Cavanaugh, J. E. (2007). The Iowa workforce seniors study. Iowa Workforce Development, Des Moines, Iowa.
- Roberts, M. S., Cavanaugh, J. E., Danovitch, G., Gantz, D., Landsittel, D., Losina, E., Rhode, C., Schmeiser, B., and Burdick, J. (2004). Report of the independent expert panel on statistical methods for the analysis of organ transplantation data: Simulation modeling. U.S. Department of Health and Human Services, Rockville, Maryland.

### Proceedings Publications

- Neath, A. A. and Cavanaugh, J. E. (2008). A Bayesian conceptual predictive statistic. In *2008 Proceedings of the American Statistical Association* (CD–ROM). Alexandria, Virginia.
- Shang, J., Cavanaugh, J. E. and Wright F. T. (2007). A Bayesian multiple comparison procedure for order restricted unbalanced mixed models. In *2007 Proceedings of the American Statistical Association* (CD–ROM). Alexandria, Virginia.
- Neath, A. A., Downen, L. and Cavanaugh, J. E. (2007). Linear regression variable selection based on estimation of model bias. In *2007 Proceedings of the American Statistical Association* (CD–ROM). Alexandria, Virginia.
- Fethke, N. B., Gerr, F., Anton, D. C., Cavanaugh, J. E. and Cook, T. M. (2007). Cross-sectional study of upper trapezius muscle activity and self-reported neck/shoulder pain. In *Proceedings of the 51st Annual Meeting of the Human Factors and Ergonomics Society* (CD–ROM). Santa Monica, California.
- Fethke, N. B., Anton, D. C., Cavanaugh, J. E., Gerr, F. and Cook, T. M. (2006). The effect of sampling duration on EMG–based estimates of exposure to forceful exertion. In *Proceedings of the 4th Annual National Occupational Research Agenda (NORA) Young/New Investigators Symposium*. The Rocky Mountain Center for Occupational and Environmental Health, University of Utah, Salt Lake City, Utah.

- Fethke, N. B., Anton, D. C., Cavanaugh, J. E., Gerr, F. and Cook, T. M. (2006). The effect of EMG sampling duration on forceful exertion exposure estimates. In *Proceedings of the International Ergonomics Association XVI Triennial Congress* (CD-ROM). Maastricht, The Netherlands.
- Neath, A. A., Cavanaugh, J. E. and Davies, S. L. (2004). An optimality result for a cross validation estimate of prediction error. In *2004 Proceedings of the American Statistical Association, Section on Biometrics* (CD-ROM). Alexandria, Virginia.
- Davis, J. W. and Cavanaugh, J. E. (2003). Time–frequency discrimination of nonstationary processes based on wavelets. In *2003 Proceedings of the American Statistical Association, Section on Physical and Engineering Sciences* (CD-ROM). Alexandria, Virginia.
- Davis, J. W. and Cavanaugh, J. E. (2001). A wavelet–based discriminant procedure for signal–plus–noise processes. In *2001 Proceedings of the American Statistical Association, Section on Physical and Engineering Sciences* (CD-ROM). Alexandria, Virginia.
- Hedberg, K. and Cavanaugh, J. E. (1999). Time series spectral discriminants based on Kullback information measures (with an application to seismology). In *1999 Proceedings of the American Statistical Association, Section on Statistics and the Environment*, 64–69. Alexandria, Virginia.
- Huang, Y., Palaniappan, K., Zhuang, X. and Cavanaugh, J. E. (1995). Optic flow field segmentation and motion estimation using a robust genetic partitioning algorithm. In *Proceedings of 1995 IEEE Workshop on Nonlinear Signal and Image Processing*, **2**, 698–701. Neos Marmaras, Halkidiki, Greece.

#### **Ph.D. Dissertation**

- Cavanaugh, J. E. (1993). “Small–Sample Model Selection in the General State–Space Setting.” Dissertation advisor: Professor Robert H. Shumway.

#### **Manuscripts Submitted / Under Revision**

- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (2009). An alternate version of the conceptual predictive statistic.
- Neath, A. A. and Cavanaugh, J. E. (2009). Bayesian estimation of prediction error and variable selection in linear regression.
- Neath, A. A. and Cavanaugh, J. E. (2009). Linear model evaluation based on estimation of model bias.

