

CURRICULUM VITAE

Name: A. John Bailer

Date & Place of Birth: August 3, 1960; Cincinnati, Ohio

Citizenship: United States

Education: 1986 - Ph.D. (Biostatistics) University of North Carolina, Chapel Hill, North Carolina.
Dissertation: The Effects of Treatment Lethality and Tumor Lethality on Tests of Carcinogenicity.

1984 - M.A. University of North Carolina, Chapel Hill, North Carolina.

1982 - B.S., A.B. Miami University, Oxford, Ohio.

Brief Chronology of Employment:

1996 - date Distinguished Professor of Mathematics & Statistics (2005 - date), Distinguished Scholar of the Graduate Faculty (2005 - date), Affiliate Member, Department of Zoology (1995 - date), Affiliate Member, Department of Sociology & Gerontology (2007 - date), Senior Researcher, Scripps Gerontology Center (1999 - date) Co-Director, Center for Environmental Toxicology and Stat. (1996-2006) Professor (1996-2005); Associate Professor (1993-1996); Assistant Professor (1988-1993) Miami University, Oxford, Ohio.

2002 - 2006 Adjunct Professor, Department of Biostatistics, University of North Carolina, Chapel Hill, NC.

2002 (Jan.-June) Visiting Scholar, Department of Biostatistics, University of North Carolina, Chapel Hill, NC.

1987 - 1988 Staff Fellow, Division of Biometry and Risk Assessment, National Institute of Environmental Health Sciences (NIEHS), RTP, NC.

Academic Honors and Awards:

2007 Best Paper Award 2007 *Risk Analysis* Health Sciences

2005 Distinguished Professor of Mathematics & Statistics, Miami University

2005 Distinguished Scholar of the Graduate Faculty, Miami University

2004 Fellow, Society for Risk Analysis

2004 ASA Risk Analysis Section Award for Best Contributed Paper at Joint Stat. Mtgs.

2001 Miami University Distinguished Scholar Award

2000 ASA Statistics & the Environment Section Distinguished Achievement Award Medal

1999 Fellow, American Statistical Association (ASA)

1999 Miami University Chapter of Sigma Xi Researcher of the Year Award

1999 Miami University College of Arts and Sciences Distinguished Educator Award

1996 James E. Grizzle Distinguished Alumnus Award from the UNC Dept. of Biostatistics

1995 Alice Hamilton Science Award for Occupational Safety and Health Finalist

1991 Fellow, Institute of Environmental Sciences at Miami University

1990 Sigma Xi - Scientific Research Society

1987 Delta Omega (Public Health) Honorary

1984 NIEHS Biometry Traineeship Award (1984-1985)

1981 Pi Mu Epsilon (Mathematics), Psi Chi (Psychology) honoraries

Professional Affiliations:

Member, American Statistical Association, International Biometric Society, International Statistical Institute (elected 2004), Society for Risk Analysis, Society of Environmental Toxicology and Chemistry, Sigma Xi

Grants & External Funding (since 1990):

Wilson Environmental Laboratories (2007) – Subcontract for USEPA. "Critical Review Of Extra-Binomial And Extra-Poisson Variation In Regards To Statistical Analysis Of Data From Toxicity Tests With Aquatic Organisms." (\$51,041).

President's Academic Enrichment Award. (2006) "The Ecology of Human-Dominated Ecosystems: Integrating Miami University into a National Network for Research and Education." [Principal authors: Crist, Bailer, Gorchov, Oris, Renwick, Rypstra, Wright]. (\$209,499).

Scripps Gerontology Center award (2000-date). This center provided support for a one course teaching reduction/semester since academic year 2000-2001. I serve as the statistical collaborator on a variety of gerontological research projects. (\$12,500 per semester).

National Institute for Occupational Safety and Health (NIOSH), Cincinnati, Ohio. (1994-date). NIOSH provides me summer salary and conference travel support on a continuing basis. This funding supports both methodological and applied research into occupational health risk assessment.

Ohio Long Term Care Research Project (2004). "Worker Injuries in Nursing Homes and Residential Care Facilities: Administering and Analyzing a Worker Safety Module used with the Annual Survey Reports." (\$12,144).

National Institute of Environmental Health Sciences (2002). Contract with the Environmental Toxicology Program to collaborate in research with staff scientists (active Jan-June).

Ohio Department of Aging grant "Evaluating the long-term care delivery system in Ohio" [PIs: Kunkel, Mehdizadeh and Straker] (2001). I am the principal investigator for the portion of the grant addressing "High Risk Case Management" (\$14,567 of the total budget \$262,000).

Contract with International Lead Zinc Research Organization Inc. for "A weight of evidence analysis of sediment toxicology" (2001). (\$7,000 for Statistical Consulting Center plus \$1,200 travel expenses).

The Philip and Elaina Hampton Fund for Faculty International Initiatives Grant for "Risk assessment research in Scotland: Collaborations with Scientists of Biomathematics and Statistics Scotland and the Institute for Occupational Medicine" (2001). This funding supported my travel, lodging and expenses during my Faculty Improvement Leave in Edinburgh, Scotland (\$9,000) – *not used because of changes in leave plans.*

Royal Society of Edinburgh (2001). This funding provides partial support for my travel, lodging and expenses for my leave in Edinburgh, Scotland (£900) – *not used because of changes in leave plans.*

Contract with Ohio Department of Human Services and the Ohio Board of Regents Medicaid Technical Assistance and Policy Program for "Reliability and prediction of case mix changes in Ohio nursing homes" (1999). Co-principal investigator with J. Straker (\$95,770).

Lead statistical scientist on U.S. EPA grant for "Multi-level indicators of ecosystem integrity in Alpine Lakes of the Sierra Nevada" (1999). J.T. Oris is the principal investigator on this grant. I was involved in the experimental design and analysis of habitat, water quality and bioassessment metrics (\$894,672).

Subcontract on U.S. EPA contract with SAIC for "Potency estimation for freshwater and marine aquatic toxicology experiments" (1999). This subcontract provided support to expand an analysis comparing competing potency estimation procedures in the context of toxicology experiments conducted by the EPA. (\$25,000).

Scripps Gerontology Center award (1998 and 1999). This center provided support for a one course teaching reduction in academic years 1998-99 and 1999-2000. I use this release to work as a biostatistical collaborator on gerontology research questions (\$10,000 each year).

Subcontract on U.S. EPA contract with SAIC for "Constructing Effective Concentration Estimates for Aquatic Hazards: an analysis of a large database of aquatic toxicology experiments [complete analysis and finalize report]" (1998). This subcontract provided support to continue the analysis comparing competing potency estimation procedures in the context of reference toxicology experiments conducted by the EPA. (\$21,000).

The Philip and Elaina Hampton Fund for Faculty International Initiatives Grant for "Exploring International Opportunities for Collaboration in Environmental and Occupational Health Research with Korean scientists" (1997). This funding supported my travel and stay in South Korea to discuss research collaboration with scientists in Korean universities and in government (\$1,500).

Travel to Society for Environmental Toxicology and Chemistry meeting supported by the Bay Area Dischargers Association (\$1,250).

Subcontract on U.S. EPA contract with SAIC for "Constructing Effective Concentration Estimates for Aquatic Hazards: an analysis of a large database of aquatic toxicology experiments" (1997). This subcontract provided support to apply statistical methods that I developed to a large database of reference toxicology experiments conducted by the EPA. (\$31,000).

The Procter and Gamble Company Grant for "A general framework for endpoint estimation in ecological toxicity testing" (1995). This grant provided support to investigate and to derive statistical procedures for estimating the potency of hazards to ecological systems. Co-principal investigator with J. Oris (\$30,000).

The Philip and Elaina Hampton Fund for Faculty International Initiatives Grant for "Exploring international opportunities for collaboration in environmental and occupational health research" (1995). This funding supported my travel and stay in New Zealand to discuss research collaboration with investigators in the Department of Public Health in the Wellington School of Medicine (\$2,500).

Committee on Faculty Research Grant to Promote Research and Scholarship for "Potency estimation for non-cancer endpoints" (1994). This grant provided funds to upgrade my UNIX workstation in order to facilitate a simulation study of toxicity experiments in which statistical estimation procedures will be explored. (\$3,100).

College of Arts and Science Small Research Grant for "Supporting collaborative research in the environmental sciences" (1994). This grant provided funds for me to attend a short course in Spatial Statistics at the 1995 ENAR meetings. (\$370).

College of Arts and Science Small Instructional Grant for "Displaying high dimensional data structures" (1994). This grant provided funds to purchase an upgrade of S-Plus for both my own workstation and a computer in the department computer lab. (\$500).

Applied Technologies Grant for "Software for data visualization" (1994). This grant provided funds to outfit a computer laboratory with 5 copies of modern statistical computing software. (\$2,500).

USEPA Cooperative Grant for "Development of a sediment toxicity test for Hyallela azteca: genetic and statistical evaluation of test data" (1993). This agreement provided partial summer support for 2 summers and equipment expenses. Co-principal investigator with J. Oris and S. Guttman. (Total budget: \$46,000)

NIOSH Fellow. (1991-1994). NIOSH provided summer salary and other research support (e.g., access to computing resources, conference travel support, etc.). This program was intended promote collaboration on research projects between scientists at NIOSH and scientists at universities.

Procter & Gamble Co. (1993). Taught a course in regression modeling to scientists and to statistical support staff.

