

Curriculum Vitae

Richard Waterman

School Address:

Department of Statistics
The Wharton School
University of Pennsylvania
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Business Address:

Analytic Business Services, Inc.,
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Degrees

Ph.D. Statistics (1993).
Pennsylvania State University, University Park, PA.
Advisor: Bruce Lindsay

M.Sc. Environmental Resource Management (1988).
Salford University, Salford, England.

B.Sc. Mathematics with Statistics (1986).
Bristol University, Bristol, England.

Experience

Academic appointments

Practice Professor of Statistics, November 2014 onwards.
Department of Statistics, The Wharton School, University of Pennsylvania.

Adjunct Professor, May 2011 to November 2014.
Department of Statistics, The Wharton School, University of Pennsylvania.

Adjunct Associate Professor, July 2000 to May 2011.
Department of Statistics, The Wharton School, University of Pennsylvania.

Visiting Professor, 2002, 2003, 2005, 2006, 2007, 2008.
Indian School of Business, Hyderabad, India.

Visiting Professor, 2012, 2013, 2014, 2015.
Indian School of Business, Mohali, India.

Assistant Professor, July 1993 – June 2000.

Department of Statistics, The Wharton School, University of Pennsylvania.

Teaching

Statistics Instructor, June 1990 – June 1993.

Department of Statistics, PSU.

Consulting and other employment

President and Founder, Analytic Business Services, Inc. May 2000 – present.

Statistical Consultant, Survey Design, USPS National Conversion Rate Study, February 1998 – September 1998. A. T. Kearney Inc., Washington, D.C.

Statistical Consultant, Survey Evaluation, USPS Data Quality Study, July 1997 – April 1999. A. T. Kearney Inc., Washington, D.C.

Statistical Consultant – focus: environment and ecology, August 1991 – May 1993. Statistical Consulting Center, PSU.

Graduate Intern, June 1991 – August 1991. Center for Statistical Ecology and Environmental Statistics, Department of Statistics, PSU.

Consultant Coordinator, January 1989 – June 1989. World Bank, Harare, Zimbabwe.

Environmental Statistician, February 1988 – June 1988. UNICEF, Harare, Zimbabwe.

Research Assistant, August 1987 – January 1988. UNDP, Harare, Zimbabwe.

Assistant Statistician, May 1987 – August 1987. Department of Employment, London, England.

Undergraduate Statistician, July 1985 – August 1985. Office of Population, Censuses and Surveys, London, England

Honors and awards

2008, 2009, 2010. Teaching award; “MBA Core Curriculum, Tough, but will thank you in 5 years”.

2010. Teaching award; “Executive MBA Core Teaching Award”.

1997, 1998, 2000, 2006, 2007, 2010, 2011, 2012. Teaching award; Graduate Division Excellence in Teaching Award.

- 1996, 1997, 2008. Teaching award; Miller-Sherrerd MBA Core Teaching Award. For outstanding teaching in the MBA core.
1999. Business Week online edition. Wharton's 5 most popular professors.
1997. Teaching award; Helen Kardon Moss Anvil Award. The highest award in the graduate division. Recognizes exceptional teaching effort and ability.
- 1995, 1996. Teaching award; MBA Core Curriculum Cluster Award.
1995. NSF Travel grant to Aussois, France.
1993. NSF Travel grant to Columbia, SC.
1991. Vollmer-Kleckner Scholarship in Science; Pennsylvania State University. For outstanding performance in the Ph.D. candidacy exams.

Grants

2008. Alfred West Jr., Learning Lab grant.
- 2002–2005. Principal Investigator, NIH/SBIR Phase I/Phase II Fast Track award for software development for the “Design of Comparative Observational Studies”.
1998. Johnson and Johnson Medical.
1997. Wharton Award for Globalization of Research and Teaching.
1997. University of Pennsylvania Research Foundation.
- 1994–1996. National Science Foundation.
1994. University of Pennsylvania Research Foundation.
1994. University of Pennsylvania Research Foundation.

Professional meetings (invited talks)

2007. Conference on Postal and Delivery Economics. Semmering, Austria. Title: Trade-Offs in product costing – the statistical impact of costpool formation decisions.
1999. ASA Joint Meetings. Baltimore, MD. Title: Simulation modeling for cost estimation.
1999. Current Directions in Postal Reform. Sintra, Portugal. Title: Simulation models for estimating the precision and sensitivity of cost estimates.
1997. Workshop on Symbolic Computation, Montréal, Canada. Title: Tools for linking Symbolic, Numerical and Statistical Computing Environments.