#### **Invited Presentations**

- Cavanaugh, J. E. and Bengtsson, T. (April, 2009). State–space discrimination and clustering of atmospheric time series data based on Kullback information measures. Departmental Colloquium, Department of Statistics, University of California; Irvine, California.
- Cavanaugh, J. E. (February, 2009). An analysis of the Iowa child passenger safety survey based on generalized linear mixed models Biostatistics Seminar, New York State Psychiatric Institute, Columbia University; New York, New York.
- Cavanaugh, J. E. (February, 2009). Model selection criteria based on computationally intensive estimators of the expected optimism. Departmental Seminar, Department of Biostatistics, Columbia University; New York, New York.

- Cavanaugh, J. E. and Bengtsson, T. (August, 2008). State–space discrimination and clustering of atmospheric time series data based on Kullback information measures. Topic Contributed Paper (Session: Time Series, State Space Models and Other Reflections on the Work of Bob Shumway), 2008 Joint Statistical Meetings; Denver, Colorado.
- Cavanaugh, J. E. (June, 2008). Model selection criteria based on computationally intensive estimators of the expected optimism. Invited Paper, 2008 Statistical Conference in Honor of Bob Shumway, University of California; Davis, California.
- Cavanaugh, J. E. (March, 2008). Occam’s razor and statistical model selection. Lukacs Visiting Professor Departmental Colloquium, Department of Mathematics and Statistics, Bowling Green State University; Bowling Green, Ohio.
- Cavanaugh, J. E., Davies, S. L. and Neath, A. A. (March, 2008). Discrepancy–based model selection criteria using cross validation. Lukacs Visiting Professor Statistics Seminar, Department of Mathematics and Statistics, Bowling Green State University; Bowling Green, Ohio.
- Cavanaugh, J. E. (November, 2007). Power and sample size assessments. Seminar in Clinical and Translational Research, Iowa Scholars in Clinical Investigation, University of Iowa; Iowa City, Iowa.
- Cavanaugh, J. E., Davies, S. L. and Neath, A. A. (October, 2007). Discrepancy–based model selection criteria using cross validation. Departmental Seminar, Department of Biostatistics and Epidemiology, University of Pennsylvania; Philadelphia, Pennsylvania.
- Cavanaugh, J. E. (September, 2007). Occam’s razor and statistical model selection. Keynote Address, Annual Meeting of the Montana Section of the American Statistical Association; Butte, Montana.
- Cavanaugh, J. E. and Bengtsson, T. (July, 2007). State–space discrimination and clustering of atmospheric time series data based on Kullback information measures. Topic Contributed Paper, 2007 Joint Statistical Meetings; Salt Lake City, Utah.
- Cavanaugh, J. E. (February, 2007). Model selection. Seminar in Clinical Research, Iowa Scholars in Clinical Investigation, University of Iowa; Iowa City, Iowa.
- Cavanaugh, J. E. (December, 2006). Occam’s razor and statistical model selection. Special Biostatistics Seminar, New York State Psychiatric Institute, Columbia University; New York, New York.
- Cavanaugh, J. E., Davies, S. L. and Neath, A. A. (November, 2006). Discrepancy–based model selection criteria using cross validation. Departmental Colloquium, Department of Statistics and Actuarial Sciences, University of Iowa; Iowa City, Iowa.
- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (October, 2006). An alternate version of the conceptual predictive statistic. Departmental Colloquium, Department of Mathematical Sciences, Montana State University; Bozeman, Montana.
- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (September, 2006). An alternate version of the conceptual predictive statistic. Departmental Colloquium, Department of Statistics, University of Minnesota; Minneapolis, Minnesota.
- Cavanaugh, J. E., Davies, S. L. and Neath, A. A. (May, 2006). Discrepancy–based model selection criteria using cross–validation. Invited Paper, International Conference on Statistical Models for Biomedical and Technical Systems; Limassol, Cyprus.

- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (February, 2006). An alternate version of the conceptual predictive statistic. Departmental Colloquium, Departments of Statistics and Biostatistics, University of Florida; Gainesville, Florida.
- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (October, 2005). An alternate version of the conceptual predictive statistic. Departmental Colloquium, Department of Biostatistics, University of Iowa; Iowa City, Iowa.
- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (October, 2005). An alternate version of the conceptual predictive statistic. Departmental Colloquium, Department of Statistics, Oklahoma State University; Stillwater, Oklahoma.
- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (September, 2005). An alternate version of the conceptual predictive statistic. Departmental Seminar, Department of Biostatistics, Columbia University; New York, New York.
- Cavanaugh, J. E. (November, 2004). Criteria for linear model selection based on Kullback's symmetric divergence. Departmental Colloquium, Department of Statistics, Iowa State University; Ames, Iowa.
- Cavanaugh, J. E. (March, 2004). Criteria for linear model selection based on Kullback's symmetric divergence. Departmental Colloquium, Department of Statistics, University of Illinois; Urbana-Champaign, Illinois.
- Cavanaugh, J. E. and Davis, J. W. (August, 2003). Time-frequency discrimination of nonstationary processes based on wavelets. Invited Technical Exhibit, 2003 Joint Statistical Meetings; San Francisco, California.
- Cavanaugh, J. E. (August, 2003). Criteria for linear model selection based on Kullback's symmetric divergence. Invited Paper, Justus F. Seely Memorial Conference on Linear Models, Oregon State University; Corvallis, Oregon.
- Cavanaugh, J. E., Wang, Y. and Davis, J. W. (April, 2003). Locally self-similar processes and their wavelet analyses. Departmental Colloquium, Department of Biostatistics, University of Iowa; Iowa City, Iowa.
- Cavanaugh, J. E., Wang, Y. and Davis, J. W. (April, 2003). Locally self-similar processes and their wavelet analyses. Departmental Colloquium, Department of Mathematics and Statistics, Arizona State University; Tempe, Arizona.
- Cavanaugh, J. E., Wang, Y. and Davis, J. W. (May, 2002). Locally self-similar processes and their wavelet analyses. Departmental Colloquium, Department of Statistics, University of California; Davis, California.
- Cavanaugh, J. E. and Davies, S. L. (April, 2002). Discrepancy-based model selection criteria using cross-validation. Departmental Colloquium, Department of Mathematics and Statistics, University of New Mexico; Albuquerque, New Mexico.
- Cavanaugh, J. E. and Neath, A. A. (November, 2000). A regression model selection criterion based on bootstrap bumping for use with resistant fitting. Departmental Colloquium, Department of Statistics, University of Wyoming; Laramie, Wyoming.

- Cavanaugh, J. E. and Neath, A. A. (October, 2000). A regression model selection criterion based on bootstrap bumping for use with resistant fitting. Departmental Colloquium, Department of Statistics, University of Missouri; Columbia, Missouri.
- Cavanaugh, J. E., Wang, Y. and Song, C. (June, 2000). Self-similarity index estimation via wavelets for locally self-similar processes. Special Invited Paper, International Conference on Statistics in the 21<sup>st</sup> Century, University of Maine; Orono, Maine.
- Cavanaugh, J. E. and Davies, S. L. (May, 2000). Discrepancy-based model selection criteria using cross-validation. Departmental Colloquium, Department of Statistics, Harvard University; Boston, Massachusetts.
- Cavanaugh, J. E. and Neath, A. A. (May, 2000). A regression model selection criterion based on bootstrap bumping for use with resistant fitting. Departmental Colloquium, Department of Mathematics and Statistics, Boston University; Boston, Massachusetts.
- Cavanaugh, J. E. and Johnson, W. O. (August, 1996). Assessing the predictive influence of cases in a state-space process. Topic Contributed Paper, 1996 Joint Statistical Meetings; Chicago, Illinois.
- Cavanaugh, J. E. and Johnson, W. O. (March, 1996). Assessing the predictive influence of cases in a state-space process. Departmental Colloquium, Department of Statistics, University of Missouri; Columbia, Missouri.
- Cavanaugh, J. E., McQuarrie, A. D. R. and Shumway, R. H. (October, 1994). Parametric and nonparametric discriminants for regional earthquakes and explosions. Departmental Colloquium, Department of Statistics, University of Missouri; Columbia, Missouri.
- Cavanaugh, J. E. and Shumway, R. H. (April, 1994). A bootstrap variant of AIC for state-space model selection. Departmental Colloquium, Department of Mathematics and Statistics, University of New Mexico; Albuquerque, New Mexico.
- Cavanaugh, J. E. and Shumway, R. H. (March, 1993). A bootstrap variant of AIC for state-space model selection. Departmental Colloquium, Department of Mathematics and Statistics, University of Nebraska; Lincoln, Nebraska.
- Cavanaugh, J. E. and Shumway, R. H. (March, 1993). A bootstrap variant of AIC for state-space model selection. Departmental Colloquium, Department of Mathematics, University of Kansas; Lawrence, Kansas.
- Cavanaugh, J. E. and Shumway, R. H. (March, 1993). A bootstrap variant of AIC for state-space model selection. Departmental Colloquium, Department of Mathematical Sciences, University of Arkansas; Fayetteville, Arkansas.
- Cavanaugh, J. E. and Shumway, R. H. (February, 1993). A bootstrap variant of AIC for state-space model selection. Colloquium, Pacific Northwest National Laboratory; Richland, Washington.
- Cavanaugh, J. E. and Shumway, R. H. (February, 1993). A bootstrap variant of AIC for state-space model selection. Departmental Colloquium, Department of Statistics, University of Missouri; Columbia, Missouri.
- Cavanaugh, J. E. and Shumway, R. H. (February, 1993). A bootstrap variant of AIC for state-space model selection. Colloquium, Los Alamos National Laboratory; Los Alamos, New Mexico.