Procter & Gamble Co. (1992). Taught an introduction to probability and statistics course to scientists and to statistical support staff.

Committee on Faculty Research Grant to Promote Research and Scholarship for "A simulation study of aquatic potency estimators" (1991). This grant provided the funds to purchase a memory and processor upgrade for my computer workstation. (\$4,000).

Ohio Board of Regents Research Challenge Grant New Investigator Award for "A statistical study of the estimation and testing of bioequivalence parameters" (1990). This grant provided the funds to purchase an advanced computer workstation. (\$11,141).

Committee on Faculty Research Summer Research Appointment for "A statistical study of the estimation and testing of bioequivalence parameters" (1990). (\$3,750).

Research Articles (BOLD=student or former student co-author):

1. Portier, C.J. and Bailer, A.J. (1987) Simulating failure times when the event of interest is unobservable with emphasis on animal carcinogenicity studies. *Computers and Biomedical Research* **20**, 458-466.
2. Bailer, A.J. and Portier, C.J. (1988) An illustration of the dangers of ignoring survival differences when analyzing carcinogenesis data. *Journal of Applied Toxicology* **8**, 185-189.
3. Bailer, A.J. and Portier, C.J. (1988) Effects of treatment-induced mortality and tumor-induced mortality on tests for carcinogenicity in small samples. *Biometrics* **44**, 417-431.
4. Bailer, A.J. (1988) Testing for the equality of area under the curves when using destructive measurement techniques. *Journal of Pharmacokinetics and Biopharmaceutics* **16**, 303-309.
5. Bailer, A.J. (1989) Testing variance equality with randomization tests. *Journal of Statistical Computation and Simulation* **31**, 1-8.
6. Portier, C.J. and Bailer, A.J. (1989) Testing for increased carcinogenicity using a survival-adjusted quantal response test. *Fundamental and Applied Toxicology* **12**, 731-737.
7. Portier, C.J. and Bailer, A.J. (1989) Two-stage models of carcinogenesis for historical control animals from the National Toxicology Program. *Journal of Toxicology and Environmental Health* **27**, 21-45.
8. Bailer, A.J. and Hoel, D.G. (1989) Metabolite-based internal doses used in a risk assessment of benzene. *Environmental Health Perspectives* **82**, 177-184.
9. Bailer, A.J. and Hoel, D.G. (1989) Benzene risk assessments: Review and update. *Cell Biology and Toxicology* **5**, 287-295.
10. Piegorsch, W.W. and Bailer, A.J. (1989) Optimal allocation for estimating area under curves for studies employing destructive sampling. *Journal of Pharmacokinetics and Biopharmaceutics* **17**, 493-507.
11. Bailer, A.J. and Piegorsch, W.W. (1990) Estimating integrals using quadrature methods with an application in pharmacokinetics. *Biometrics* **46**, 1201-1211.
12. Ghanayem, B.I., Sanders, J.M., Clark, A., Bailer, A.J. and Matthews, H.B. (1990) Effects of Age and Dose on the Metabolism and Elimination of 2-Butoxyethanol. *Journal of Pharmacology and Experimental Therapeutics* **253**, 136-143.
13. Bailer, A.J. and Portier, C.J. (1990) A note on fitting one-compartment models: nonlinear least squares versus linear least squares using transformed data. *Journal of Applied Toxicology* **10**, 303-306.
14. Bailer, A.J. and Portier, C.J. (1993) An index of tumorigenic potency. *Biometrics* **49**, 357-365.
15. Oris, J. and Bailer, A.J. (1993) Statistical analysis of the Ceriodaphnia toxicity test: sample size determination for reproductive effects. *Environmental Toxicology and Chemistry* **12**, 85-90.
16. Bailer, A.J. and Oris, J. (1993) Modeling reproductive toxicity in Ceriodaphnia tests. *Environmental Toxicology and Chemistry* **12**, 787-791.
17. Piegorsch, W.W. and Bailer, A.J. (1993) Minimum mean-square error quadrature. *Journal of Statistical Computation and Simulation* **46**, 217-234.

18. Meier, K., Bailer, A.J. and Portier, C. (1993) A measure of tumorigenic potency incorporating dose-response shape. *Biometrics* **49**, 917-926.
19. Stayner, L. and Bailer, A.J. (1993) Comparing toxicologic and epidemiologic studies: methylene chloride as a case study. *Risk Analysis* **13**, 671-677.
20. Bailer, A.J. and Oris, J.T. (1994) Assessing the toxicity of pollutants for aquatic systems. *Case Studies in Biometry*, N. Lange, L. Ryan, L. Billard, D. Brillinger, L. Conquest, J. Greenhouse (Eds.), John Wiley & Sons, Inc., New York, 25-40.
21. Dankovic, D. and Bailer, A.J. (1994) The impact of exercise and intersubject variability on dose estimates for dichloromethane derived from a physiologically-based pharmacokinetic model. *Fundamental and Applied Toxicology* **22**, 20-25.
22. Piegorsch, W.W. and Bailer, A.J. (1994) Statistical approaches for analyzing mutational spectra: some recommendations for categorical data *Genetics* **136**, 403-416.
23. Bailer, A.J. and Smith, R. (1994) A model for time extrapolation in carcinogenicity studies. *Biometrics* **50**, 220-225.
24. Bailer, A.J. and Stayner, L.T. (1994) Contrasting the utility of toxicologic and epidemiologic information for quantitative risk assessment. *Informatik, Biometrie und Epidemiologie* **25**, 219-224.
25. Bailer, A.J. and Smith, R. (1994) Estimating upper confidence limits for extra risk in quantal multistage models. *Risk Analysis* **14**, 1001-1010.
26. **Fore', S.**, Guttman, S., Bailer, A.J., Altfater, D.J. and Counts, D.V. (1995) An exploratory analysis of the use of genetic diversity as a indicator of water quality: Part I. Pimephales notatus as a model. *Ecotoxicology and Environmental Safety* **30**, 24-35.
27. **Fore', S.**, Guttman, S., Bailer, A.J., Altfater, D.J. and Counts, D.V. (1995) An exploratory analysis of the use of genetic diversity as a indicator of water quality: Part II. Campostoma anomalum as a model. *Ecotoxicology and Environmental Safety* **30**, 36-46.
28. Stayner, L.T., Smith, R.J., Bailer, A.J., Luebeck, E.G. and Moolgavkar, S.H. (1995) Modeling epidemiologic studies of occupational cohorts for the quantitative assessment of carcinogenic hazards. *American Journal of Industrial Medicine* **27**, 155-170.
29. **Schlueter, M.A.**, Guttman, S.I., Oris, J.T. and Bailer, A.J. (1995) Differential effects of allozyme genotypes on survival of juvenile fathead minnows, Pimephales promelas, exposed to copper. *Environmental Toxicology and Chemistry* **14**, 1727-1734.
30. Bailer, A.J., and Oris, J.T. (1996) Implications of defining test acceptability in terms of control-group survival in two-group survival studies. *Environmental Toxicology and Chemistry* **15**, 1242-1244.
31. Bailer, A.J. and Ruberg, S. (1996) Randomization tests for AUC equality. *Journal of Applied Toxicology* **16**, 391-395.
32. **Barghusen, L.E.**, Claussen, D.L., Anderson, M.S. and Bailer, A.J. (1997) The effects of temperature on the web-building behavior of the common house spider, *Achaearanea tepidariorum*. *Functional Ecology* **11**, 4-10.

33. Bailer, A.J., Reed, L.D., and Stayner, L.T. (1997) Modeling fatal injury rates using Poisson regression: a case study of workers in agriculture, forestry and fishing. *Journal of Safety Research* **28**, 177-186.
34. Bailer, A.J., and Oris, J.T. (1997) Estimating inhibition concentrations for different response scales using generalized linear models. *Environmental Toxicology and Chemistry* **16**: 1554-1559.
35. **Schlueter, M.A.**, Guttman, S.I., Oris, J.T. and Bailer, A.J. (1997) Differential survival of fathead minnows, *Pimephales promelas*, as affected by copper exposure, prior population stress, and allozyme genotypes. *Environmental Toxicology and Chemistry* **16**, 939-947.
36. Oris, J.T. and Bailer, A.J. (1997) Equivalence of concentration-response distributions in aquatic toxicology: testing and implications for potency estimation. *Environmental Toxicology and Chemistry* **16**: 2204-2209.
37. Stayner, L.T., Smith, R.J., Bailer, A.J., **Gilbert, S.J.**, Steenland, K., Dement, J., Brown, D., and Lemen, R. (1997) An exposure-response analysis of respiratory disease risk associated with occupational exposure to chrysotile asbestos. *Occupational and Environmental Medicine* **54**: 646-652.
38. Bailer, A.J., Stayner, L.T., Smith, R.J., Kuempel, E.D. and Prince, M.M. (1997) Estimating benchmark concentrations and other non-cancer endpoints in epidemiology studies. *Risk Analysis* **17**: 771-780.
39. Bailer, A.J. and Dankovic, D.A. (1997) An introduction to the use of physiologically-based pharmacokinetic models in risk assessment. *Statistical Methods in Medical Research* **6**: 341-358.
40. Bailer, A.J. and See, K. (1998) Individual-based risk estimation for count responses. *Environmental Toxicology and Chemistry* **17**: 530-533.
41. See, K. and Bailer, A.J. (1998) Added risk and inverse estimation for count responses in reproductive aquatic toxicology studies. *Biometrics* **54**: 263-269.
42. Davis, R.B., Bailer, A.J. and Oris, J.T. (1998) Impact of non-random allocation on lethal concentration estimation. *Environmental Toxicology and Chemistry* **17**: 928-931.
43. Bailer, A.J., Stayner, L.T., Stout, N.A., Reed, L.D., and **Gilbert, S.J.** (1998) Trends in occupational fatal injury rates in the U.S. (1983-1992). *Occupational and Environmental Medicine* **55**: 485-498
44. See, K. and Bailer, A.J. (1998) Estimates of lifetime risk of occupational fatal injury from age-specific rates. *Human and Ecological Risk Assessment* **4**: 1309-1319.
45. **Gilbert, S.J.**, Bailer, A.J., and Stayner, L.T. (1998) Years of potential life lost due to occupational fatal injury in the United States. *Human and Ecological Risk Assessment* **4**: 1321-1335.
46. Bailer, A.J., Stayner, L.T., Halperin, W., Reed, L.D., and Seymour, T. (1998) Comparing injury and illness risk assessments for occupational hazards. *Human and Ecological Risk Assessment* **4**: 1265-1274.
47. Stayner, L., Smith, R.J., **Gilbert, S.** and Bailer, A.J. (1999) Epidemiologic approaches to risk assessment. *Toxicology* **11**: 593-601.

