

# Curriculum Vitae

## Don Edwards

January 1, 2011

### CONTACT INFORMATION:

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### EDUCATION:

Ph.D. Statistics, Ohio State University 1981

M.S. Statistics, Ohio State University 1979

B.S. Mathematics, Ohio State University 1977

### RESEARCH INTERESTS:

Interrater agreement; statistical methods for auditing; response surface methodology; environmetrics; simultaneous inference.

### EXPERIENCE:

in Program/Dept. of Statistics, University of South Carolina, except as noted.

2005-: Department Chair

2000-: Consultant for Palmetto GBA, Inc. (Medicare contractor)

1995-: Faculty Associate, School of the Environment

2003-09: Consultant for TriCenturion, Inc. (Medicare benefit integrity investigations)

2004-07: *JABES* Management Board

2005-06: Associate Editor, *Journal of the American Statistical Association*

2002-05: Assistant Director of Graduate Studies for Part-time and Distant Students

1996-02: Director of Graduate Studies

1995-99: Associate Editor, *Communications in Statistics: Theory and Methods*

1994-98: Consulting Statistician, J.W. Jones Ecological Research Center, Ichauway, Georgia

1996: Software Designer for the *multicomp()* suite in *Splus®*, MathSoft, Inc.

1993-96: Associate Editor, *Journal of Statistical Computation and Simulation*

1989: Visiting Scientist, Operations Research and Industrial Engineering, Cornell University

1983-87: Director, Statistical Consulting Laboratory

1981-95: Assistant Professor to Professor

## HONORS:

Distinguished Achievement Medal, ASA Section on Statistics and the Environment, 1999  
Fellow of the American Statistical Association, 1997

## FUNDED RESEARCH ACTIVITY (SELECTED):

- 2007: NSF, \$13,000. DMS-0726219, "Current and Future Trends in Nonparametrics" (P.I.; Edsel Peña, co-P.I.).
- 2006-08: NCI, \$100,000. R03 CA114783-01A. "Modeling inter-rater agreement through the use of generalized linear mixed models" (co-P.I.; Kerrie Nelson, P.I.)
- 2005-07: CICEET (NOAA), \$76,582. "The Effect of Climatological Cycles and Storm Events on Water Quality in the National Estuarine Research Reserve Systems of the Southeastern U.S." (co-P.I.; Susan Wilde, P.I.)
- 1993-98; 2001-06: NOAA, \$5,000,000; \$4,700,000. "Urbanization and Southeastern Estuaries", One of ~15 Senior Investigators.
- 1999-02: NOAA, \$289,268, "A Synthesis of Water Quality Data from the National Estuarine Research Reserve's System-Wide Monitoring Program," (co-P.I.; Elizabeth Wenner, P.I.)
- 1996-01 NSF, \$753,149, "The Role of Oyster Reefs in the Structure and Function of Tidal Creeks". One of 8 Senior Investigators (Richard Dame, P.I.).
- 2001: USC Research Office, \$30,000, "Environmetrics" (equal-partner co-P.I. with W.Piegorsch).
- 1992-94 NSF, \$94,980, "Elementary Statistics Laboratory Course Development," co-P.I. (1 of 3).
- 1983-94 NSF, \$9,600,000, "Long Term Ecological Research at North Inlet". One of ~12 Investigators (F.J.Vernberg, P.I.)
- 1986-87 NIH R01, \$30,531, "Sharp multiple comparisons for multivariate analysis" (P.I.)
- 1985-86 NIH R01, \$15,709, "Exact simulation-based multiple comparisons" (P.I.)

## PUBLICATIONS

### BOOKS

- Spurrier, John D., Don Edwards, and Lori A, Thombs (1999). *Statistics: Learning by Doing*. Long Beach, NY: Whittier.
- Spurrier, John D., Don Edwards, and Lori A.Thombs (1995). *Elementary Statistics Laboratory Manual*. (separate versions for MS-DOS and Macintosh; also, Instructor's Manual). Belmont, CA: Duxbury Press.