## Contributed Presentations

- Cavanaugh, J. E., Neath, A. A. and Davies, S. L. (August, 2005). An alternate version of the conceptual predictive statistic. Contributed Paper, 2005 Joint Statistical Meetings; Minneapolis, Minnesota.
- Cavanaugh, J. E., Wang, Y. and Song, C. (August, 2001). Self-similarity index estimation via wavelets for locally self-similar processes. Contributed Paper, 2001 Joint Statistical Meetings; Atlanta, Georgia.
- Cavanaugh, J. E. (August, 1999). Criteria for linear model selection based on Kullback's symmetric divergence. Contributed Paper, 1999 Joint Statistical Meetings; Baltimore, Maryland.
- Cavanaugh, J. E. (July, 1997). A new class of model selection criteria based on Kullback's symmetric divergence. Contributed Paper, 1997 IMS Meetings; Park City, Utah.
- Cavanaugh, J. E. (July, 1997). A new class of model selection criteria based on Kullback's symmetric divergence. Contributed Paper, 1997 IMS New Researchers' Conference, University of Wyoming; Laramie, Wyoming.
- Cavanaugh, J. E. and Johnson, W. O. (May, 1996). Assessing the predictive influence of cases in a state-space process. Contributed Paper, Kullback Memorial Research Conference; Washington, D.C.
- Cavanaugh, J. E. (April, 1996). Estimators of Kullback-Leibler information for time series model selection. Contributed Presentation, Mid-Missouri Conference on Longitudinal Data Analysis, University of Missouri; Columbia, Missouri.
- Cavanaugh, J. E. and Shumway, R. H. (August, 1995). On computing the expected Fisher information matrix for state-space model parameters. Contributed Paper, 1995 Joint Statistical Meetings; Orlando, Florida.
- Cavanaugh, J. E. and Shumway, R. H. (August, 1994). A bootstrap variant of AIC for state-space model selection. Contributed Paper, 1994 Joint Statistical Meetings; Toronto, Canada.

## External Research Support (Sole Investigator)

- Recipient of a 3-year grant from the National Science Foundation, Division of Mathematical Sciences (DMS-9704436; PI). Title of proposal: "A New Class of Model Selection Criteria Based on Kullback's Symmetric Divergence." Total amount of award: \$70,120. Period of funding: July, 1997, to December, 2000.