48. Bailer, A.J. and Oris, J.T. (2000) Defining the baseline for inhibition concentration calculations for hormetic hazards. *Journal of Applied Toxicology* **20**: 121-125.
49. Bailer, A.J., Hughes, M.R., Denton, D. and Oris, J.T. (2000) An empirical comparison of effective concentration estimators for evaluating aquatic toxicity test responses. *Environmental Toxicology and Chemistry* **19**: 141-150.
50. **Duan, Y.**, Guttman, S.I., Oris, J.T., and Bailer, A.J. (2000) Genotype and toxicity relationship among laboratory *Hyallela azteca* : I. acute exposure to metals or low pH. *Environmental Toxicology and Chemistry* **19**: 1414-1421.
51. **Duan, Y.**, Guttman, S.I., Oris, J.T., and Bailer, A.J. (2000) Genetic structure and relationships among populations of *Hyallela azteca* and *H. montezuma* (Crustacea: Amphipoda). *Journal of the North American Benthological Society* **19**: 308-320.
52. Bailer, A.J., **Walker, S.** and **Venis, K.J.** (2000) Statistical methods for estimating and comparing bioconcentration factors. *Environmental Toxicology and Chemistry* **19**: 2338-2340.
53. See, K., Stufken, J., Song, S.Y., and Bailer, A.J. (2000) Relative efficiencies of sampling plans for selecting a small number of units from a rectangular region. *Journal of Statistical Computation and Simulation* **66**: 273-294.
54. Stayner, L.T., Dankovic, D., Smith, R.J. and Bailer, A.J. (2000) Human cancer risk and exposure to 1,3-butadiene - A tale of mice and men. *Scandinavian Journal of Work and Environment* **26**(4):322-330.
55. Bailer, A.J. and Piegorsch, W.W. (2000) From quantal response to mechanisms and systems: The past, present, and future of biometrics in environmental toxicology. *Biometrics* **56**: 327-336.
56. Bailer, A.J., **Liu, S.**, **Smith, M.L.** and Isaacson, L. (2000) The statistical analysis of axon-scaled neurotransmitter activity. *Biometrics* **56**: 936-939.
57. Bailer, A.J., **Elmore, R.T.**, **Shumate, B.J.** and Oris, J.T. (2000) A simulation study of characteristics of statistical estimators of inhibition concentrations. *Environmental Toxicology and Chemistry* **19**: 3068-3073.
58. Kuempel, E.D., Tran, C-L, O'Flaherty, E.J., Stayner, L.T., Smith, R.J., Dankovic, D., and Bailer, A.J. (2000) Evaluation of particle clearance and retention in the lungs of U.S. coal miners. *Inhalation Toxicology* **12**(suppl. 3): 397-402.
59. Hughes, M.R., Bailer, A.J. and Denton, D. (2001) Toxicant and response specific comparisons of statistical methods for estimating effective concentrations. *Environmental Toxicology and Chemistry* **20**: 1374-1380.
60. Bailer, J.C. and Bailer, A.J. (2001) The Science of Risk Assessment. *Canadian Journal of Medicine* **164**: 503-506.
61. **Duan, Y.**, Guttman, S.I., Oris, J.T., and Bailer, A.J. (2001) Differential survivorship among allozyme genotypes of *Hyallela azteca* exposed to cadmium, zinc or low pH. *Aquatic Toxicology* **54**: 15-28.
62. Haseman, J.K, Bailer, A.J., Kodell, R.L., Morris, R. and Portier, K. (2001) Statistical issues in the analysis of low dose endocrine disruptor data. *Toxicological Sciences* **61**: 201-210.

63. Kuempel, E.D., Tran, C-L, Smith, R.J. and Bailer, A.J. (2001) A biomathematical model of particle clearance and retention in the lungs of coal miners: Part II. Evaluation of variability and uncertainty. *Regulatory Toxicology and Pharmacology* **34**: 88-101.
64. **Bena, J.**, Bailer, A.J., Park, R.M. and Halperin, W. (2001) A graphical analysis of fatal occupational injuries. *Human and Ecological Risk Assessment* **7**: 1843-1857.
65. Kuempel, E.D., Tran C.L., Bailer A.J., Porter D., Hubbs A., and Castranova V. (2001) Biological and statistical approaches to predicting human lung cancer risk from silica. *Journal of Environmental Pathology, Toxicology and Oncology* **20**(Suppl 1): 15-32.
66. Kuempel, E.D., Tran C.L., Bailer A.J., Smith, R.J., Dankovic, and Stayner, L.T. (2001). Methodological issues of using observational human data in lung dosimetry models for particulates. *The Science of the Total Environment* **274**: 67-77.
67. Zeise, L., Hattis, D., Andersen, M., Bailer, A.J., Bayard, S., Chen, C., Clewell, H., Conolly, R., Crump, K., Dunson, D., Finkel, A., Haber, L., Jarabek, A., Kodell, R., Krewski, D., Thomas, D., Thorslund, T. and James T. Wassell, J.T.: Research opportunities in dose response modeling to improve risk assessment. (2002) *Human and Ecological Risk Assessment* **8**: 1421-1444.
68. Park, R.M., Bailer, A.J., **Gilbert, S.J.**, Halperin, W.E., and Stayner, L.T. (2002) An alternate characterization of risk in occupational epidemiology: years of life lost per years worked. *American Journal of Industrial Medicine* **42**: 1-10.
69. Reynoldson, T., Bailer, A.J. and Smith, E.P. (2002) A comparison of three weight-of-evidence approaches for integrating sediment contamination data within and across lines of evidence. *Human and Ecological Risk Assessment* **8**: 1613-1624.
70. Bailer, A.J., Hughes, M.R., See, K, Noble, R. B. and Schaefer, R.S. (2002) A pooled response strategy for combining multiple lines of evidence to quantitatively estimate impact. *Human and Ecological Risk Assessment* **8**: 1597-1611.
71. Burton, G.A. , Batley, G.E., Chapman, P.M., Forbes, V.E., Schlekot, C.E., Smith, E.P., den Bestend, P.J., Bailer, A.J., Reynoldson, T., Green, A.S., Dwyer, R.L. and Berti, W.R. (2002) A weight-of-evidence framework for sediment (or other) contamination: Improving certainty in the decision-making process. *Human and Ecological Risk Assessment* **8**: 1675-1696.
72. Schuler, L.J., **Wheeler, M.**, Bailer, A.J., and Lydy, M.J. (2003) Toxicokinetics of Sediment-sorbed BaP and HCBP using the Freshwater Invertebrates: *Hyalella azteca*, *Chironomus tentans*, and *Lumbriculus variegates*. *Environmental Toxicology and Chemistry* **22**: 439-449.
73. Bailer, A.J., Oris, J.T., See, K., Hughes, M.R. and Schaefer, R.S. (2003) Defining and evaluating impact in environmental toxicology. *Environmetrics* **14**: 235-243.
74. **Wheeler, M.** and Bailer, A.J. (2003) A simulation study of methods for constructing confidence intervals for bioaccumulation factors. *Environmental Toxicology and Chemistry* **22**:921-927.
75. Loomis, D., **Bena, J.** and Bailer, A.J. (2003) Diversity of trends in occupational injury mortality in the United States, 1980-1995. *Injury Prevention* **9**: 9-14.