## PEER-REVIEWED JOURNAL ARTICLES (SELECTED FROM 71)

### A. STATISTICAL THEORY, METHODS, AND EDUCATION

- Edwards, Don, Dennis Gilliland, Gail Ward-Besser, and Jennifer Lasecki. "Pennysampling". Submitted.
- Chalmers, Nancy and Edwards, Don. "Fractional Polynomials: Issues of Identifiability and Fitting With Examples". Submitted
- Gilliland, Dennis and Edwards, Don. "Using Randomized Confidence Limits to Balance Risk- an Application to Medicare Fraud Investigations". Submitted
- Ignatova, Iliana; Deutsch, Roland; and Edwards, Don. "Closed sequential and multistage inference with binary response". Submitted.
- Edwards, Don. "On Stratified Sampling and Ratio Estimation in Medicare Benefit Integrity Investigations". Submitted
- Autin, Melanie and Edwards, Don (2010). "Nonparametric Harmonic Regression for Estuarine Water Quality Data". *Environmetrics* **21**, 588-605.
- Nelson, Kerrie and Edwards, Don (2010). "Improving the reliability of diagnostic tests in population-based agreement studies. *Statistics in Medicine*. 29(6), 617-626
- Ignatova, Iliana and Edwards, Don (2008). "Probe Samples and the Minimum Sum Method for Medicare Fraud Investigations". *Health Services and Outcomes Research Methodology* **8**: 209-221.
- Nelson, Kerrie, and Edwards, Don (2008). "On population-based measures of agreement". *The Canadian Journal of Statistics*, **36**: 411-426.
- Parody, Robert and Edwards, Don (2007) "Confident Exploratory Visualization Techniques for Improvement in High Dimensional Response Surfaces". *International Journal of Statistics and Management Systems*, **1**:112-129.
- Parody, Robert and Edwards, Don (2007). "Simulation-Based Inference on the Improvement in a Rotatable Response Surface". *QTQM*, **4**: 489-499.
- Edwards, Don, G.Ward-Besser, J.Lasecki, B.Parker, K.Wieduwilt, F.Wu, and P.Moorhead (2005). "The Minimum Sum Method: a Distribution-Free Sampling Procedure for Medicare Fraud Investigations". *Health Services and Outcomes Research Methodology* **4**: 241-263.
- Edwards, Don (2005). "On 'False Discovery Rate-Adjusted Multiple Confidence Intervals for Selected Parameters' ". Invited comment, *Journal of the American Statistical Association* **100**, 81.
- Street, W. Scott IV, D.Edwards, R.J. Feller, B.C. Coull, and S.E. Stancyk (2003). "Mixed-Model Splines for Environmental Time Series". *Environmetrics* **14**: 643-649.
- Piegorsch, W.W. and Edwards, Don (2002). "What shall we teach in environmental statistics?", with 9 comments and rejoinder. *Environmental and Ecological Statistics* **9**, 125-150.
- Merchant, Aparna, M.McCann and D. Edwards (1998). "Improved multiple comparisons with a control in response surface analysis". *Technometrics* **40**, 297-303.
- Piegorsch, Walter W., E.P.Smith, D.Edwards, and R.L.Smith (1998). "Statistical advances in environmental science." *Statistical Science* **13**, 186-208.

- McCann, Melinda and Edwards, Don (1996), "A path-length inequality for the multivariate-t distribution, with applications to multiple comparisons". *Journal of the American Statistical Association* **91**, 211-216.
- Sa, Ping and Edwards, Don (1993), "Multiple comparisons with a control in response surface methodology." *Technometrics* **35**, 436-445.
- Edwards, Don and Berry, Jack J. (1987), "The efficiency of simulation-based multiple comparisons". *Biometrics* **43**, 913-928.
- Edwards, Don (1987), "Extended-Paulson sequential selection". *Annals of Statistics* **15**, 449-455.
- Spurrier, John D. and Edwards, Don (1986), "An asymptotically optimal subclass of the balanced treatment incomplete block designs for comparisons with a control." *Biometrika* **73**, 191-199.
- Edwards, Donald G. and Hsu, J.C. (1983), "Multiple comparisons with the best treatment." *Journal of the American Statistical Association* **78**, 965-971.
- Hsu, J.C. and Edwards, Donald G. (1983), "Sequential multiple comparisons with the best." *Journal of the American Statistical Association* **78**, 958-964.