## Internal Research Support (Sole Investigator)

- Awarded a 1996 Summer Research Fellowship in the amount of \$7,000 from the Research Council of the University of Missouri. Title of proposal: "The EM Algorithm in State-Space Modeling."
- Awarded a 1994-1995 12-month grant in the amount of \$10,900 from the Research Board of the University of Missouri System. Title of proposal: "New Bootstrap Methodologies for State-Space Modeling."
- Awarded a 1994 Summer Research Fellowship in the amount of \$4,000 from the Research Council of the University of Missouri. Title of proposal: "New Bootstrap Methodologies for State-Space Modeling."

## External Research Support (Collaborative)

- Currently funded as a co-investigator on a Centers for Disease Control R49 injury research grant (R49-CD001167). Title of proposal: “Iowa Injury Prevention Research Center.” PI: Corinne Peek-Asa. Amount of funding: 15% of salary. Period of funding: September, 2007, to September, 2012.
- Currently funded as a co-investigator on a Centers for Disease Control R49 injury research grant (R49-CE000947). Title of proposal: “Parent-Based Intervention to Increase Safe Teen Driving.” PI: Corinne Peek-Asa. Amount of funding: 5% of salary. Period of funding: September, 2007, to September, 2009.
- Currently funded as a co-investigator on a National Institutes of Health R01 research project grant (R01-CA122934). Title of proposal: “Elderly Cancer Survivors: Cognitive Outcomes and Markers of Neurodegeneration.” PI: Susan Schultz. Amount of funding: 5% of salary. Period of funding: June, 2007, to April, 2012.
- Currently funded as a biostatistician on a grant from Pfizer, Inc. Title of proposal: “Optimizing Influenza Surveillance in a Rural State.” PI: Philip Polgreen. Amount of funding: 10% of salary. Period of funding: September, 2008, to June, 2010.
- Funded as a co-investigator on a National Institutes of Health R01 research project grant (R01-DE009551). Title of proposal: “Longitudinal Study of Fluoride, Diet, Caries and Fluorosis.” PI: Steven Levy. Amount of funding: 10% of salary. Period of funding: July, 2007, to June, 2009.
- Funded as a co-investigator on a Centers for Disease Control R49 injury research grant (R49-CCR721682). Title of proposal: “Iowa Injury Prevention Research Center.” PI: Corinne Peek-Asa. Amount of funding: 20% of salary. Period of funding: January, 2006, to September, 2007.
- Funded as a co-investigator on a National Institutes of Health K30 clinical research curriculum grant (K30-HL04117). Title of proposal: “Graduate Training Program in Clinical Research.” PI: Gary Rosenthal. Amount of funding: 15% of salary. Period of funding: October, 2004, to September, 2007.
- Funded as a biostatistician on a subcontract with the Centers for Disease Control and the Infectious Disease Society of America. Title of subcontract: “The Emerging Infections Network.” PI: Philip Polgreen. Total amount of funding: \$16,000. Funding distributions: June, 2006, and April, 2007.
- Funded as a co-investigator on a corporate health program contract with United Services Automobile Association. PI: Neal Kohatsu. Amount of funding: 5% of salary. Period of funding: August, 2004, to August, 2007.
- Funded as a biostatistician on a Heartland Education Research Center grant. Title of proposal: “The Electromyographic Sampling Duration Required to Precisely Estimate Individual Exposure to Forceful Exertions.” PI: Nathan Fethke. Amount of funding: 2% of salary. Period of funding: July, 2005, to June, 2006.
- Funded as a co-investigator on an Iowa workforce development contract with the U.S. Department of Labor. PI: Brian Kaskie. Total amount of funding: \$4,894. Period of funding: January, 2005, to June, 2005.

- Funded as a consultant on a National Science Foundation grant from the Office of Polar Programs (OPP-9818734). Title of proposal: “Seasonal, Interannual, and Long-Term Elevation Change of the East Antarctic Ice Sheet from Satellite Radar Altimetry.” PI: Curt H. Davis. Total amount of funding: \$6,600. Funding distribution: July, 2002.
- Contributed one of five project descriptions to a computing equipment grant proposal submitted to the National Science Foundation by the Department of Statistics, University of Missouri (DMS-9508296; Co-PI). Title of proposal: “Statistics Research Computing Equipment.” Total amount of award: \$60,912. Period of funding: August, 1995, to July, 1997.