76. Bailer, A.J., **Bena, J.F.**, Stayner, L.T., Halperin, W.E. and Park, R.M. (2003) External cause specific summaries of occupational fatal injuries - Part I: an analysis of rates. *American Journal of Industrial Medicine* **43**: 237-250.
77. Bailer, A.J., **Bena, J.F.**, Stayner, L.T., Halperin, W.E. and Park, R.M. (2003) External cause specific summaries of occupational fatal injuries - Part II: an analysis of years of potential life lost. *American Journal of Industrial Medicine* **43**: 251-261.
78. **Cho, E.**, Bailer, A.J. and Oris, J.T. (2003) MTBE effects on the toxicity of PAH exposure. *Environmental Science and Technology* **37**: 1306-1310.
79. Toyoshiba, H., Walker, N.J., Bailer, A.J. and Portier, C.J. (2004) Evaluation of toxic equivalency factors for induction of cytochromes P450 CYP1A1 and CYP1A2 enzyme activity by dioxin-like compounds. *Toxicology and Applied Pharmacology* **194**: 156-168.
80. Loomis, D., Richardson, D.B., **Bena, J.F.** and Bailer, A.J. (2004) Deindustrialization and the long term decline in fatal occupational injuries. *Occupational and Environmental Medicine* **61**: 616-621.
81. **Greven, S.**, Bailer, A.J., Kupper, L.L., Muller, K.E. and **Craft, J.L.** (2004) A parametric model for studying organism fitness using step-stress experiments. *Biometrics* **60**: 793-799.
82. Okun, A., **Cooper, G.**, Bailer, A.J., Stayner, L.T. and **Bena, J.F.** (2004) Trends in occupational lead exposure since the 1978 OSHA lead standard. *American Journal of Industrial Medicine* **45**: 558-572.
83. Richardson, D., Loomis, D., **Bena, J.** and Bailer, A.J. (2004) Unintentional fatal occupational injuries in the South: Hispanic workers. *American Journal of Public Health* **94**: 1756-1761.
84. Ahn, Y-S., **Bena, J.** and Bailer, A.J. (2004) Comparison of unintentional fatal occupational injuries in the Republic of Korea and the United States. *Injury Prevention* **10**: 199-205.
85. Richardson, D., Loomis, D., **Bena, J.** and Bailer, A.J. (2004) The effect of rate denominator source on US fatal occupational injury rate estimates. *American Journal of Industrial Medicine* **46**: 261-270.
86. **Bena, J.F.**, Bailer, A.J., Loomis, D., Richardson, D., and Marshall, S. (2004) Effects of data limitations when modeling fatal occupational injury rates. *American Journal of Industrial Medicine* **46**: 271-283.
87. Bailer, A.J., Noble R.B. and **Wheeler, M.** (2005) Model uncertainty and risk estimation for quantal responses. *Risk Analysis* **25**: 291-299.
88. **Craft, J.L.** and Bailer, A.J. (2005) Comparison of step-stress data among multiple groups. *Environmental Toxicology and Chemistry* **24**: 1004-1006.
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92. Wright, S.E. and Bailer, A.J. (2006) Designing nonlinear experiments by stochastic and other non-enumerative strategies. *Biometrics* **62**: 886-892.
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96. **Bartuszevige, A.**, Hughes, M.R., Bailer, A.J., and Gorchov, D. (2006) Weather-related patterns of fruit abscission mask patterns of frugivory. *Canadian Journal of Botany* **84**: 869-875.
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101. Bailer, A.J., Straker, J., Noble, R., Hughes, M., See, K. (2007) Considering nursing home quality: places rated or consumer reports? *Chance* **20**: 59-62.
102. **Wheeler, M.W.** and Bailer, A.J. (2007) Properties of model-averaged BMDLs: A study of model averaging in dichotomous risk estimation. *Risk Analysis* **27**: 659-670.
103. Calabrese, E.J., Bailer, A.J., ..., Mattson, M.P. (2007) Biological stress response terminology: integrating the concepts of adaptive response and preconditioning stress within a hormetic dose-response framework. *Toxicology and Applied Pharmacology* **222**: 122-128.
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108. **Wheeler, MW.** and Bailer, A.J. (2009) Comparing model averaging with other model selection strategies for benchmark dose estimation. *Environmental and Ecological Statistics* **16**: 32-.

Books

- Piegorsch, W.W. and Bailer, A.J. (1997) *Statistics for Environmental Biology and Toxicology*. Chapman and Hall: London.
- Piegorsch, W.W. and Bailer, A.J. (2000) *Solutions Manual for Statistics for Environmental Biology and Toxicology*. Chapman and Hall/CRC: Boca Raton, FL.
- Piegorsch, W.W. and Bailer, A.J. (2005) *Analyzing Environmental Data*. John Wiley & Sons: West Sussex, England.

Edited Book:

- Bailer, A.J., Maltoni, C., Bailar, J.C., Belpoggi, F., Brazier, J.V. and Soffritti, M. (eds.) (1999) *Uncertainty in the risk assessment of environmental and occupational hazards*. Annals of the New York Academy of Sciences, Volume 895. NY Academy of Sciences: New York.

Book chapters, Technical reports, Proceedings, Letters:

1. Bailer, A.J. (1986) The effects of treatment lethality and tumor lethality on tests of carcinogenicity. Institute of Statistics Mimeo Series #1815T, Department of Biostatistics, University of North Carolina, Chapel Hill, North Carolina.
2. Bailer, A.J. and Hoel, D.G. (1989) Benzene risk assessments: Review and update. In Mehlman, M. A. (Ed.): Benzene: Occupational and Environmental Hazards Scientific Update (Vol. 16, Advances in Modern Environmental Toxicology). Princeton Scientific Publishing, Co., Inc., 131-139.
3. Bailer, A.J. and Piegorsch, W.W. (1990) MSE considerations when using quadrature rules. *Proceedings of the Biopharmaceutical Section of the American Statistical Association* 177-182.
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5. Bailer, A.J. (1992) A research proposal model for student projects in statistics. *Proceedings of the Section on Statistical Education of the American Statistical Association* 418-421.
6. Dankovic, D., Stayner, L.T. Smith, R.J. and Bailer, A.J. (1992) Carcinogenicity of Butadiene. *Science* **257**, 1330 (letter to the editor).
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8. Bailer, A.J. and Portier, C.J. (1993) Modeling risks from water contaminants: the application of concentration-response models. In *Drinking Water Contamination and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment*, R. Wang (Ed.). Marcel Dekker, Inc., New York, pp. 447-466.
9. Stayner, L.T. and Bailer, A.J. (1994) Response to Hearne and Lednar. *Risk Analysis* **14**, 903-904 (letter to the editor).
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11. Baird, R.B., Bailer, A.J., Berger, R., de Vlarning, V., Gully, J.P., and Oris, J.T. (1997) More on WET tests and statistics: moving aquatic toxicology testing beyond toxicity units. *SETAC News* **17**, 15-16.
12. Stayner, L., Smith, R., Bailer, A.J., Gilbert, S., Steenland, K., Dement, J., Brown, D., and Lemen, R. (1997) An exposure-response analysis of respiratory disease risk associated with occupational exposure to chrysotile asbestos. *Annals of Occupational Hygiene* **41**, Supplement 1, 137-141.
13. Piegorsch, W.W. and Bailer, A.J. (1997) Experimental design principles for animal studies. In *Design and Analysis of Animal Studies in Pharmaceutical Development*. S-C. Chow and J-P Liu (Eds.). Marcel Dekker, Inc., New York, pp. 23-42.
14. Bailer, A.J. and Oris, J.T. (1998) Incorporating hormesis in the routine testing of hazards. *BELLE Newsletter* **6**: 2-5.
15. Stayner, L., Bailer, A.J., Smith, R., Gilbert, S., Rice, F. and Kuempel, E. (1999) Sources of uncertainty in dose-response modeling of epidemiologic data for cancer risk assessment. In *Uncertainty in the risk assessment of environmental and occupational hazards*. A.J. Bailer, C. Maltoni, J.C. Bailar, F. Belpoggi, J.V. Brazier and M. Soffritti (Eds.) *Annals of the New York Academy of Sciences* **895**: 212-222.
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17. Bailer, A.J. (1999) Uncertainty in risk assessment: current efforts and future hopes. In *Uncertainty in the risk assessment of environmental and occupational hazards*. A.J. Bailer, C. Maltoni, J.C. Bailar, F. Belpoggi, J.V. Brazier and M. Soffritti (Eds.) *Annals of the New York Academy of Sciences* **895**: 367-372.
18. Bailar, J.C. and Bailer, A.J. (1999) Common themes at the workshop on: "Uncertainty in the risk assessment of environmental and occupational hazards." In *Uncertainty in the risk assessment of environmental and occupational hazards*. A.J. Bailer, C. Maltoni, J.C. Bailar, F. Belpoggi, J.V. Brazier and M. Soffritti (Eds.) *Annals of the New York Academy of Sciences* **895**: 373-376.