## **B. INTERDISCIPLINARY RESEARCH**

- Kelsey, Heath, Geoffrey I. Scott, Dwayne E. Porter, Tom Siewicki, and Donald G. Edwards (2010). Improvements to shellfish harvest area closure decision-making using GIS, remote sensing, and predictive models. *Estuaries and Coasts* **33**, 712-722.
- Edwards, Don, Hurley, Dorset, and Wenner, Elizabeth L. (2005). Nonparametric Harmonic Analysis of Estuarine Water Quality Data: a National Estuarine Research Reserve Case Study. *Journal of Coastal Research Special Issue #45*, 75-92.
- Sanger, D.M., M.D. Arendt, Y. Chen, E.L. Wenner, A.F. Holland, D. Edwards and J. Caffrey (2002). A Synthesis of Water Quality Data: National Estuarine Research Reserve System-wide Monitoring Program (1995-2000). National Estuarine Research Reserve Technical Report Series 2002: 3. South Carolina Department of Natural Resources, Marine Resources Division Contribution No. 500. 135 p.
- Dame, R., D. Bushek, D. Allen, E. Koepfler, A. Lewitus and D. Edwards. (2002). "Ecosystem response to bivalve density reduction: management implications." *Aquatic Ecology*, **36**:51-65.
- Edwards, D. (2000). Data Quality Assurance. Pages 70-91 in W. K. Michener and J. Brunt., editors. *Ecological Data: Design, Processing and Management*. Blackwell Science Ltd., London, UK.
- Dame, R., D. Bushek, D. Allen, D. Edwards, L. Gregory, A. Lewitus, S. Crawford, E. Koepfler, C. Corbett, B. Kjerfve, and T. Prins. (2000). "The experimental analysis of tidal creeks dominated by oyster reefs: the pre-manipulation year", *Journal of Shellfish Research* **19**: 361-369.
- White, D. L., D. Bushek, D. E. Porter, and D. Edwards (1999). "Geographic Information Systems (GIS) and kriging: analysis of the spatial and temporal distributions of the oyster pathogen *Perkinsus Marinus* in a developed and an undeveloped estuary", *J. Shellfish Res.* **17**: 1473-1476.

- Palik, B.J., W.K.Michener, R.J.Mitchell, and D.Edwards (1999). "Flooding and longleaf pine mortality: effects of ecosystem disturbance on population structure." *Ecoscience* **6**, 255-263.
- Kirkman, K., M.Drew and D.Edwards (1998). "Effects of experimental fire regimes on the population dynamics of *Schwalbea americana* L." *Plant Ecology* **137**: 115-137.
- Edwards, Don (1998). "Comment: issues and themes for natural resource trend and change detection." *Ecological Applications* **8**, 323-325.
- Porter, D.E., D.Edwards, G.Scott, B.Jones, and W.S.Street, IV (1997). "Assessing the impacts of anthropogenic and physiographic influences on grass shrimp in localized salt marsh estuaries: a multidisciplinary approach". *Aquatic Botany* **58**, 289-306.
- Little, Laurie S., D.Edwards, and D.E. Porter (1997). "Kriging in estuaries: as the bird flies, or as the fish swims?". *J. Exp.Mar.Biol.Ecol.* **213**, 1-11.
- Allen, Dennis M., D.Edwards, R.J. Feller, S.E.Hutchinson, and V.Ogburn-Matthews (1997). "Detection and analysis of unusual events in long-term zooplankton and nekton data sets from North Inlet Estuary, South Carolina, USA". *Oceanologica Acta* **20**, 165-175.
- Edwards, Don. (1996). "Comment: The first data analysis should be journalistic." *Ecological Applications* **6**, 1090-1094.
- Scholz, Paul M., D.Edwards, R.C.Palm, Jr. and J.M. Dean (1994), "Use of a quadratic response model to estimate optimum combinations of nutritional variables." *Transactions of the American Fisheries Society* **123**, 266-272.
- Gardner, L.R., L.Thombs, D.Edwards, and D.Nelson (1989), "Time series analyses of suspended sediment concentrations at North Inlet, SC". *Estuaries* **12**, 211-221.
- Edwards, Don and Coull, B.C. (1987). "Autoregressive trend analysis: an example using long-term ecological data". *Oikos* **50**, 95-102.
- Sugimoto, Tai and Edwards, Don (1987). "Incidence and costs of incidental appendectomy as a preventive measure". *American Journal of Public Health* **77**, 471-475.

## **PRESENTATIONS**

### **A. INVITED (SELECTED FROM 18)**

- Thirteenth Annual Medicare / Medicaid Statistics and Data Analysis Conference, Omaha, NE October 2009. Invited panelist on testifying in Medicare ALJ hearings
- Georgia Chapter of ASA April 2009. "Exact Sequential Acceptance Sampling for Attributes".
- National Advocacy Center (US DoJ), Columbia SC, January 2009: "The Evolution of Statistical Sampling for Medicare Benefit Integrity Investigations"
- Ninth Annual Medicare Statistics and Data Analysis Conference, Indianapolis, IN, November 2005: "The Minimum Sum Method for Audited Payment Populations". Keynote address.
- National Estuarine Research Reserve Research Coordinators' Meeting, Sapelo Island, GA, February 2001: "Cyclicality in Water Quality Indicators at National Estuarine Research Reserve (NERR) Sites".
- Joint Statistical Meetings, August 2000. Invited Discussant for Session on Distance Education.