### **Internal Research Support (Collaborative)**

- With F. T. Wright (PI), awarded a 2004–2005 12-month grant in the amount of \$15,000 from the Research Board of the University of Missouri System. Title of proposal: “Unified Bayesian Order-Restricted Inferences.”

### **Awards for Research**

- Recipient of a 2008 SPES Outstanding Presentation Award by the American Statistical Association Section on Physical and Engineering Sciences. Paper: State-space discrimination and clustering of atmospheric time series data based on Kullback information measures (with T. Bengtsson).
- Served as the Eugene Lukacs Visiting Professor of Statistics in the Department of Mathematics and Statistics at Bowling Green State University (March, 2008). (\$2,500 honorarium)
- Recipient of a 2001 SPES Outstanding Presentation Award by the American Statistical Association Section on Physical and Engineering Sciences. Paper: Self-similarity index estimation via wavelets for locally self-similar processes (with Y. Wang and C. Song).
- Recipient of the 2001–2002 Albert Winemiller Prize for Outstanding Developments of New Statistical Methodology for an Applied Setting. Paper: Time series analysis of shapes using the complex normal distribution (with A. Micheas). (\$500 award)

### **Invited Panels, Sponsored Symposia, Sponsored Research Visits**

- In February of 2004 and 2005, attended the annual meetings of the American Association for the Advancement of Science; Seattle, Washington (2004) and Washington D.C. (2005). Funded by the American Statistical Association as a representative to the Section on Industrial Science and Technology.
- In September of 2004, served on an independent expert panel to evaluate organ transplantation simulation models; Chicago, Illinois. Funded by Division of Transplantation, Health Resources and Services Administration, U.S. Department of Health and Human Services.
- In June of 2002, visited the Department of Mathematics and Statistics, University of Cyprus, Nicosia, Cyprus. Funded by the University of Cyprus.
- In June of 1998, attended the Academic Symposium to Evaluate Evidence Regarding the Efficacy of Trauma Systems; Skamania, Washington. Funded by the Department of Surgery, University of Missouri.

## Graduate Advising

- Have supervised 6 doctoral dissertations, 13 master's projects, and 10 master's preceptorships.
- Have served on 33 doctoral committees and 33 master's committees.
- Presently serving as doctoral dissertation advisor for 4 students, and master's preceptorship advisor for 1 student.
- Presently serving on 5 doctoral committees.

## Doctoral Dissertations Directed

- "Linear Model Selection for Exactly and Nearly Replicated Data Based on Conceptual Predictive Statistics," Zugui Zhang, Department of Biostatistics, University of Iowa. Defended June, 2007.
- "Problems in the Mixed Modeling Framework: Assessing Predictive Influence, Model Selection, and Bayesian Multiple Comparisons Under Order Restrictions," Junfeng Shang, Department of Statistics, University of Missouri. Supervised with F. T. Wright. Defended July, 2005.
- "Wavelet-Based Methods for Estimation and Discrimination," J. Wade Davis, Department of Statistics, University of Missouri. Defended July, 2003.
- "Discrepancy-Based Model Selection Criteria Using Cross-Validation," Simon L. Davies, Department of Statistics, University of Missouri. Defended July, 2002.
- "Model Selection Criteria Based on Kullback Information Measures for Weibull, Logistic, and Non-linear Regression Frameworks," Hyun-Joo Kim, Department of Statistics, University of Missouri. Defended July, 2000.
- "Time Series Discrimination, Signal Comparison Testing, and Model Selection in the State-Space Framework," Thomas Bengtsson, Department of Statistics, University of Missouri. Defended April, 2000.

## Master's Preceptorships Directed

- "Modeling Zero-Inflated Count Time Series with an Application to Infectious Diseases," Ming Yang, Department of Biostatistics, University of Iowa. Supervised with Philip Polgreen. Completed May, 2009.
- "Specialty versus General Care for Hospitalized AMI Patients: An Analysis Based on Hierarchical Modeling," Levent Bayman, Department of Biostatistics, University of Iowa. Supervised with Dawei Liu. Completed May, 2009.
- "Extubation for Ventilated Patients: An Investigation for Better Decision Making," Amy Johnson, Department of Biostatistics, University of Iowa. Completed April, 2009.
- "A Spatial Analysis of the Iowa Child Passenger Safety Survey Based on Generalized Linear Mixed Models," Zunqiu Chen, Department of Biostatistics, University of Iowa. Completed April, 2008.
- "A Spatial Analysis of the 2006 Iowa Mumps Epidemic Using Generalized Linear Mixed Models: Were College Students to Blame?," Lucas Bohnett, Department of Biostatistics, University of Iowa. Supervised with Philip Polgreen. Completed December, 2007.