19. Stayner L., Smith R.J. and Bailer A.J.. (1999) Issues in utilizing epidemiologic data for the quantitative assessment of occupational risks. *Proceedings of the 6th Annual International Symposium*. Print Media, Vienna.
20. Bailer, A.J. and Oris, J.T. (1999) What is a NOEC? Nonmonotonic concentration-response patterns want to know. *SETAC News*, March: 22-24.
21. Bailer, A.J. and Piegorsch, W.W. (2000) Quantitative potency estimation to measure risk with bio-environmental hazards. In *Handbook of Statistics: Bio-Environmental and Public Health Statistics* C.R. Rao and P.K. Sen (Eds.), **18**: 441-463.
22. Bailer, A.J. (2001) Experiments, analyses and decisions: hormesis in ecotoxicology. *BELLE Newsletter* **10**, 9-11.
23. Bailer, A.J. (2001) Statistical issues encountered in the risk assessment of pesticides and herbicides. *Bull. Int. Statist. Inst.*, Vol.LIX Book 1, pp.305-308. Proceedings of the 53th Session, August 22-29, 2001, Seoul, Korea.
24. Bailer, A.J. and Oris, J.T. (2002) Toxicology, Environmental. In *Encyclopedia of Environmetrics*. Vol 4, A.H. El-Sharawi and W.W. Piegorsch (Eds.), 2212-2218.
25. Bailer, A.J. and Oris, J.T. (2002) Aquatic Toxicology. In *Encyclopedia of Environmetrics*. Vol. 1, A.H. El-Sharawi and W.W. Piegorsch (Eds.), 77-80.
26. Oris, J.T., and Bailer, A.J. (2003) Quantitative models in ecological toxicology: Application in ecological risk assessment. Chapter 19. IN: *The Role of Models in Ecosystem Science*, Cary Conference IX, J. Cole and C. Canham (eds.), Princeton Univ. Press, NJ. pp. 346-364.
27. Bailer, A.J. (2003) The use of probabilistic and simulation methods in the assessment of occupational hazards. *Bull. Int. Statist. Inst.*, Vol.LX Book 2, pp.142-144. Proceedings of the 54th Session, August 13-20, 2003, Berlin, Germany.
28. Vineis, P., Schulte P.A., Carreon T., Bailer A.J., and Medvedovic M. (2004) Issues of design and analysis in studies of gene-environment interactions. In P. Buffler, J. Rice, M. Bird, P. Boffeta (Eds): *Mechanisms of carcinogenesis*. IARC Sci. Publ. 157, International Agency For Research on Cancer, Lyon, pp 417-436.
29. Bailer, A.J. and Bailer, J.C. (2006) Risk Assessment. In J.C. Bailer and D.C. Hoaglin (Eds): *Medical Uses of Statistics*, 3rd Edition.
30. Bailer, A.J. and Oris, J.T. Environmental toxicology, statistics for, in *Encyclopedia of Quantitative Risk Assessment*, B. Everitt and E. Melnick, eds. Chichester: John Wiley & Sons, in press.
31. Bailer, A.J. and Piegorsch, W.W. Potency estimation, in *Encyclopedia of Quantitative Risk Assessment*, B. Everitt and E. Melnick, eds. Chichester: John Wiley & Sons, in press.
32. Piegorsch, W.W. and Bailer, A.J. Combining information, in *Encyclopedia of Quantitative Risk Assessment*, B. Everitt and E. Melnick, eds. Chichester: John Wiley & Sons, in press.

Submissions:

Wheeler M. and Bailer A.J.: Model averaging software for dichotomous dose response risk estimation (to *Journal of Statistical Software*).

Straker, J.K. and Bailer, A.J.: A review and characterization of the MDS process in Ohio nursing homes (to *Journal of Gerontological Nursing*).

Noe D.A., Nelson I.M., Mehdizadeh, S. and Bailer, A.J.: Will they stay or will they go? Predicting withdrawals from home care services (to *Chance*).

Wheeler M. and Bailer A.J.: Benchmark dose estimation incorporating multiple data sources (to *Risk Analysis*).

Loomis D., Schulman M.D., Bailer A.J., Stainback K., Wheeler M.W., Richardson D.B., and Marshall S.W. Political economy of US states and rates of fatal occupational injury. (to *American Journal of Public Health*).

Noble, R.B., Bailer, A.J. and Park, R.H.: Model-averaged benchmark concentration estimates for continuous response data arising from epidemiological studies (to *Risk Analysis*).

In Preparation/Work in progress:

Bailer, A.J.: *Statistical Programming in SAS* (book).

Park R.M., Bushnell T.P., Bailer A.J., Collins J.W. and Stayner L.T.: Impact of Interventions Sponsored by Workers Compensation on Back Injury in Nursing Home Workers.

Noble R.B., Bailer A.J. and Noe, D.A.: Comparing methods for analyzing over-dispersed binary data.

Noe, D.A., Bailer A.J. and Noble R.B.: Comparing methods for analyzing over-dispersed count data.

Fadel, W., Wheeler, M.W. and Bailer, A.J.: BMD estimation for continuous responses when the standard deviation is linearly related to dose.

Smith, C.A., Wright, S.E., Bailer, A.J., and Oris, J.T.: Development and evaluation of a physiologically-based toxicokinetic model for fluoranthene in rainbow trout (*Oncorhynchus mykiss*).

Nelson, I.M., Noe, D.A., Mehdizadeh, S. and Bailer, A.J.: Disenrollment prediction in community-dwelling individuals participating in a home care services program.

Bailer, A.J., Kinney, J.M., Cavanaugh, J.C.: Stability of family caregiver stress over six months: implications for researchers and applied gerontologists.

Bailer, A.J., Qaqish, B., Oris, J.T., and Rameriz-Romero, P.: Accounting for possible chamber effects via correlated binary data analysis methods.

Straker, J., Bailer, A.J., See, K., Noble, R., and Hughes, M.: Development and interpretation of a taxonomy of nursing homes.

Noble, R.B., See, K., Bailer, A.J. and Crist, T.O.: Application of a two-stage sampling plan excluding neighboring units to species abundance data.

Claytor, R.P., Fenchell, M., Bailer, A.J. and Daniels, S.: How many observations are required for characterizing activity in pre-school children?

- Clayton, R.P., Fenchell, M. Bailer, A.J. and Daniels, S.: Age-related trends in activity levels in pre-school children.
- Clayton, R.P., Spencer, K. Bailer, A.J. and Daniels, S.: Predictors of pre-school activity levels in children.
- See K., Noble R.B., Hughes M.R. and Bailer A.J.: Constructing size adjusted bridging data based on bootstrap methods that incorporate the ANCOVA model.
- See, K., Straker, J., Bailer, A.J., Hughes, M., Noble, R. and Ejaz, F: Defining quality in nursing homes.
- Noble, R., Straker, J., Bailer, A.J., Hughes, M. and See, K.: Predictors of nursing home quality.
- Denman, S., Sampsel, B., Lee, M. and Bailer, A.J.: Experimental design recommendations for grouped binary testing in the analysis of microbial assays.

Presentations (since 1990):

1. "Estimating tumorigenic potency", Cincinnati Chapter of the ASA, January 1990.
2. "Collaborative learning in the classroom", Lilly West Conference, Lake Arrowhead, CA, March 1990.
3. "Enhancing teaching in the university context: lessons learned from the Lilly Teaching Fellows Program", American Association for Higher Education 1990 National Conference on Higher Education, San Francisco, April 1990.
4. "Incorporating modern statistical computing tools in teaching and research", Ohio Statistics Conference, Cincinnati, November 1990.
5. "A comparison of tumorigenic potency estimators", Eastern North American Region of the Biometric Society Spring Meeting, Houston, March 1991.
6. "Statistical issues in aquatic toxicology", seminar talk at the National Institute of Environmental Health Sciences, Research Triangle Park, NC, April 1991.
- 7 a. "Predictive value of short-term tests and biochemical assays for carcinogenicity".
b. "Modeling the rate of formation of metabolic products".
c. "Dose-response and extrapolation".
The Scientific Basis of Carcinogenicity Testing - an international course, Moscow, Russia, June 1991. I was invited to give three one-hour lectures at this meeting. The International Agency for Research in Cancer and the National Institute of Environmental Health Sciences provided all of my funding for travel and expenses to attend this meeting.
8. "Modeling reproductive outcome in aquatic toxicology studies", Ninth Annual Mathematics and Statistics Conference, Miami University, September 1991.
9. "Research proposals as models for projects in introductory statistics classes", American Statistical Association (ASA) Winter Meetings, Louisville, Kentucky, January 1992.
10. "Adjusting for differences in study length and exposure when comparing carcinogenicity studies", seminar talk at the National Institute of Environmental Health Sciences, January 1993.
- 11 a. "Dose-response modeling"
b. "Uncertainty in risk assessment"
Lectures in Short Course in Risk Assessment. I was invited to give two two-hour lectures at this course. Fernald Uranium Processing Facility, Ross, Ohio, June 1993.
12. "Issues to consider when comparing toxicologic and epidemiologic studies", Symposium on Quantitative Risk Assessment, Heidelberg, Germany, December 1993.
13. "Estimating confidence limits on excess risk in multistage models", Eastern North American Region of the Biometric Society Spring Meeting, Cleveland, April 1994.
14. "Current research in risk assessment at NIOSH", seminar talk at the National Institute of Environmental Health Sciences, June 1994.
15. "Potency estimation in aquatic toxicology studies", Eastern North American Region of the Biometric Society Spring Meeting, Birmingham, March 1995.
16. "Methods for evaluating risks of non-cancer endpoints in epidemiology studies", 11th International Symposium on Epidemiology in Occupational Health, Noordwijkerhout, The Netherlands, September 1995.
17. "Comparing potency estimators in aquatic toxicology studies", 2nd Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada, November 1995. (I was also a co-author of 3 posters presented at this meeting.)
18. "A general framework for effective concentration estimation in aquatic toxicology studies", 1996 James E. Grizzle Distinguished Alumnus Lecture, 24th Annual UNC School of Public Health Alumni Conference, Chapel Hill, NC, March 1996.

