

David Steinsaltz

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Birthdate: October 25, 1966

Citizenship: U.S.A.

E d u c a t i o n

Harvard University	1994–1996 (adviser: Persi Diaconis)
Cambridge, Massachusetts	1987–1991 (adviser: Joe Harris)
<i>M.A. in mathematics: March 1990</i>	
<i>Ph.D. in mathematics: June 1996</i>	

Yale University	1983-1987
New Haven, Connecticut	
<i>B.A./M.A. summa cum laude</i>	
<i>in mathematics: May 1987</i>	

G. W. Hewlett High School	1979–1983
Hewlett, New York	

D i s s e r t a t i o n

Title: Socks & Boxes: Variations on Daniel Bernoulli's marriage problem

Adviser: Persi Diaconis

<http://www.mast.queensu.ca/~steinsaltz/papers/thesis.ps.Z>

E m p l o y m e n t

Queen's University Department of Mathematics and Statistics Kingston, Ontario Associate Professor	July 2005 –
University of California, Berkeley Department of Demography Assistant Researcher	July 2001–June 2005
University of California, Berkeley Department of Statistics Jerzy Neyman Visiting Assistant Professor	Jan. 1999–June 2001
Technische Universiteit Delft Delft, Netherlands Postdoctoral fellow	Aug.–Dec. 1998
Graduiertenkolleg für stochastische Prozesse und probabilistische Analysis Berlin, Germany, Technische Universität Postdoctoral fellow	Aug. 1996 – July 1998
INRA (<i>Institut national de la recherche agronomique</i>) Montpellier, France Intern (<i>“stagiaire”</i>), Biometry unit	Sept.–Dec. 1994
Woods Hole Oceanographic Institution Woods Hole, Massachusetts Summer research fellow	June-Aug. 1986

S u p e r v i s i o n o f S t u d e n t s

I am currently supervising two Ph.D. students in statistics.

- Karla Fox is working on metaanalysis of complex survey data. She successfully passed her comprehensive exam and defended her thesis proposal on December 13, 2006.
- Andrey Pavlov is working on fitting hidden Markov models to lifetime behavioural data in fruitflies.

My M.Sc. student Julia Taleban completed her MSc degree in August 2006, with a project on “The Comparison of the Cox proportional hazards model to semiparametric transformation models”.

In addition, I have served as external examiner for numerous thesis defenses at Queen's University (departments of physics, biology, psychology, and neuroscience), and as internal examiner for two theses in statistics.

G r a n t s a n d P r o f e s s i o n a l S e r v i c e

I am one of the co-leaders of a multi-institution five-project Program Project grant application for demography, directed by Jim Carey of UC Davis, being submitted in June 2007 to the US National Institute on Aging. I was a participant in the last (five-year) round of the program project, and have now joined the renewal as co-leader with Ken Wachter of UC Berkeley of the project titled “The Mathematical Demography of Biodemography.”

C\$106,000 (over 5 years, starting April 2006) Discovery Grant from National Science and Engineering Research Council. Title: “Stochastic and Statistical Models in the Biodemography of Aging.”

C\$8,640 Research Grant from Queen’s University Advisory Research Committee for the academic year 2006–7. Title: “Evolutionary Theories of Aging and Social Support.”

C\$39,000 Research Initiation Grant from Queen’s University for the academic year 2005-6.

I have refereed articles for many journals, including: Proceedings of the National Academy of Sciences, Annals of Applied Probability, Annals of Probability, Proceedings A of the Royal Society, Experimental Gerontology, Mathematical Population Studies, Journal of Theoretical Probability, and Stochastic Dynamical Systems. I am also a reviewer for MathSciNet and Zentralblatt der Mathematik.

Together with Lloyd Goldwasser, I received funding of about US\$30,000 from CEDA (Center on the Economics and Demography of Aging) to co-organize a conference in Berkeley, June 6–8 2005, on “Mathematical and statistical models in the biodemography of aging”. About 25 leading researchers in this field from all over the world participated. More information may be found at http://www.mast.queensu.ca/~steinsaltz/modeling/workshop_main.html.

I served on a grant review panel for the National Science Foundation program in “Human and Social Dynamics” in Washington, D.C. on June 24-5, 2004.

I have served on two departmental committees in the Queen’s University Department of Mathematics and Statistics: The statistics committee (responsible for recommending changes to the statistics curriculum, planning strategy for statistics in the department) and the Advisory Committee on Policy.

