

Kevin J. Ross, Ph.D.
Associate Professor
Statistics Department
California Polytechnic State University

RESUME

1. EDUCATIONAL PREPARATION

- Ph.D. in Statistics, May 2006, University of North Carolina at Chapel Hill
 - Thesis title: “Numerical Methods for Some Singular Stochastic Control Problems”
 - Advisor: Dr. Amarjit Budhiraja
- M.S. in Statistics, 2005, University of North Carolina at Chapel Hill
- Associate Designation (ASA), 2000, Society of Actuaries
- B.S. in Mathematical Sciences, 1997, University of North Carolina at Chapel Hill

2. EMPLOYMENT

- Associate Professor, Cal Poly, Statistics Department, Fall 2018 – present
- Assistant Professor, Cal Poly, Statistics Department, Fall 2012 – Summer 2018
- Visiting Assistant Professor, Swarthmore College, Department of Mathematics and Statistics, Fall 2009 – Spring 2012
- VIGRE Postdoctoral Fellow, Stanford University, Department of Statistics, Fall 2006 – Fall 2009
- Actuarial Specialist, Towers Perrin, Philadelphia, PA, June 1997 – July 2001

3. TEACHING RELATED ACTIVITIES

- **Courses taught at Cal Poly**
 - STAT 130, Statistical Reasoning. Spring 2015, Fall 2015, Spring 2016
 - STAT 217, Introduction to Statistical Concepts and Methods. Spring 2014, Fall 2014, Winter 2015
 - STAT 218, Applied Statistics for the Life Sciences. Winter 2018, Spring 2018.
 - STAT 251, Statistical Inference for Management I. Fall 2012, Fall 2013, Winter 2015, Summer 2016, Fall 2016, Fall 2018.
 - STAT 252, Statistical Inference for Management II. Winter 2013
 - STAT 301, Statistics I, Fall 2015. Winter 2017
 - STAT 305, Introduction to Probability and Simulation. Fall 2018.
 - STAT 312, Statistical Methods For Engineers. Summer 2014
 - STAT 325, Introduction to Probability Models. Spring 2015
 - STAT 350, Probability and Random Processes for Engineers. Summer 2015, Fall 2016, Spring 2017, Fall 2017
 - STAT 405, Applied Probability Models. Spring 2016, Spring 2017, Spring 2018
 - STAT 426, Estimation and Sampling Theory. Winter 2013, Winter 2014

- STAT 427, Mathematical Statistics. Spring 2013, Spring 2014
- STAT 512, Statistical Methods. Fall 2012
- **Courses taught prior to employment at Cal Poly**
 - STAT 111, Statistics Seminar: Mathematical Statistics II. Spring 2012, Swarthmore College
 - STAT 11, Statistical Methods. Fall 2011, Spring 2010, Swarthmore College
 - MATH 295, Probability and Mathematical Statistics. Spring 2011, Bryn Mawr College
 - MATH 105, Probability Seminar: Stochastic Processes. Spring 2011, Swarthmore College
 - STAT 61, Probability and Mathematical Statistics. Fall 2010, Fall 2009, Swarthmore College
 - MATH 73, Topics in Analysis: Probability and Measure. Spring 2010, Swarthmore College
 - STAT 116, Theory of Probability. Fall 2008, Stanford University
 - STAT 219, Stochastic Processes. Fall 2008, Fall 2007, Fall 2006, Stanford University
 - STAT 220, Continuous Time Stochastic Control. Spring 2008, Stanford University
 - STAT 217, Introduction to Stochastic Processes. Winter 2007, Stanford University
 - STOR 155, Introductory Statistics. Spring 2005, Summer 2004, Spring 2004, Summer 2003, Spring 2003, University of North Carolina at Chapel Hill
- **Honors and awards**
 - Honorable Mention Speed Session Award, Joint Statistical Meetings 2016, American Statistical Association (ASA) Section on Statistical Education.
 - Excellence in Teaching Award, 2004, Department of Statistics & Operations Research, University of North Carolina at Chapel Hill
- **Special contributions to curriculum**
 - STAT 405, Applied Probability Models. Proposed, developed, and taught the course
 - STAT 415, Bayesian Reasoning and Methods. Developed course proposal
 - STAT 365, Statistical Communication. Served on committee to develop course proposal
 - Statistics Department Curriculum Committee, member 2013 – present
 - Course coordinator for: STAT 305, STAT 405, STAT 415, STAT 425
- **Undergraduate research projects supervised at Cal Poly**
 - Kien Nguyen (co-supervised with Dennis Sun), “SymbulateR”, Summer 2018. Bill and Linda Frost Fund Summer Research Fellowship
 - Robert Cenon (co-supervised with Dennis Sun), “Symbulate: Graphics and functionality”, Summer 2017. Bill and Linda Frost Fund Summer Research Fellowship
 - Jack Conway (co-supervised with Dennis Sun), “Symbulate: Documentation and tutorials”, Summer 2017. Bill and Linda Frost Fund Summer Research Fellowship
 - Howard Liu (co-supervised with Dennis Sun), “Symbulate: Design and testing”, Summer 2017. Bill and Linda Frost Fund Summer Research Fellowship
 - Jason Anderson, “Stochastic models for controlling the spread of infectious diseases”, Summer 2014, CBF funded summer research project