19. "Statistical endpoint estimation in ecotoxicology studies", Sydney International Statistical Congress, Sydney, Australia, July 1999.
- 20a. "Risk assessment concepts and controversies"
 - b. "Non-cancer risk assessment principles and strategies"
 - c. "Risk research at NIOSH -- past, present, and future"
I was invited to give three one-hour lectures in the Department of Public Health at the Wellington School of Medicine, Wellington, New Zealand, July 1996.
21. "Risk estimation for non-cancer responses based on epidemiology studies", Joint Statistical Meetings, Chicago, August 1996.
22. "Individual-based risk estimation for count responses", Eastern North American Region of the Biometric Society Spring Meeting, Memphis, March 1997.
23. "Trends in occupational fatal injury rates in the United States (1983-1992)", National Occupational Injury Research Symposium, Morgantown, West Virginia, October 1997.
24. "Population and individual-based risk estimation for count responses", 18th Annual Meeting of the Society for Environmental Toxicology and Chemistry, San Francisco, November 1997.
25. "Statistical considerations in low-dose study design" at the Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC) Low Dose Workshop in Washington, D.C., February 1998.
26. "Statistical Inference in Molecular Epidemiology", Lecture in Molecular Epidemiology class, University of Cincinnati, Cincinnati, April 1998.
27. "Introduction to quantitative issues in physiologically-based pharmacokinetic models", National Institute of Environmental Research, Seoul, Republic of Korea, May 1998.
28. "Potency estimation in the context of generalized linear models", Biometric Society Group Korea and the Department of Applied Statistics and the Institute of Environmental and Atmospheric Pollution, Yonsei University, Seoul, Republic of Korea, May 1998.
29. "Risk assessment in occupational health", Korean Industrial Safety Corporation, Incheon, Republic of Korea, May 1998.
30. "Uncertainty in risk assessment: past, present, and future", Workshop on Uncertainty in the risk assessment of environmental and occupational hazards, Bologna, Italy, September 1998.
31. "Incorporating hormesis in the routine testing of hazards", Societal Implications of Hormesis Conference, Research Triangle Park, NC, October 1998.
- 32a. "Identifying and quantifying hormetic hazards" and
 - b. "Estimating and Testing Bioconcentration Factors"
19th Annual Meeting of the Society for Environmental Toxicology and Chemistry, Charlotte, NC, November 1998.
33. "The definition of potency endpoints as a function of different concentration-response patterns", Joint Statistical Meetings, Baltimore, August 1999.
34. "How much is too much? (some thoughts on the assessment of the risks posed by environmental and occupational hazards)", Sigma Xi Researcher of the Year Lecture, Oxford, OH, November 1999.
- 35a. "A longitudinal data analysis of the perceived hassles associated with caregiving to a spouse with dementia"
 - b. "Comparing different models for predicting health and long-term care expenditures"
 - c. "Evaluating leisure activity and functional health status changes over time"
Gerontological Society of America Meetings, San Francisco, CA, November 1999.
36. "Mentors, models, coaches or talking heads: is it what we say or what we do?", College of Arts and Science Distinguished Lecture, Oxford, OH, February 2000.
37. "Statistical comparison of axon-scaled neurochemical production" Eastern North American Region of the Biometric Society Spring Meeting, Chicago, March 2000.

38. "Predicting outcomes among older adults: some tools from statistics", ONECA Annual Conference, Cincinnati, April 2000.
39. "Preliminary analysis of years of potential life lost in the National Traumatic Fatality database along with other event code specific summaries", National Occupational Injury Research Symposium, Pittsburgh, PA, October 2000.
- 40a. "Are case-mix scores changing over time?"
- b. "Defining disability: implication of measurement for trends in disability rates" Gerontological Society of America Meetings, Washington, D.C. November 2000.
41. "Estimating and testing bioconcentration factors". ENAR Spring Meeting. Charlotte, NC. March 2001.
42. "How much is too much? ... how many are there? ... do you really believe that? ... answering questions with biostatistics." Seminar at Berea College. Berea, KY. March 2001.
43. "Applied statistical research at Miami University." Seminar at Biomathematics and Statistics Scotland. Edinburgh, Scotland. May 2001.
44. "A pooled response strategy for analyzing multiple responses to develop relative site rankings in a weight of evidence evaluation of sediment contamination." Weight of Evidence Workshop. Madrid, Spain. May 2001.
45. "Statistical issues in environmental toxicology: water quality assessment, bio-concentration and site rankings." Cincinnati Chapter of the ASA Meeting. June 2001.
46. "Statistical issues encountered in the risk assessment of pesticides." 53rd Session of the International Statistical Institute. Seoul, Republic of Korea. August 2001.
47. "Defining and evaluating impact in environmental toxicology." International Conference on Statistical Challenges in Environmental Health Problems. Fukuoka, Japan. August 2001.
48. "Reliability and prediction of case mix changes in Ohio Nursing Home." Seminar at the Ohio Department of Work and Family Services. Co-presenter with J.K. Straker. Columbus, Ohio. October 2001.
49. "Defining and evaluating impact in environmental toxicology." Seminar at the University of Cincinnati. Cincinnati, OH. November 2001.
50. "Statistical issues associated with ecotoxicology endpoints." Symposium on Biostatistical and Biomathematical Problems in Environmental Health. Research Triangle Park, NC. June 2002.
51. "Sample size determination for sampling residents from nursing homes." Gerontological Society of America Meetings, Boston, MA, November 2002.
52. "A Parametric Model for Studying Organism Fitness Using Step-Stress Experiments," Eastern North American Region of the Biometric Society Spring Meeting, Tampa, March 2003.
53. "The Use of Probabilistic and Simulation Methods in the Assessment of Occupational Hazards," 54th Session of the International Statistical Institute. Berlin, Germany. August 2003.
54. "Statistical estimation, testing and design questions in ecotoxicology." Wright State University. Dayton, OH, October 2003.
55. "Telling stories with pictures: effective graphic display of data." Scripps Gerontology Center. Oxford, OH, November 2003.
56. "Designing nonlinear experiments using nonenumerative strategies." Eastern North American Region of the Biometric Society Spring Meeting, Pittsburgh, March 2004.
57. "When and how often should you sample? Strategies for determining optimal allocation of sampling times & replications in nonlinear models." Seminar at the National Institute of Environmental Health Sciences. Research Triangle Park, NC. April 2004.

58. "Reflecting exposure variability and model uncertainty in risk estimates." Presentation to National Academies Subcommittee on Spacecraft Exposure Guidelines. Woods Hole, MA. May 2004.
59. "Evaluating and incorporating uncertainty in risk assessment." Korea Food and Drug Administration, Seoul, South Korea. June 2004.
60. "External cause specific summaries of occupational fatal injuries in the United States." Korea Occupational Safety and Health Agency, Incheon, Korea. June 2004.
61. "Model uncertainty and risk estimation for quantal responses." Joint Statistical Meetings. Toronto, Canada. August 2004.
62. "Comparative Study of Occupational Fatal Injury Rates in South Korea and the United States." Webinar jointly presented with Y-S. Ahn and J. Bena. September 30, 2004. http://www.circl.pitt.edu/home/past_seminars.htm
63. "When, if and how should we average risk estimates from different models?" Presentation to National Academies Subcommittee on Spacecraft Exposure Guidelines. Houston, TX. November 2004.
64. "What do you do when more than one risk estimation model is adequate? A discussion of model averaging in risk assessment." Seminar at the Risk Evaluation Branch, NIOSH, Cincinnati, OH February 2005.
65. "Occupational fatal injuries in the United States: cause-specific rates and years of potential life lost." Seminar at the Center for Injury Research and Policy, Columbus Children's Research Institute, Columbus, OH June 2005.
66. "Best of both worlds? Statistical concepts in a programming class." [Also served as discussant for invited session on Isotonic Methods in Toxicology and Risk.] Joint Statistical Meetings. Minneapolis, MN. August 2005.
67. "How much is too much? ... how many are there? ... do you really believe that? ... answering questions with biostatistics." Seminar at Wabash College. IN. Oct. 2005.
68. "Predicting and defining quality in Ohio nursing homes." Scripps Brown Bag Seminar. Nov. 2005 (co-presented with J. Straker).
69. "Answering questions with biostatistics – lying, dying and sizing." Seminar at Franklin College. Franklin, IN. February 2006.
70. "Sample size requirements for studying small populations in gerontology." Eastern North American Region of the Biometric Society Spring Meeting, Tampa, March 2006.
71. "The mixing zone between ecotoxicology testing and statistical methods." Society for Environmental Toxicology and Chemistry, Montreal, November 2006.
72. "Closing down the bars: Options for Displaying and Comparing Data Distributions." ECOLUNCH seminar at Miami University, January 2007.
73. "Evaluating evidence of rater disagreement." Eastern North American Region of the Biometric Society Spring Meeting, Atlanta, March 2007.
74. Briefing for the Collaborative on Health and the Environment March 8th CHE Partnership Call -- Special Policy Education Call on the OMB Risk Assessment Bulletin, March 2007.
75. "Model averaging and risk estimation." NRC Workshop on Quantitative Approaches to Characterizing Uncertainty in Human Cancer Risk Assessment based on bioassay results (BEST Standing Committee on Risk Analysis Issues and Reviews) Washington DC. June 2007.
76. "Risk estimation and national security: introduction and overview." Joint Statistical Meetings. Salt Lake City, UT. August 2007.
77. "Risk estimation and national security: introduction and overview." Seminar at Taylor University. Upland, IN. February 2008. (50 minute version of Talk #76.)

Professional Activities:

Professional Activities -- Scientific workshops, review panels:

The National Academies/National Research Council (NRC)/Institute of Medicine (IOM)

Member of the NRC Committee on Improving Risk Analysis Approaches used by the US EPA (from September 2006).