1995. International Biometrics Society, ENAR. Birmingham, Alabama.
Title: Likelihood Corrections and Nuisance Parameters.
1994. International Conference on Statistics to Commemorate the 100th Anniversary of Jerzy Neyman's Birthday, Jachranka, Poland.
Title: Neyman-Scott Problems and Projective Scores.
1992. IMS Special Topics Meeting, State College.
Title: An Approximate Conditional Approach to Poisson Regression Models with Heterogeneity.

Invited talks at other institutions

2011. Department of Statistics, Pennsylvania State University. Keynote speaker, Alumni Day 2011
2006. Department of Statistics, Wharton School, University of Pennsylvania.
1999. U.S. Congress. Congressional briefing on Data Quality within the U.S. Postal Service.
1997. Pennsylvania State University, Department of Statistics.
1996. University of Michigan, Department of Biostatistics.
1995. Lankenau Hospital, Department of Surgery.
1994. Educational Testing Services.
1993. Columbia University, Department of Statistics.
1993. Johns Hopkins University, Department of Biostatistics, Baltimore.

Contributed talks and posters

2006. McGuckin M, Waterman R, Shubin A. Increasing and Sustaining Hand Hygiene Compliance: A Multicenter Collaborative. Institute for Healthcare Improvement storyboard presentation. Atlanta, June 2006.
2006. McGuckin M, Waterman R, Shubin A. Consumer Attitudes About Healthcare-Acquired Infection Rates and Hand Hygiene Practices. Society for Healthcare Epidemiology of America (SHEA) Chicago, March 2006.
2004. Waterman R, Hurley T. A stateful R web-interface, leveraging XML and XSLT, useR-2004 Vienna, May 2004.
2003. McGuckin M, Waterman R, Brooks J, Cherry G, Porten L, Hurley S, Kerstein M. Validation of Venous Leg Ulcer Guidelines in the United States and United Kingdom, Dept of Rehab. Medicine, Annual Research Day, Philadelphia, PA 2003.

1999. McGuckin M, Waterman R, Cherry G, Brooks J, Kerstein M. Evaluation of Venous Leg Ulcer Guideline in US and UK. Presented at-The 14th Annual Clinical Symposium in Wound Care. Denver, CO.
1997. (With Vivian Seltzer). American Psychological Association, Chicago, IL.
1997. (With Maryanne McGuckin et.al). 7th Annual Meeting of the Society for Healthcare Epidemiology of America, St Louis, Mo.
1996. 11th International Conference on Statistical Modelling, Orvieto, Italy.
1996. Symposium on Estimating Functions, Athens, Ga.
1995. International Workshop on Mixture Models, Aussois, France.
1994. 9th International Conference on Statistical Modelling, Exeter, England.
1994. IMS meeting, Chapel Hill, NC.

Publications

Refereed Journals and Books

- McGuckin, M., Waterman, R.P. and Govednik, J. (2009). Hand hygiene compliance rates in the US: A one year multicenter collaborative using product volume usage, measurement and feedback. *American Journal of Medical Quality* **24**, 205-213.
- Rubin, D.R., and Waterman, R.P. (2006). Estimating the causal effects of marketing interventions using the propensity score methodology. *Statistical Science* **21** 206-222.
- McGuckin, M., Waterman, R.P., et al. (2006). Consumer attitudes about health care-acquired infections and hand hygiene. *American Journal of Medical Quality* **21** 342-346.
- Haihong L., Lindsay, B.G., and Waterman, R.P. (2003). Efficiency in Neymann Scott type problems under rectangular array asymptotics. *Journal of the Royal Statistical Society, Series B* **65** 191-208.
- Allison P., and Waterman, R.P. (2002), Problems with fixed effects negative binomial regression models. *Sociological Methodology* **32** 247-265.
- McGuckin, M., R. Waterman, et al. (2002). Validation of venous leg ulcer guidelines in the United States and United Kingdom. *Am J Surg.* **183** 132-137.
- McGuckin, M., Waterman, R., et.al. (2001). Evaluation of a patient-empowering hand hygiene programme in the UK. *Journal of Hospital Infection* **48** 222-227.