- **Senior projects supervised at Cal Poly**
 - Mitchell Collins, “Bayesian prediction in sports”, Fall 2017 – Winter 2018
 - Jack Conway, “Modules for actuarial science”, Winter – Spring 2017
 - Marcus Milazzo, “Modules for actuarial science”, Winter – Spring 2017
 - Connor Hertzberg, “Probability and strategy in the game Qwixx”, Fall 2016 – Winter 2017
 - Bradley Lubich, “Analyzing the hot hand”, Winter – Spring 2016
 - Donna Martin, “An introduction to extreme value theory and applications”, Winter – Spring 2016
 - Joshua Han, “Random forest modeling of licensing revenue”, Winter, Fall 2015
 - Sergio Villapondo, “Actuarial mathematics”, Winter – Spring 2015
 - Kamron Daftari, “An Introductory Survey to Stock Modelling with Jump Diffusion Processes and Analysis of Pareto Beta Jump Diffusion Model”, 2014-2015, (informal advisor)
 - Ashley Chandler, “Models for life contingencies”, Winter – Spring 2014
 - Julia Schedler, “Stein’s paradox”, Winter – Spring 2013
- **Undergraduate research supervised prior to employment at Cal Poly**
 - Aashish Srinivas, Summer 2011, Swarthmore College, “Simulation studies of controlled stochastic processing networks”, undergraduate summer research project
 - Leonid Pekelis, Summer 2008, Stanford University, “A study of the free boundary of a two-dimensional singular stochastic control problem”, undergraduate summer research project

4. SCHOLARSHIP

a. Publications in peer-reviewed journals

- Ross, K., Sun, D. (2018) “Symbulate: Simulation in the language of probability”, *Journal of Statistics Education*, To appear.
 - Date of work: Jan 2016 – Oct 2017
 - Journal affiliation: American Statistical Association (ASA), peer-reviewed
 - Co-authors: Dennis Sun, Statistics, Cal Poly.
 - Role: Wrote 70% of the paper, performed 40% of the related work (development of the Symbulate package, documentation, and activities)
- Ross, K. (2017) “Classroom investigations of recent research concerning the hot hand phenomenon”, *Journal of Statistics Education*, Vol. 25, No. 3, 145-157.
 - Date of work: Jan 2016 – Oct 2017
 - Journal affiliation: American Statistical Association (ASA), peer-reviewed
 - Co-authors: None
 - Role: Responsible for the entire work

- Chaubey, A., et. al. (2009), “Characterization of the differentiation and leptin secretion profile of adult stem cells on patterned polylactide films”, *Journal of Biomaterials Science: Polymer Edition*, Vol. 20, No. 7-8, 1163-1177.
 - Date of work: 2003-2004 (prior to Cal Poly)
 - Journal affiliation: published by Taylor & Francis, peer-reviewed
 - Co-authors: A. Chaubey, C. Gomillion, and K. J. L. Burg, Department of Bioengineering, Clemson University; M. R. Leadbetter, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill
 - Role: statistical consultant, performed most of the statistical analysis

- Budhiraja, A., and Ross, K. (2008), “Optimal stopping and free boundary characterizations for some Brownian control problems”, *Annals of Applied Probability*, Vol. 18, No. 6, 2367-2391.
 - Date of work: January 2006 – November 2007 (prior to Cal Poly)
 - Journal affiliation: Institute of Mathematical Statistics, peer-reviewed
 - Co-authors: Prof. Amarjit Budhiraja, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill
 - Role: performed the analysis in collaboration with my Ph.D. advisor