Member of the NRC Committee to Review the OMB Risk Assessment Bulletin (from May 2006). Part of the NRC team that briefed OMB, Federal Agencies and House/Senate/press (Jan. 2007).

Member of the NRC Committee on Spacecraft Exposure Guidelines (from Sept. 2003).

Member of NRC Committee on Toxicologic Assessment of Low-Level Exposures to Chemical Warfare (Nov. 2001-Sept. 2004).

Consultant to NRC/IOM Committee on Implications of Dioxin in the Food Supply (Nov. 2001-Mar. 2003).

Presenter at NRC Workshop on Quantitative Approaches to Characterizing Uncertainty in Human Cancer Risk Assessment based on bioassay results (BEST Standing Committee on Risk Analysis Issues and Reviews) (June 2007).

Discussant at NRC planning meeting for workshop on estimating dietary reference intakes (DRIs) (IOM sponsored) (June 2007).

National Institute of Environmental Health Sciences/National Toxicology Program

Review cmt. for the NIEHS/NTP sponsored Carcinogenic Potency Data Base (Apr. 2004).

Statistics subcommittee member at NIEHS/NTP Low Dose Peer Review for Endocrine Disruptors. Research Triangle Park, NC. (October 2000).

Member of two subcommittees of the Board of Scientific Counselors (BSC) of the National Toxicology Program (NTP) (January 1997 to June 2000). The two subcommittees are the Report on Carcinogens (RC) subcommittee and the Technical Report (TR) subcommittee. The RC subcommittee is a multidisciplinary board of scientists who vote on listing compounds/ chemicals/ mixtures as "reasonably anticipated to be human carcinogens" or as "known human carcinogens." The TR subcommittee reviews the results of the long-term multi-year carcinogenicity studies conducted by the NTP.

Workshops and other professional society service

Invited participant in Society of Toxicology (SOT) Workshop on Probabilistic Risk Assessment (PRA): Bridging Components Along the Exposure-Dose-Response Continuum Contemporary Concepts in Toxicology (July 2005).

Peer review panelist evaluating the health effects of methylene chloride (May 2005).

Invited participant to workshop on Developing a Research Strategy for improving health risk assessment of bromate in drinking water (Feb. 2005).

Invited participant in Workshop to evaluate research priorities for endocrine active compound risk assessment methods (August 1999).

Collaborated with Staff with OSHA's regulatory affairs division considering the effectiveness of lockout/tagout standards (Summer 1997).

Invited participant in technical Workshop on Whole-Effluent Toxicity sponsored by the Society of Environmental Toxicology and Chemistry (September 1995).

Participant and reviewer for the Ohio Environmental Protection Agency Comparative Risk Project (Spring 1995).

Invited participant in Dose Response Workgroup at the National Toxicology Program Workshop on Mechanism-based Toxicology in Cancer Risk Assessment: Implications for Research, Regulation, and Legislation (January 1995).

Professional Activities -- American Statistical Association, ENAR, ISI, Sigma Xi:

Chair-elect, ASA Section on Risk Analysis (from January 2008)

Member of International Statistical Institute risk assessment committee (from Nov. 2000)
ENAR Regional Advisory Committee (RECOM) (from January 2006)
Member, ENAR 2007 Continuing Education Advisory Committee (from March 2006)
Member, ASA Committee for Graduate Education in Vietnam (Sept. 2005-July 2006)
Publications Chair, Statistics and the Environment Section, American Statistical Association (2001-2002)
Publications Chair-Elect, Statistics and the Environment Section, American Statistical Association (1999-2000)
Cincinnati Chapter of the American Statistical Association: President (1996-1997); Vice-President (1995-1996); Secretary/Treasurer (1994-1995)
Miami University Chapter of Sigma Xi: President (1996-1997); Vice-President (1995-1996); Secretary (1994-1995)

Professional Activities -- Arrangement committees, program committees, etc.:

Program Committee for 2nd annual CACR symposium on State-of-the-Art Statistical Computing and Methods for Social Science, Behavioral Science, and Business. Miami University. Oxford, OH (March 2007).
Organizing committee for "International workshop on uncertainty and variability in physiologically based pharmacokinetic (PBPK) models." RTP, NC (October 2006)
Conference co-director for "Understanding Biological and Medical Systems with Statistics." 34th Annual Conference of the Department of Mathematics & Statistics at Miami University. Oxford, OH (September 2006)
ENAR 2005 Program Chair. Austin, Texas (Dec. 2003-2005)
Program committee for "An international workshop on the risks in moving and destroying chemical weapons." The Hague, Netherlands (Fall 2002-Dec 2003). [CANCELLED 12/03]
Program committee for Symposium on Biostatistical and Biomathematical Problems in Environmental Health in Research Triangle Park, NC (February 2002 - June 2002).
Program committee for the National Occupational Research Agenda Risk Assessment Workshop in Aspen (January 2000 – August 2000)
Program committee for the Biometric ENAR Spring Meetings in Chicago (Summer 1999-Spring 2000)
Planning committee for Ramazzini Institute symposium, "Measuring, expressing, and reducing uncertainty in cancer risk assessment" (Bologna, Italy -- September 1998)
Organized Special risk assessment session for the National Occupational Injury Research Symposium in Morgantown, West Virginia (October 1997)
ASA Statistics and the Environment Section representative on the Program committee for the Biometric ENAR Spring Meetings in Memphis (Summer 1996-Spring 1997)
Organizer/Chair of ASA Statistics and the Environment Session, "What's going to get you next: statistics and risk regulation", at the Joint Statistical Meetings in Chicago (1996)
Co-chair of program committee for the Ohio Statistics Conference (1994)
Local Arrangements committee for the Biometric ENAR Spring Meetings in Cincinnati (Fall 1991-Spring 1992)

Professional Activities – editorial service, manuscript reviews, grant reviews:

Associate Editor for Journal of the American Statistical Association (from June 2006)
Associate Editor for *Biometrics* (Feb. 1997 – June 2005)
Co-editor for special issue of *Human and Ecological Risk Assessment* devoted to Occupational Injury Risk Assessment (Fall 2000 - Summer 2001)
Co-editor for special issue of *Human and Ecological Risk Assessment* devoted to Injury Risk Assessment (Fall 1997 - Spring 1998)

Referee/reviewer for *Biometrics*, *Risk Analysis*, *Environmental Toxicology and Chemistry*, *American Journal of Industrial Medicine*, *American Journal of Public Health*, *Injury Prevention*, *Occupational and Environmental Medicine*, *Environmental and Ecological Statistics*, *Environmetrics*, *Environmental and Molecular Mutagenesis*, *Environmental Health Perspectives*, *Fundamental and Applied Toxicology*, *Informatik*, *Biometrie und Epidemiologie*, *Journal of Agricultural, Biological and Environmental Statistics*, *Journal of the American Statistical Association*, *Journal of Pharmacokinetics and Biopharmaceutics*, *Cancer Research*, *Ohio Journal of Science*, *Psychotherapy Research*, *Public Health Reports* and US EPA Cooperative Agreements.

Beta tester of ToxTools, benchmark dose/risk estimation software (2000)

Science Foundation Ireland grant review (2001)

Computing Experience:

UNIX systems:	SunOS (Solaris), HP-UX, S-Plus, FORTRAN
VAX/Alpha:	VMS (OpenVMS), FORTRAN, SAS
MAC & Windows PCs:	R, S-Plus, SAS, MINITAB, word processing & spreadsheets

Teaching Experience:

Classes taught*:

- STA 261: Algebra-based intro. to statistics for undergraduate life science students.
- STA 261.S: Algebra-based intro. to statistics for undergraduate social science students.
- STA 361,362: Calculus-based intro. to probability and statistics for undergraduate students in systems analysis.
- STA 461/561: Introduction to probability for advanced undergraduate mathematics and statistics majors and graduate students.
- STA 462/562: Introduction to statistical inference for advanced undergraduate mathematics and statistics majors and graduate students.
- STA 463/563: Introduction to regression for advanced undergraduate mathematics and statistics majors and graduate students.
- STA 466: Introduction to experimental design for advanced undergraduate mathematics and statistics majors.
- STA 402/502: Statistical Programming. Introduction to SAS and S-Plus/R.
- STA 573: Introduction to regression for graduate students from a variety of departments including zoology, botany, and paper science.
- STA 576: Introduction to experimental design for graduate students from a variety of departments including zoology, botany, and paper science.
- STA 600: Independent studies for statistics graduate students. I have supervised independent studies in risk assessment, advanced methods in biometry and regression techniques.
- STA 600: Advanced Statistical Computing using S-Plus. Introduction to the quantitative programming environment, S-Plus.
- STA 600.E: Advanced methods in Environmental Statistics. Introduction to the advanced statistical techniques encountered in environmental biology and toxicology. Topics included generalized linear models (e.g. binary regression, Poisson regression), tests of trend for both continuous and discrete data, and quantitative risk assessment models. Additional material selected from compartmental models, Monte Carlo simulation, bootstrap methods, potency estimators. Audience included advanced graduate students in both statistics and the environmental/life sciences.
- STA 660: Practicum in Data Analysis. Supervised practice in consulting and statistical data analysis including use of computer programs
- STA 671: Introduction to statistics for graduate students in the environmental sciences.
- STA 684: Categorical Data Analysis (Master's students in statistics).
- STA 685: Introduction to failure time models for master's students in statistics.
- IES 612: A topics course in regression, experimental design, sampling and mathematical models (Monte Carlo simulation basics, linear programming, compartmental models) taught for the Institute of Environmental Sciences.

