LEAH J. WELTY

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EDUCATION

Ph.D., Statistics, University of Chicago, expected August 2003

M.A., Mathematics, Washington University in St. Louis, December 1998

B.S., Mathematics, University of Chicago, June 1995

DISSERTATION

Title: *Spatial Statistics for Lake Michigan Phytoplankton Levels*

Advisor: Michael L. Stein

PROFESSIONAL EXPERIENCE

Research Assistant, Department of Statistics, University of Chicago, 1999-present

Course Assistant, Department of Statistics, University of Chicago, 1999-present

Statistics 125: Analysis of Environmental Data, Winter 2001, 2002
Statistics 224: Applied Regression Analysis, Autumn 2001
Statistics 343: Applied Linear Statistical Methods (graduate level), Autumn 1999
Statistics 220: Introductory Statistics, Spring 1999, Autumn 2002

Lecturer, Department of Statistics, University of Chicago

Statistics 220: Introductory Statistics, Spring 2000

Instructor, University of Chicago Young Scholars Program, Summer 1999, 2000

Designed and taught introductory statistics and probability enrichment courses with complementary computer laboratory to Chicago area high school students.

Consultant, Department of Statistics Consulting Program, University of Chicago

Estimating the Effect of Caregiver Speech on Vocabulary Acquisition, Winter 2002
Significance Testing for Species Composition Effects on Ecosystem Productivity, Winter 2001

Mathematics Instructor, The Lawrenceville School, 1995-1997

AP Statistics, Calculus AB and BC, Geometry, Algebra

PUBLICATIONS

Stein, M., Chi, Z., Welty, L. "Approximating the Likelihood for Irregularly Observed Gaussian Random Fields." Submitted to *JRSS Series B.*

Welty, L. J., Stein, M. L. "Modeling Phytoplankton: Covariance and Variogram Model Specification for Phytoplankton Levels in Lake Michigan." Provisionally accepted to *geoENV IV – Geostatistics for Environmental Applications* (refereed).

Lesht, B. M., Stroud, J. R., McCormick, M. J., Fahnenstiel, G. L., Stein, M. L., Welty, L. J. and Leshkevich, G. A. "An event-driven phytoplankton bloom in southern Lake Michigan observed by satellite." (2002) *Geophysical Research Letters*, 29, 013533.

TALKS

Fourth European Conference on Geostatistics for Environmental Applications, Barcelona, 2002

Covariance and Variogram Model Specification for Phytoplankton Levels in Lake Michigan

Joint Statistical Meetings 2002, Section on Statistics and the Environment

A Correction for Quenching Bias in Chlorophyll Fluorescence Measurements

University of Chicago Summer Statistics Institute for High School Teachers 2001, 2002

Helping Students Understand the Variance of the Sum of Random Variables

Graduate Student Seminar, Department of Statistics, University of Chicago, March 2000

Predicting Lake Michigan Chlorophyll Levels from Fluorescence Measurements

Graduate Student Seminar, Department of Statistics, University of Chicago, May 1999

A Characterization of the Poisson Distribution Motivated by Predicting Wins and Ties in Sports Contests

RESEARCH INTERESTS

Spatial statistics, environmental statistics, combining physical and statistical models, graphical display of large data sets, statistical computing.

AWARDS

National Science Foundation Graduate Fellowship, 1998-2000.

Phi Beta Kappa, elected 1995.

Sigma Xi, elected 1995.

PROFESSIONAL MEMBERSHIPS

American Statistical Association

Institute of Mathematical Statistics

REFERENCES

Michael L. Stein, Professor, Department of Statistics, University of Chicago (Advisor)
E-mail: stein@galton.uchicago.edu, Phone: 773.702.8326

Barry Lesht, Associate Director, Environmental Research Division, Argonne National Laboratory
E-mail: bmlesht@anl.gov, Phone: 630.252.4208

Zhiyi Chi, Assistant Professor, Department of Statistics, University of Chicago
E-mail: chi@galton.uchicago.edu, Phone: 773.702.8336

Paul J. Sally, Jr., Professor, Department of Mathematics, and Director, University of Chicago Young Scholars Program
E-mail: pjsal@math.uchicago.edu, Phone: 773.702.7388