- Chaubey, A., et al. (2008), “Surface patterning: Tool to trigger stem cell differentiation in an adipose system”, *Journal of Biomedical Materials Research Part B: Applied Biomaterials*, Vol. 84B, No. 1, 70-78
 - Date of work: 2003-2004 (prior to Cal Poly)
 - Journal affiliation: Society For Biomaterials, peer-reviewed
 - Co-authors: A. Chaubey and K. J. L. Burg, Department of Bioengineering, Clemson University; M. R. Leadbetter, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill
 - Role: statistical consultant, performed most of the statistical analysis

- Budhiraja, A., and Ross, K. (2007), “Convergent numerical scheme for singular stochastic control with state constraints in a portfolio selection problem”, *SIAM Journal of Control and Optimization*, Vol. 45, No. 6, 2169-2206
 - Date of work: 2003-2005 (prior to Cal Poly)
 - Journal: Society for Industrial and Applied Mathematics (SIAM), peer-reviewed
 - Co-authors: Prof. Amarjit Budhiraja, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill
 - Role: performed the analysis in collaboration with my Ph.D. advisor

- Budhiraja, A., and Ross, K. (2006), “Existence of optimal controls for singular control problems with state constraints”, *Annals of Applied Probability*, Vol. 16, No. 4, 2235-2255
 - Date of work: 2005-2006 (prior to Cal Poly)
 - Journal affiliation: Institute of Mathematical Statistics, peer-reviewed
 - Co-authors: Prof. Amarjit Budhiraja, Department of Statistics and Operations Research, UNC
 - Role: performed the analysis in collaboration with my Ph.D. advisor

b. Manuscripts

Manuscripts in-preparation

- “Symbulate: a Python library for simulating probability models”
 - Projected date for submission: Feb 2018
 - Date of work: Aug 2016 – present
 - Journal: *Journal of Statistical Software*, peer-reviewed
 - Co-authors: Dennis Sun, Cal Poly
 - Role: Writing 30% of the paper, performed 40% of the related work (development of the Symbulate package, documentation, and activities)

c. Educational materials

- Documentation
 - Ross, K., Sun, D., Conway, J. (2017) Online documentation for the Symbulate library, available at <https://dlsun.github.io/symbulate/index.html>. I wrote 80% of the interactive online documentation for the Symbulate package.
 - Rajaratnam, Bala and Ross, Kevin. (2014) “Stats 217: Introduction to Stochastic Processes, Course reader”, Stanford Bookstore. (Based on work prior to Cal Poly.)
- Web applications
 - Ross, K., and Conway, J. (2017). “Getting Started with Symbulate Tutorial”, available at <https://github.com/dlsun/symbulate/tree/master/tutorial>. I wrote 80% of the interactive online tutorial for getting started with the Symbulate library.
 - Ross, Kevin. (2017) “Analyzing the Hot Hand Phenomenon: Shiny App”, available at <http://shiny.stat.calpoly.edu/Hothand>.

e. Articles

- Ross, K. (2015) “Highlighting real statistical studies”, *Simulation-based statistical inference*, Feb 4, 2015, available at <https://www.causeweb.org/sbi/?p=656>

g. Presentations

• **External presentations**

- Joint Statistical Meetings, Vancouver, BC, August 2018. Invited session. “A Simulation-based approach to teaching probability using the Symbulate package.”
- U.S. Conference on Teaching Statistics, State College, PA, May 2017. Contributed poster. “Symbulate: A Python package for simulation.”
- Joint Statistical Meetings, Chicago, IL, August 2016. Contributed Speed Session presentation (five minute presentation plus poster). “Classroom investigations of recent research concerning the hot hand fallacy.”

• **External presentations prior to Cal Poly**

- Swarthmore College, Mathematics and Statistics Colloquium, November 2011
- Bryn Mawr College, Mathematics Colloquium, November 2010
- Seminar on Stochastic Processes, Stanford, CA, March 2009
- Swarthmore College, Mathematics and Statistics Colloquium, January 2009
- University of California, Berkeley, Probability Seminar, December 2008
- Stanford University, Probability Seminar, November 2008
- Second Western Conference in Mathematical Finance, Austin, TX, November 2008
- University of California at San Diego, Probability Seminar, April 2008
- Rutgers University, Department of Statistics Seminar, October 2007
- Thirty-second Conference on Stochastic Processes and their Applications, Urbana, IL, August 2007
- Tenth Meeting of New Researchers in Statistics and Probability, Salt Lake City, UT, July 2007
- Stanford University, Probability Seminar, April 2007
- Stanford University, Probability Seminar, April 2006
- SAMSI Workshop on Financial Mathematics, Statistics and Econometrics, Research Triangle Park, NC, September 2005
- Joint Statistical Meeting, Minneapolis, MN, August 2005
- SIAM Conference on Control and its Applications, New Orleans, LA, July 2005
- Southeast Workshop on Tissue Engineering and Biomaterials, Clemson, SC, January 2004