*A typical teaching load is 7-9 hours (at least two course preparations) each semester.

Graduate Student committee service:

- M.S. Statistics projects: 37 completed (33 supervised); 2 active
(The M.S. Stat. is the highest graduate degree offered in the Dept. of Math. & Stat.)
- M.S. Biostatistics supervised: 1 completed
(advised UNC Biostatistics student while on study leave in 2002)
- M.S. committee member: 35 completed (2 supervised); 4 active
(For students in Zoology, Environmental Science, Geography, Systems Analysis, etc.)
- Ph.D. committee member: 17 completed; 8 active (5 in Zoology, 1 in Botany)

Curriculum Development:

- Modified STA 660 (data practicum) to serve external clients exclusively (Fall 2007).
- Modified STA 671 to be more interactive and R-based with more simulation-based instruction of concepts (Fall 2006).
- Designed and taught the Statistical Programming class STA 402/502 (Fall 2003).
- Expanded STA 660 to address consulting questions from faculty clients from different Departments (Fall 2001-Fall 2002).
- Designed and introduced a course Advanced Statistical Computing using S-Plus (Spring 1995).
- Designed and introduced STA 600.E (see course description above) in the Fall of 1994. This course was unique in that advanced graduate from different disciplines worked in interdisciplinary teams on a variety of projects.
- Reworked STA 671 to include more discussion of non-traditional first course topics (e.g. nonparametric methods) and a term project. Each student conducted a research project that was roughly modeled on the research proposal process. Students submitted proposals that were reviewed by other classmates (and by me), submitted revisions to that proposal based on reviewer comments, and finally, submitted a research report.
- Modified STA 671 to focus on data and examples. By exploring real data in the class, statistical concepts are introduced and applied.
- Updated the structure of STA 473/573. Met with Economics faculty to modify the structure of a Mathematics & Statistics regression sprint course that provides the foundation for their Econometrics class.

Faculty Development Activities:

- Participant in a year-long faculty development program, the Alumni Teaching Scholars Program. Issues surrounding the learning process were studied. Entry into this program was competitive with participants receiving funding for travel and study as part of the program.

Other Information:

- Organized and arranged for internships for graduate statistics students at the National Institute for Occupational Safety and Health (1993-).
- Started pairing statistics graduate students with graduate students in other disciplines (e.g. zoology) to provide practical consulting experience for the statistics students and data analysis support for the zoology students (1993-).
- Nominated for Associated Student Government Outstanding Teaching Award (1990).

Recent workshops attended:

Ecological Modeling in R. B. Bolker. Miami University Workshop (Oxford, Feb. 2008).
Bayesian Analysis in Practice. D. Spiegelhalter. JSM 2007 (Salt Lake City 2007).
Classification and Regression Trees. W-Y Loh. JSM 2007 (Salt Lake City 2007).
Generalized Linear Mixed Effects Models. G. Fitzmaurice. ENAR Spring Meeting (Atlanta 2007).
Introduction to Bayesian Approaches for Data Analysis. A. Carriquiry. ENAR Spring Meeting (Tampa 2006).
Intermediate R Use and Programming. D. Bates. ENAR Spring Meeting (Tampa 2006).
Computational Statistics: Methods for Optimization and Monte Carlo Integration. G. Given/J. Hoeting. JSM 2005 (Minneapolis, MN, August 2005).
Introduction to Random Forests. A. Cutler. ENAR Spring Meeting (Austin, TX, March 2005).
Generalized and nonlinear mixed models in the SAS System: tools and applications. O. Schabenberger. ENAR Spring meeting. (Pittsburgh, March 2004).
An introduction to the R environment. P. Dalgaard. ENAR Spring meeting. (Pittsburgh, March 2004).

Cluster Computing workshop (Oxford, October 2003).
 Linear Mixed Model workshop. G. Verbeke and G. Molenberghs (Cincinnati, August 2003).
 Displaying quantitative information workshop. E. Tufte (Cincinnati, July 2003).
 Audited courses while on leave at UNC: GLIM (B. Qaqish); Mixed models (L. Edwards),
 Survival methods (D. Lin) (Chapel Hill, NC, 2002).
 Applied Bayesian Analysis. Siva Sivaganesan. (Cincinnati, Fall 2001).
 Generalized linear and nonlinear models for clustered data and repeated measurements. E.
 Vonesh. ENAR Spring meeting. (Charlotte, March 2001).
 Applications of GEE Methodology using the SAS System. M. Stokes. ENAR Spring
 meeting. (Charlotte, March 2001).
 Using SAS and WinBUGS to fit hierarchical models. L. Waller. ENAR Spring meeting.
 (Charlotte, March 2001).
 Molecular Techniques in Ecological Toxicology. Workshop accompanying OVC-SETAC
 meeting. (Oxford, May 2001).
 Attended R. Carroll and D. Rupperts's "Measurement error in nonlinear models" workshop
 (Chicago, March 2000).
 Attended T. Thernau's "Survival Analysis in S-Plus" workshop (Princeton, February 1999).
 Attended L. Hayflick's NSF Workshop "How and why we age" (Philadelphia, April 1999).
 Attended W. Venables' "Advanced Programming in S-Plus" workshop (Madison, June
 1999).

University Service:

Graduate Student Committees:

Currently serve on 14 Masters and Doctoral student thesis committees.

Departmental Committees:

Statistics Committee (Fall '88 -).
 Chair, Statistics Search Committee (Fall 2007 - Spring 2008).
 Tenure and Associate Professor Promotion Committee (Fall 1993-)
 Professor Promotion Committee (Fall 1996-).
 MST reorganization committee (Spring 2008)

 MST Department Recorder (Spring 2007)
 Tenure and Promotion Committee, Secretary (Fall 2004-Spring 2006)
 Statistics Search Committee (Fall 2005 - Spring 2006).
 Applied Mathematics Search Committee (Fall 2003-Spring 2004).
 Peer Review of Teaching Committee for S. Harper (Fall 2006).
 Peer Review of Teaching Committee for R. Noble (Spring 2006).
 Peer Review of Teaching for J. Moler (Spring 2005).
 Faculty Colloquium Committee (Fall 2003-Spring 2004).
 Peer Review of Teaching Committee for J. Westman (Fall 2003).
 Peer Review of Teaching Committee for R. Noble (Spring 2003).
 Chair, Statistical Programming Course proposal committee (Fall 2002).
 Computer Usage Committee (Fall '88 - 2003).
 Statistics Steering Committee (Fall '99 – Fall 2001).
 Chair, Statistics Search Committee (Fall 2000 - Spring 2001).
 Climate for Women Committee (Fall 2002-Spring 2003).
 Undergraduate Committee (Spring '90 - Spring '92).
 Graduate Committee (Fall '92 - Spring '94).
 Colloquium Committee (Fall '96 - Spring '97).
 Mathematics Education Search Committee (Spring '91).
 Various comprehensive exam and textbook selection committees.

Other Departmental Service:

Lecture to New Graduate students, "Engaging students as learners" (Fall '96)
General resource person for VAX, UNIX, MAC, and e-mail questions.
Co-authored department proposal for the NSF/ILI grant program (Fall '90 & '91).
Pi Mu Epsilon speaker (December '90).
Dept. representative to workshop on "Computers for Mathematics Faculty" at the Institute for Academic Technology, Chapel Hill, N.C. (Spring '91).
Chaired Ad Hoc committee to revise Department's teaching evaluation form (S '93-F '94).

Scripps Gerontology Center:

Research Management Team Committee (Fall '98-2005)

Division or University Committees:

Environmental Studies Advisory Committee (Fall '99 -)
Oversight Committee for the Environmental Studies Co-Major (Fall 2005-)
Steering Committee for MU-ECONET Presidential Advancement Enrichment Activity (Fall 2006-)
Miami University Harassment/Discrimination Review Panel (Spring 2007-)

College of Arts & Science Committee to Review Chairs and Program Directors (Fall 2005-Spring 2008)

Graduate Council (Fall 2002 – Spring 2008)
College of Arts & Science Computer Policy Cmt. (Spring '90 - Spring '92; Fall '96 - 04).

Researcher of the Year Award Committee (Spring 2000 - 2002), Chair 2002
UPTOP computing planning core team (Fall 2001)
University Computer Policy Committee (CPC) (Fall '90 - Spring '93).
Academic Divisional Advisory Subcommittee of CPC (Fall '89 - '90).
Network Subcommittee of the CPC, Chair (Spring '91).
Computer Advisory Group (CAG) (Fall '91 - Spring '93).
Search Committee for Associate Provost for Computing (Fall '91 - Spring '92).
Natural and Applied Sciences Subcommittee of the Graduate Council (Fall '93-Spring '95).
Search Committee for UNIX Support Staff person (Spring '94).

Institute of Environmental Sciences (IES) Service:

IES Executive Committee (Fall 2006 -)
IES oral exam committees (most Springs).
Special lecturer in IES Public Service Project (PSP) course (Fall '91).
Consultant on IES Public Service Projects (semesters when I taught STA 671).

Non-committee University Service:

Guest lecturer in graduate Ecotoxicology course (Fall '91, Spring '94, Fall '97, '98, '99).

Statistical Collaboration/Consulting on Campus:

Since Fall 1989, I have collaborated on a host of separate research projects that were being conducted by faculty and students from a variety of programs and departments.