ENAR Spring regional meeting, March 2000. Invited Discussant for Theme Session, "Remodeling Biometrics" (speaker C.E. McCulloch).

ASA/EPA/ESA/SBI Workshop on Ecological Resource Modeling: Change and Trend Detection, Laurel, Maryland May 1996. Lead Discussant, aquatic (all talks).

ASA/EPA Workshop on Environmental Monitoring Programs, Washington, DC March 1996. "Current Programs," with T.Olsen, J.Sedrask, C.Gotway, S.Rathbun, L.Young.

Joint European/American Workshop on Long Term Study Influences on Science and Policy, Galway, Ireland, May 1994. "On Seasonal and Interannual Zooplankton and Benthos Dynamics". with R.J. Feller, S.E. Stancyk, and B.C. Coull.

## **B. CONTRIBUTED PAPERS AND SEMINARS (SELECTED FROM 85)**

Michigan State University Department of Statistics, November 2010. "Closed sequential and multistage inference with binary response"

13th Annual Medicare / Medicaid Statistics and Data Analysis Conference, Omaha, NE October 2009. "On Stratification in Medicare Investigations"

USC Dept. of Statistics Research Seminar, August 2009. "Agreement Webs for Subjective Diagnoses".

USC Dept. of Statistics Colloquium, March 2009. "Models and Measures of Agreement". Also presented at Georgia Southern University that March.

Clemson University Dept. of Mathematical Sciences March 2009. "Exact Sequential Acceptance Sampling for Attributes". Also presented at UNC Greensboro (Oct. 2008) and UNC Wilmington (Nov. 2008).

USC Dept. of Statistics Colloquium, April 2003. "The Minimum Sum Method for Audited Payment Populations"

College of Charleston, February 2002. "Quantifying Cyclicity in Water Quality Indicators at National Estuarine Research Reserve sites".

South Carolina Governor's School for Science and Mathematics, January 2001. "Environmetrics".

Ohio State University Statistics Department Silver Anniversary conference, October 1999. "Multiple Comparisons with the Best in Response Surface Methodology".

Benedict Precollege Statistics Project, Benedict College SC, July 1997. "Applications of Statistics in Ecology".

University of Florida, Department of Statistics, April 1996. "Moldy soccer balls, circus balloon animals, and multiple comparisons," with Melinda McCann.

Estuarine Reserve Federation, Corpus Christi, Texas, November 1995. "Kriging in estuaries: as the crow flies, or as the fish swims?" With L.S.Little and D.Porter.

Ecological Society of America meeting, Snowbird, Utah, August 1995. "Unusual events in ecological time series". With S.Hutchinson, D.A. Allen, V.Ogburn-Baker, and R.J. Feller.

Oklahoma State University, Department of Statistics, March 1995. "A multiple comparisons update".

Joseph W. Jones Ecological Research Center, Ichauway, Ga. Feb 1994. "Isn't that spatial: an introduction to kriging, featuring Splus® software".

## **PROFESSIONAL MEMBERSHIPS, COMMITTEES, AND OFFICES HELD**

American Statistical Association

ASA Caucus of Institutional Representatives: Treasurer, 2008-;

Member of the ASA People-to-People delegation to China, December 2010

International Biometric Society (ENAR) 2008-.

Ecological Society of America, 1989-99.

Statistical Ecology Section Secretary-Treasurer 1992-94, Vice-Chair 1995-97, Chair 1997-99.

SC Chapter of the American Statistical Association

Sec.-Treas., 1983; V.P., 1983-84; Pres.-Elect, 1984-85; Council Rep., 1984-86;

President, 1985-86. SC Region II Science Fair Judge and/or Presenter (yearly) 1985-.

Mu Sigma Rho (national honorary society for Statistics)

National Vice-President 1991-94; President 1994-97; co-organizer College Bowl 1996-97, Stat Bowl 2003; Council Rep 2000-2010.