• **Cal Poly presentations**

- Kevin Ross, Dennis Sun, Robert Cenon, Jack Conway, Howard Liu. “Symbulate: Simulation in the language of probability”, Oct 2017, Statistics Department Colloquium
- Soma Roy, Allan Rossman, Beth Chance, Karen McGaughey, Kevin Ross. “Helping students “discover” and learn statistical concepts by doing”, Poster presentation, 2015 Learn By Doing Conference

h. Grants and Contracts

• **Internal**

- CSU Agriculture Research Initiative. Project Title: “A Technology and Market Feasibility Analysis of Utilizing Remote Sensing Imaging Mounted on an Unmanned Aerial Vehicle for Improving Decision Making on California Viticulture Crops”
- Special Consultant, class 4660, August 2012

i. Consulting Activities

- Statistics Department Faculty Consultant, Winter 2014
- “Multi-stress proteomics: the global protein response to multiple environmental stressors in the porcelain crab *petrolisthes cinctipes*”, Michael Garland, Masters Thesis in Biological Sciences, September 2015
- “An investigation of the effect of malathion on adaptive plasticity of *pseudacris sierra*”, Michael Jonathan Maples, Masters Thesis in Biological Sciences, August 2015
- “Dialogue education is effective as a method to teach maternal toddler feeding practices”, Grace Voorheis, Masters Thesis in Agriculture, June 2015
- “Exploring the physiological role of *Vibrio fischeri* PepN”, Sally L. Cello, Masters Thesis in Biological Science, April 2015
- “Assessment of microbial biodegradation of mixed soil contaminants at the Santa Susana Field Laboratory using TRFLP, qPCR, and culturing”, Kenneth William Croyle, Masters Thesis in Engineering, August 2014
- “The effect of temperature and extraction technique on the binding interactions and hydrolysis of β -lactoglobulin with milk fat globule membrane (MFGM)”, Corbin R. Kembel, Masters Thesis in Agriculture, June 2014
- “Characterizing the reproducibility of the properties of electrospun poly(d,l-lactide-co-glycolide) scaffolds for tissue-engineered blood vessel mimics”, Toni M. Pipes, Masters Thesis in Biomedical Engineering, June 2014

k. Other

- Software development
 - Sun, D., and Ross, K. Symbulate: a Python package for simulating probability models. Available at <https://github.com/dlsun/symbulate>.
Date of work: Aug 2016 – present

5. SERVICE AND UNIVERSITY CITIZENSHIP

- **Statistics Department**
 - Chair, working group on modernizing STAT 130 (present)
 - Member of department curriculum committee, 2013-present
 - Member of department College Based Fee committee, 2013-present
 - Faculty hiring search committee, 2014-2015
 - Course coordinator for STAT 305, STAT 405, STAT 415, STAT 425
 - Attended workshop on Collaborative Undergraduate Research, October 2013
 - Attend department meetings, seminars, and Open House

- **College of Science and Mathematics**
 - Advisor for Actuarial Preparation Minor, 2013 – present
 - Attended COSAM Awards banquet, 2014

- **University**
 - Quantitative Reasoning Learning Community, 2014 – 2016
 - Participated in Center for Teaching, Learning & Technology new faculty learning community in 2013-2014
 - Attended Commencement Fall 2012, Spring 2013, Fall 2013, Spring 2014, Spring 2015, Fall 2016, Spring 2017
 - Attended Fall Conference 2012, 2013, 2014, 2015, 2016, 2017

- **Professional**

Referee for

 - AMS Mathematical Reviews (reviewer)
 - Electronic Communications in Probability
 - Electronic Journal of Probability
 - Finance and Stochastics
 - Journal of Statistics Education
 - Mathematical Finance
 - Mathematics of Operations Research
 - Operations Research
 - SIAM Journal of Control and Optimization
 - Systems and Control Letters