- McGuckin, M., Waterman, R., et.al. (1999). Patient education model for increasing handwashing compliance. *American Journal of Infection Control* **27** 309-314.
- Foster, D. P., Stine, R. A., and Waterman, R.P. (1998). *Business Analysis using Regression*, Springer Verlag, New York.
- Foster, D. P., Stine, R. A., and Waterman, R.P. (1998). *Basic Business Statistics*, Springer Verlag, New York.
- Seltzer, V., and Waterman R.P. (1996). A cross-national study of adolescent peer concordance on issues of the future. *Journal of Adolescent Research* **11** 461–82.
- Waterman, R.P., and Lindsay, B.G. (1996). The accuracy of projected score methods in approximating conditional scores. *Biometrika* **83** 1-13.
- Waterman, R.P. and Lindsay, B.G. (1996), A simple and accurate method for approximate conditional inference in generalized linear models. *Journal of the Royal Statistical Society, Series B* **58** 177-88.
- Patil, G.P., Taillie, C., and Waterman, R.P. (1991), Small-sample behaviour of Rao's efficient scores test for the two-sample gamma problem. *Journal of Quantitative Economics* **7** 221-230.
- Kaltenthaler, E., Waterman, R.P., and Cross, P. (1991), Faecal indicator bacteria on the hands and the effectiveness of hand-washing in Zimbabwe. *Journal of Tropical Medicine and Hygiene* **94** 358–363.

Book chapters, proceedings and technical reports

- McGuckin, M and Waterman, R.P. (2008) Author reply. "Cannot detect a change" is not the same as "there is not a change". *Infect. Control Hosp. Epidemiol.* 29(6):576-7; 580-2
- Robinson, A., Waterman, R.P. and Rawnsley, D. (2008), "Trade-offs In Product Costing – The Statistical Impact of Costpool Formation Decisions". *Proceedings of the 15th Conference on Delivery and Postal Economics*. Editors Crew, M.A. and Kleindorfer, P.R.
- Linx. Data Quality Study. United States Postal Service. Technical Reports 2 and 3, *Statistical Analysis and Simulation Analysis*. (1999)
- Waterman, R.P., Rubin, D.R., Gelman, A. and Thomas, N. (1999), "Resource Allocation through Simulation Modeling of Complicated Systems Using Information from Multiple Complex Surveys: Rate Setting in the Postal Service.". *Current Directions in Postal Reform*. Editors Crew, M.A and Kleindorfer, P.R. KAP, Boston

- Lindsay, B.G., and Waterman, R.P. (1999) "Second order information loss due to nuisance parameters". *Asymptotics, Nonparametrics, and Time Series*. Editor S. Ghosh. Marcel Dekker.
- Waterman, R.P., Lindsay, B.G., and TenHave, T. (1996), "A latent regression model for heterogeneous data.," *Proceedings of the 11th International Conference on Statistical Modelling*, Orvieto, Italy.
- Waterman, R.P., and Lindsay, B.G. (1994), "Approximate conditional inference using projected score functions, with examples.," *Proceedings of the 9th International Conference on Statistical Modelling*, Exeter, England.
- Waterman, R.P., and Lindsay, B.G. (1994), "Projected score methods: Asymptotics and Neyman-Scott problems," *Technical Report*, Likelihood Center, Pennsylvania State University, University Park, PA.
- Lindsay, B.G., and Waterman, R.P. (1991), "Extending Godambe's Method in Nuisance Parameter Problems," In *Proceedings of a Symposium in Honour of Professor V.P. Godambe*, University of Waterloo, Waterloo, Ontario, Canada.
- Patil, G.P., Taillie, C., and Waterman, R.P. (1990), "Small-sample Behavior of Several Test Criteria for the Two-sample Gamma Problem," *Technical Report 90-0904*, Center for Statistical Ecology and Environmental Statistics, Department of Statistics, Pennsylvania State University, University Park, PA.

Research interests

- Causal inference in marketing research
- Statistical issues in postal rate making
- Likelihood methods

Professional activities

- Member of the National Academies' committee on the USO and the Postal Monopoly of the US Postal Service. 2008.
- Invited Session Organizer for the Joint Statistical Meetings, Baltimore. August 1999. Session title: "Blending Statistics and Economics to Estimate Marginal Cost in a Large Multiproduct Firm – A Case Study From the U.S. Postal Service".
- Invited Session Organizer for IMS/WNAR meeting, San Diego. June 1998. Session title: "Likelihood methods".
- Reviewer for *Journal of the American Statistical Association*, *The Annals of Statistics*, *Journal of Computational Graphics and Statistics*, *Journal of Educational and Behavioral Statistics*

Thesis

Title: A theory of projective scores, including approximations to conditional scores.

Committee: Dr. B.G. Lindsay (Chair), Dr. C.C. Clogg, Dr. C.R. Rao,
Dr. W.L. Harkness, Dr. D. Fong.

September, 2015