ASA Section on Statistics and the Environment

Environmental Monitoring and Natural Resources Assessment Committee 1995-96,

Representative to the ASA Council of Sections 2003-05

Southern Regional Committee on Statistics (SRCoS) President-elect 2009-;

## **SELECTED USC COMMITTEE SERVICE**

USC Statistics Program/Department

Department Chair, 2005-;

Graduate Director 1996-2002

Undergraduate Director 1995-96

Computer Committee Chair 1989-95

Director, Statistical Consulting Laboratory, 1983-87

USC School of the Environment Education Committee, 1996-2010

University Committee on Tenure and Promotion, 2003-05

Grad Council 1997-2000

Curriculum and Courses Committee, 1997-2000

Search Committee for University VP for Human Resources, 2010

Provost's Committee on NRC PhD program rankings, 2010

University Committee on Distance Education 2010-

## **REVIEWER FOR (SELECTED):**

Ecology; Ecological Monographs; Ecoscience; Journal of Agricultural, Biological, and Ecological Statistics; Journal of the American Statistical Association; Journal of Experimental Marine Biology and Ecology; Journal of Glaciology; Journal of the Royal Statistical Society, Series B; Journal of Statistics Education; Journal of Statistical Planning and Inference; Mathematical Geology; Statistical Science; Technometrics; The American Naturalist; The American Statistician; The Annals of Statistics.

## GRADUATE STUDENT SUPERVISION

**Total Completed: 9 PhD, 32 MS, 12 MIS (=Masters in Industrial Statistics)**

### In Progress:

	Nancy Chalmers, PhD	2000	Brian Shaffer, MS
	Hua Chen, PhD (co-advisor)		Michael Vitti, MIS
	Jie Gao, PhD	1999	Sarah Crawford, MS
	Seann Hartnett, MS		Michael Dowd, MS
	Matt Lawrence, MS	1997	Aparna Merchant, PhD
	Lamont Flowers, MIS		W. Scott Street, IV PhD
2010	Tom Labone, MIS		Jennifer Lasecki, MS
2009	Codruta Chiuzan, MS		Claudia Moise, MS
	Stoyan Gamisev, MS		Beth Walters, MS
	Marisa Garcia-Quintana, MS	1995	Melinda Higgins, MS
	Holly Battenhouse, MIS		Laurie Little, MS
	Jeff Mobley, MIS		Jennifer Simsick, MS
2007	Melanie Autin, PhD	1994	Melinda McCann, PhD
	Iliana Ignatova, PhD		David Hardesty, MS
	Nanlin (Ross) Li, MS	1993	Yimei Zia, PhD
	Megan Perez, MS	1992	Gudipudi R. Rao, MS
	Angela Bradham, MIS	1991	Ping Sa, PhD
2006	Robert D'Zio, MIS		Raymond Claus, MS
	Vince Earls, MIS	1990	Cathy Caldwell, MS
2005	Rob Parody, PhD	1989	Art Carter, MS
	Melanie Autin, MS	1988	Jack Berry, PhD
2004	Teodor Gamisev, MS		Cindy Beckworth, MS
	Wendy Roth, MS	1987	Ping Sa, MS
2003	David Stamps, MIS	1986	Andy Bowden, MS
2002	Ahmed Al-Hadhrami, MS		Mary Gollwitzer, MS
	Jamie Winterton, MS	1985	Chuck Cornwell, MS
	Stephen Colohan, MIS	1984	Curtis Amick, MS
	Stephen Deas, MIS		Glenda Montgomery, MS
2001	Cecilia Huang MIS	1983	Gaudencio Zurita, MS
	Pearse Gaffney MIS		

## **COURSES DEVELOPED (all with STAT designator)**

Note: courses above 700 level are graduate-only courses; courses numbered 500-699 are either graduate or upper-division undergraduate; courses below 500 level are undergraduate-only.

\* = developed for, and/or taught by, distance delivery (webstreamed lectures)

- 201 Elementary Statistics (co-developed laboratory component with J. Spurrier, L. Thombs)
- 506 Introduction to Experimental Design (co-developed with J. Lynch, J. Grego)
- 704\* Data Analysis I
- 705\* Data Analysis II
- 706 Experimental Design
- 708 Environmetrics I (co-developed with W. Piegorsch; crosslisted as BIOS 808)
- 709 Environmetrics II (co-developed with W. Piegorsch, A. Lawson; crosslisted as BIOS 809)
- 750\* Response Surface Methodology

## **OTHER COURSES TAUGHT**

- 509 Statistics for Engineers
- 511 Probability
- 512 Mathematical Statistics,
- 513 Theory of Statistical Inference
- 515 Statistical Methods I
- 516 Statistical Methods II
- 517\* Computing in Statistics
- 519\* Sampling
- 700\* Applied Statistics I
- 701\* Applied Statistics II
- 702\* Introduction to Statistical Theory I
- 703\* Introduction to Statistical Theory II
- 714 Theory of Linear Statistical Models
- 715 Analysis of Variance
- 720 Time Series Analysis
- 730 Multivariate Analysis
- 790 Seminar in Statistical Consulting