- “Tooth Loss in the South Australian Dental Longitudinal Study,” Knute Carter, Department of Biostatistics, University of Iowa. Completed December, 2007.
- “Analysis of Iowa Child Passenger Restraint Survey,” Jing Xu, Department of Biostatistics, University of Iowa. Completed May, 2007.
- “Combining Statistical Modeling and Map Analysis in Population Health Research – A Case Study of Infant Mortality in Des Moines, Iowa,” Qiang Cai, Department of Biostatistics, University of Iowa. Completed December, 2006.
- “*Clostridium Difficile*–Associated Disease Among Patients in a Small Rural Hospital,” Laura K. Becker, Department of Biostatistics, University of Iowa. Completed November, 2006.
- “Factors that Affect Retention of Family Practice Physicians in Rural Iowa Communities,” Jaysri Butler, Department of Biostatistics, University of Iowa. Completed April, 2005.

### Master’s Projects Directed

- “A Simulation Study of Population–Averaged Generalized Estimating Equations,” Gerwyn H. Green, Department of Statistics, University of Missouri. Completed March, 2004.
- “A Diagnostic for Assessing the Influence of Cases on the Prediction of Random Effects in a Mixed Model,” Junfeng Shang, Department of Statistics, University of Missouri. Completed April, 2003.
- “An Analysis of Mortality Data by Race and Gender for Boone County, Missouri,” Tamekia L. Jones, Department of Statistics, University of Missouri. Completed December, 2002.
- “Model Selection Criteria Based on Kullback–Leibler Information for Multiple Linear Regression,” Simon L. Davies, Department of Statistics, University of Missouri. Completed August, 2000.
- “Modeling Resource Utilization and Evaluating Injury Severity Scores Based on Missouri Trauma Patient Records,” Gaixin Jiang, Department of Statistics, University of Missouri. Completed April, 2000.
- “An Adaptive, Robust and High Performance Clustering Method,” Xiaohu Li, Department of Statistics, University of Missouri. Completed July, 1999.
- “Trauma Scoring Systems and Their Statistical Evaluation,” Ashley K. Sherman, Department of Statistics, University of Missouri. Completed April, 1999.
- “A Diagnostic for Assessing the Influence of Cases on the Prediction of Missing Data,” Jacob J. Oleson, Department of Statistics, University of Missouri. Completed April, 1999.
- “Time Series Spectral Discriminants Based on Kullback Information Measures (with an Application to Seismology),” Kristin Hedberg, Department of Statistics, University of Missouri. Completed December, 1998.
- “Bootstrap Variants of the Akaike Information Criterion for Model Selection with Applications to Linear Regression,” Hyun–Joo Kim, Department of Statistics, University of Missouri. Completed April, 1998.
- “Internet Accessible Educational Aids for Autoregressive Moving–Average Modeling in Time Series Analysis,” Aaron T. Bono, Department of Statistics, University of Missouri. Completed December, 1997.

- “An Investigation of Lagrange Multiplier Tests for the Interaction Between Autocorrelation and Conditional Heteroscedasticity in an Error Process,” Wei Zhang, Department of Statistics, University of Missouri. Completed December, 1996.
- “The EM Algorithm for Repeated Measures Designs,” Daniel B. Smith, Department of Statistics, University of Missouri. Completed May, 1995.