R e f e r e e d P u b l i c a t i o n s

- With Steven Evans: “Damage segregation at fissioning may increase growth rates: A superprocess model”. Accepted for publication in *Theoretical Population Biology*, January 2007.
- With Steven N. Evans: “Quasistationary distributions for one-dimensional diffusions with general killing.” Transactions of the American Mathematical Society, **359**: 3 (2007), pp. 1285–1324.
- With Lloyd Goldwasser: “Aging and Total Quality Management: Extending the reliability metaphor in aging.” Evolutionary Ecology Research, **8**:12 (2006), pp. 1445–1459.
- With Kenneth W. Wachter: “Understanding mortality rate deceleration and heterogeneity.” Mathematical Population Studies, **13**:1 (2006), pp. 19–37.
- “Reevaluating a test of the heterogeneity explanation for mortality plateaus.” Experimental Gerontology, **40**:1–4 (Jan/Feb 2005), pp. 101–13.
- With Steven N. Evans and Kenneth Wachter: “A generalized model of mutation-selection balance with applications to aging.” Advances in Applied Mathematics, **35**: 1 (2005), pp. 16–33.
- With Steven N. Evans: “Markov mortality models: Implications of quasistationarity and initial distributions.” Theoretical Population Biology, **65**:4, (June 2004), pp. 319–337.
- With Steven N. Evans: “Estimating some features of NK fitness landscapes.” Annals of Applied Probability, **20**:4 (2002), pp. 1299–1321.
- With Michael Scheutzow: “Chasing balls through martingale fields.” Annals of Probability, **30**:4 (2002), pp. 2046–80.
- “The politics of French language in Shakespeare’s history plays”, Studies in English Literature 1500–1900, **42**:2 (Spring 2002), pp. 317–34.
- “Convergence of moments in a Markov-chain central limit theorem.” Indagationes Mathematicae, **12**:4 (2001), pp. 533–55.
- “Random logistic maps and Lyapunov exponents.” Indagationes Mathematicae, **12**:4 (2001), pp. 557–84.
- With Michael Cranston and Michael Scheutzow: “Linear bounds for stochastic dispersion.” Annals of Probability, **28**:4 (2000), pp. 1852–69.
- “Locally contractive iterated function systems.” Annals of Probability **27**:4 (1999), pp. 1952–1979.
- With Michael Cranston and Michael Scheutzow: “Linear expansion of isotropic Brownian flows.” Electronic Communications in Probability, **4**:12 (1999), pp. 91–101.
- “Random time changes for sock-sorting and other stochastic-process limit theorems.” Electronic Journal of Probability **4**:14 (1999), pp. 1–25.
- “Fluctuation bounds for sock-sorting and other stochastic processes.” Discrete Applied mathematics, **86** (1998) pp. 109–123.
- “Zeno’s walk: a random walk with refinements.” Probability Theory and Related Fields, January 1997, pp. 99–121.

“Kafka’s Geometry”, Seminar, November 1992, pp. 334-350.

“Instability of Baroclinic Waves with Bottom Slope”, Journal of Physical Oceanography, December 1987, pp. 2343–2350.

O t h e r P u b l i c a t i o n s

With David Wessel: “Stylistic variation with probabilistic constraints on melody and harmony.” To appear as a chapter in The Structure of Style: Algorithmic Approaches to Understanding Manner and Meaning, ed. Shlomo Argamon, Kevin Burns and Shlomo Dubonov, Springer Verlag, 2007.

“Stochastic models of aging and mortality.” *Proceedings of the Workshop on Dynamical Stochastic Modeling in Biology*, ed. Marianne Huebner and Michael Sørensen. MaPhySto Miscellanea, no. 26, March 2004, pp. 100–5.

“Galileo and the Copernican controversy.” Renaissance, 8:6 (2003), pp. 55–8.

“From conquest to expulsion: The Jews of medieval England”, Renaissance, 4:1 (1999), pp. 37–43.

Introduction to Linear algebra with applications by Otto Bretscher. Prentice-Hall, 1996.

U n p u b l i s h e d P a p e r s

With Kenneth Wachter and Steven Evans: “A mutation-selection model for general genotypes with recombination.” Submitted to *Annals of Applied Probability*, August 2006.

With Steven Orzack: “What do we really know about dinosaur aging?” Submitted to *Science*, January 2007.

“Deviation bounds and limit theorems for the maxima of some sorting and storage processes.”

