

David Steinsaltz

31 Nelson St
Oxford OX2 6BD
United Kingdom

tel.: ++44 1865 557683
e-mail: steinsaltz@me.com
website: <http://www.steinsaltz.me.uk>

Department of Statistics
University of Oxford
1 South Parks Road
Oxford OX1 3TG
United Kingdom

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.steinsaltz.me.uk/papers/thesis.ps.Z>

E m p l o y m e n t

University of Oxford Department of Statistics University Lecturer	October 2007 –
Queen’s University Department of Mathematics and Statistics Kingston, Ontario Associate Professor	July 2005 – September 2007
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 (“stagiaire”), 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 have just admitted my first two doctoral students in the statistics department Oxford. I have supervised two doctoral students in statistics at Queen’s University.

- 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, but her work has been delayed by family matters.
- Andrey Pavlov has recently completed his dissertation “A new approach to survival analysis with longitudinal covariates”, applying hidden Markov models to lifetime behavioural data in fruitflies. His thesis defence is scheduled for 12 April 2010.
- I have supervised numerous Master’s projects in statistics.

Grants

As Principal Investigator

Trajectories of Senescence through Markov Models: This was a proposal to fund an extension my work on age-related changes in fruitfly behaviour (begun with doctoral student Andrey Pavlov) for 30 months. The proposal was made in the *New Dynamics of Ageing* scheme, an inter-council programme led by ESRC. Of 191 outlines submitted, 40 were invited to submit full proposals, and 12 awards were finally made. The award was £204,000, mostly to hire a postdoctoral research assistant for 2 years. It began on 1 July, 2009.

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.” (Cancelled October 2007, because of departure from Canada.)

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.

As Named Collaborator The work on human sex ratio was the basis of the successful grant proposal (on which I collaborated) “The demographic trajectory of the sex ratio in human pregnancy” to the US National Institute of Child Health and Human Development, primarily to pay the salary of Dr. Stubblefield.

Professional Service

I am an associate editor for the *Journal of Population Ageing*.

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.

I have accepted an invitation to join the “Peer Review College” of the ESRC (Economic and Social Research Council) of the UK.

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.

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.

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

- With Kenneth W. Wachter and Steven N. Evans:* “Vital Rates from the Action of Mutation Accumulation”, Journal of Population Ageing (2010), DOI: 10.1007/s12062-009-9015-3.
- With Kelvin Yen and Charles Mobbs:* “Validated analysis of mortality rates demonstrates distinct genetic mechanisms that influence lifespan.” Experimental Gerontology, **43**: 12 (2008), pp. 1044–51.
- With Steven N. Evans:* “Damage segregation at fissioning may increase growth rates: A superprocess model”. Theoretical Population Biology **71**: 4 (2007), pp. 473–90.
- 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.

Papers recently submitted

With Steven N. Evans and Kenneth W. Wachter: “A mutation-selection model for general genotypes with recombination”. (Submitted to Memoirs of the AMS).

With Steven Orzack: “Statistical methods for paleodemography on fossil assemblages having small numbers of specimens: an investigation of dinosaur survival rates”. (Resubmitted to Journal of Palaeontology.)

With Shripad Tuljapurkar and Carol Horvitz: “Derivatives of the Stochastic Growth Rate”. (Submitted to Theoretical Population Biology.)

With Martin Kolb: “Necessary and sufficient conditions for convergence to quasistationary distributions for one-dimensional diffusions with killing”. (Submitted to Annals of Probability.)

Manuscripts in preparation

With Kenneth W. Wachter and Steven N. Evans: “The age-specific force of natural selection and walls of death”.

Slava Akmaev, Santiago Munne, Steven Orzack, Thomas Scholl, David Steinsaltz, James Stubblefield, James Zuckerman: “The dynamics of the human sex ratio from conception to birth”.

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

“Mathematics or Mismanagement?: The Crash of 2008.” (A polemic on financial mathematics.) *Newsletter of the London Mathematical Society*. <http://www.lms.ac.uk/newsletter/384/384main.html>

“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.

T e a c h i n g

University of Oxford (lectures)

Introduction to Probability

Fall 2009,

& Statistics for Psychology

Statistical Lifetime Models

Winter 2009, 2010

Winter 2008,2009,2010

Worcester College (tutoring)

Calculus, Probability, Statistics

Queen's University

Mathematics 895 (Graduate

Core Course in Probability)

Fall 2006

Statistics 968 (Seminar: Topics in

Advanced Applied Statistics)

Winter 2007

cotaught with Julia Brettschneider

Statistics 261 (Statistics I)

Winter 2006,2007

Statistics 464/864 (Discrete Time Series)

Fall 2005, 2006

Reading courses in Bayesian Statistics,

Winter 2006

Sampling Methods

University of California, Berkeley, psychology department

Psychology 290 (Graduate seminar:

Evolution, Development, and Cognition)

Spring 2003

cotaught with Lucy Jacobs and Lynn Nadel

University of California, Berkeley, demography department

Demography 260 (Graduate seminar:

Dynamics of Complex Systems)

Spring 2002

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"

Fall 2000

(interdisciplinary seminar)

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

Conference invitations

In the past few years I have been invited to attend the Canada-France Mathematical Congress (Montreal, June 2008), the workshop “Mathematical models for cell division” (IHP Paris, March 2009), the Workshop on “Probabilistic models in evolutionary biology” at CIRM (Marseille, May 2009), two meetings on “Systems Biology and Ageing” at the Sante Fe Institute (March 2007 and July 2009), and the Stanford Workshop on Biodemography (October 2009), all of which I attended and spoke at. I have accepted an invitation to speak at the ISI meeting in Dublin, Ireland in August 2011. I have also spoken by invitation in seminars at Manchester University and Imperial College, and at the University of Göttingen.

L a n g u a g e s

<i>Language</i>	<i>Level</i>
<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>