### Editorial Activities

- Referee for *Afrika Statistika*, *The American Statistician*, *Annals of the Institute for Statistical Mathematics*, *Atmospheric Environment*, *Australian and New Zealand Journal of Statistics*, *Automatica*, *Bayesian Analysis*, *Biometrics*, *Canadian Journal of Statistics*, *Circulation*, *Communications in Statistics – Theory and Methods*, *Computational Statistics and Data Analysis*, *Geophysical Research Letters*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Neural Networks*, *IEEE Transactions on Reliability*, *IEEE Transactions on Signal Processing*, *IEEE Transactions of Systems and Circuits I*, *Johns Hopkins APL Technical Digest*, *Journal of the American Statistical Association*, *Journal of Computational and Graphical Statistics*, *Journal of Forecasting*, *Journal of Multivariate Analysis*, *Journal of Statistical Computation and Simulation*, *Journal of Statistical Planning and Inference*, *Journal of Time Series Analysis*, *Metrika*, *Psychometrika*, *Scandinavian Journal of Statistics*, *Signal Processing*, *South African Statistical Journal*, *Statistica Sinica*, *Statistical Modelling*, *Statistics*, *Statistics & Probability Letters*, *Technometrics*, and the collections *Modeling and Prediction: Honoring Seymour Geisser*, *Statistical Methods for Modeling Human Dynamics: An Interdisciplinary Dialogue*, *Statistical Models and Methods for Biomedical and Technical Systems*.
- Chosen as an “Outstanding Reviewer” for 1999 by the editorial board of *Automatica*.
- Reviewer for grant proposals submitted to the National Science Foundation, National Security Agency, the University of Iowa College of Public Health / College of Medicine New Investigator Program, the University of Missouri Research Board, and the Professional Staff Congress – City University of New York Research Award Program.
- Reviewer for *Advanced Linear Modeling (Second Edition)* by Ronald Christensen (2001; Springer, New York).

### Professional Activities: External

- Serving on two Data Safety Monitoring Boards for multicenter clinical trials coordinated at the University of Kansas and the University of Iowa.
- Served on a three-member advisory committee to the Kansas Board of Regents to evaluate proposed graduate programs in biostatistics at the University of Kansas (June, 2009).
- Participated in the redesign of the Iowa Child Passenger Restraint Survey, conducted by the University of Iowa Injury Prevention Research Center for the Iowa Governor’s Traffic Safety Bureau (spring of 2005).
- American Statistical Association Representative to the American Academy for the Advancement of Science (Section on Industrial Science and Technology) (2002–2005).
- Served as a contributed poster judge at the 2003 Joint Statistical Meetings.

- Organized an invited session at the 2002 Joint Statistical Meetings for the Western North American Region of the Biometrics Society. Session theme: Biometrical Applications of Modern Time Series Methodologies.
- Treasurer of the Mid–Missouri Chapter of the American Statistical Association (1995–2000, 2003).
- President of the Mid–Missouri Chapter of the American Statistical Association (2000–2002).

### **Professional Activities: Internal**

- Chair of the Admissions Committee, Department of Biostatistics, University of Iowa (2006 – present).
- Member of the Awards Committee, College of Public Health, University of Iowa (2004 – present).
- Member of the search committee to hire a Departmental Executive Officer for the Department of Community and Behavioral Health at the University of Iowa (2008–2009).
- Associate Director for Biostatistics for the UI Center on Aging (November, 2003 – June, 2009).
- Biostatistician for the Iowa Scholars in Clinical Investigation program (October, 2004 – September, 2007).
- Member of an internal College of Public Health review committee to evaluate the Department of Health Management and Policy at the University of Iowa (2005).
- Faculty Advisor to the Statistics Graduate Student Association (SGSA), Department of Statistics, University of Missouri (1995–2003).
- Member of the Research Council of the University of Missouri (winter semester, 2003).
- Designed the bachelor’s degrees in Applied Statistics at the University of Missouri. (First offered during the 2001–2002 academic year.)
- Attended the University of Missouri College of Arts and Science Faculty Retreat on Teaching, April, 1995; Lake of the Ozarks, Missouri.

### **Professional Societies**

- American Statistical Association
- Institute of Mathematical Statistics
- International Biometric Society
- American Academy for the Advancement of Science

### **Awards for Professional and Academic Achievement**

- Recipient of the Montana Tech Alumni Recognition Award, 1994.
- Valedictorian, Montana Tech graduating class of 1986.
- Highest Scholastic Standing in the Arts and Sciences, Montana Tech graduating class of 1986.

## References

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