L a n g u a g e s

<u>Language</u>	<u>Level</u>
<i>English</i>	<i>native</i>
<i>German</i>	<i>fluent</i>
<i>French</i>	<i>good</i>
<i>Dutch</i>	<i>fair</i>
<i>Spanish</i>	<i>fair</i>
<i>Hebrew</i>	<i>fair</i>

Teaching

Queen's University, Kingston, Ontario

Mathematics 895 (Graduate Core Course in Probability)	Fall 2006
Statistics 968 (Seminar: Topics in Advanced Applied Statistics) cotaught with Julia Brettschneider	Winter 2007
Statistics 261 (Statistics I)	Winter 2006,2007
Statistics 464/864 (Discrete Time Series)	Fall 2005, 2006
Reading courses in Bayesian Statistics, Sampling Methods	Winter 2006

University of California, Berkeley, psychology department

Psychology 290 (Graduate seminar: Evolution, Development, and Cognition) cotaught with Lucy Jacobs and Lynn Nadel	Spring 2003
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University of California, Berkeley, demography department

Demography 260 (Graduate seminar: Dynamics of Complex Systems)	Spring 2002
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University of California, Berkeley, statistics department

Statistics 150 (Stochastic Processes)	Spring 2001
Statistics 260 (Graduate Seminar: Evolution and Statistics)	Fall 2000
Statistics 134 (Concepts of Probability)	Fall 1999,2000
Organizer for weekly "Neyman Seminars" (interdisciplinary seminar)	Fall 2000
Statistics 101 (Introduction to the Theory of Probability)	Spring 1999,2000
Statistics 20 (Introduction to Probability and Statistics)	Spring, Fall 1999

Graduiertenkolleg Stochastische Prozesse und Probabilistische Analysis, Berlin

Short course on Markov Chain Monte Carlo	November, 1996
Short course on Brownian excursion theory	February, 1997

Harvard University mathematics department

Teaching Fellow, Linear algebra and differential equations Course head: Dr. Otto Bretscher	spring 1994, 1996 (2 sections)
Instructor, undergraduate tutorial on "Random Walks"	spring 1995
Teaching Fellow, Calculus of one variable Course head: Robin Gottlieb	spring 1991

Invited Lectures

<u>Setting</u>	<u>Date</u>	<u>Title</u>
Canada-France Mathematical Congress	June 2–6, 2008	
Workshop on Real and Stochastic Analysis (60th Birthday of Heinrich von Weizsäcker)	April 2–5, 2007 Kaiserslautern, Germany	“Measure-valued dynamical systems”
Workshop on “Complexities of Aging in Biological Systems”	March 25–28, 2007 Santa Fe Institute	“Damage accumulation, aging and repair”
Evolutionary Demography Workshop Duke University	October 23–5, 2006	“Models of exogenous repair”
Probability Seminar York University	October 11, 2006	“Asymptotics of killed diffusions”
Second Stanford Workshop in Formal Demography	August 7–18, 2006	2 Lectures on population heterogeneity
Statistics colloquium University of Waterloo	October 20, 2005	Statistical problems in biodemography
Charlottesville, VA Workshop on Evolutionary Demography	October 28–30, 2005	Making sense of Genetic Models of Aging
Rostock, MPI Workshop on Vital Age-Trajectories	October 29, 2004	Reverse-engineering the Gompertz curve
Bielefeld	October 15, 2004	Sterblichkeitsraten und Markovprozesse
Wesleyan U. Ergodic theory seminar	September 28, 2004	Quasistationary distributions for 1d diffusions
Copenhagen Conference on Stochastic and Dynamic Models in Biology	January 9, 2003	Markov mortality models
Berkeley Neyman seminar	February 20, 2002	Stochastic models of aging
San Francisco, AAAS annual meeting, section: Statistics and Music	February 18, 2001	Two-step Markov chains chains and random melodies.
Bremen, Institute for Random Dynamical Systems	May 31, 2000	Random logistic maps and Lyapunov exponents

<u>Setting</u>	<u>Date</u>	<u>Title</u>
Univ. Calif., Riverside	November 9, 1999	Zeno's walk and random logistic maps
Stanford University	October 18, 1999	From Zeno's walk to random logistic maps
Berlin, Weierstrass Institut	June 30, 1999	Zufällige Fixpunkte für Transformationen eines Intervalls
Budapest, Erdős Center Conference on Random Walks	June 13–24, 1998	Zeno's walk and iterated function systems
Institut Henri Poincaré Paris — Special program on log-Sobolev Inequalities	May 1998	Le maximum d'un flot stochastique
Delft, Netherlands	Dec. 15–18, 1997	Random time changes, empirical processes, and sorting socks
Lyon, France	Sept. 13–20, 1997	L'iteration des fonctions aléatoires (two lectures)
Technion, Haifa	June 3, 1997	Self-service queues and the sock-sorting problem
Prob. & Ergod. Thry Seminar, Tel Aviv University	June 2, 1997	Zeno's walk and iterated function systems
Workshop on Dimension, Dynamics, and Stochastics, Hebrew University, Jerusalem	May 20–27, 1997	Dimensions in Zeno's walk
Mark Kac Seminar, Utrecht	March 7, 1997	Zeno's walk and IFS