

KATHERINE RUMJAHN MCLAUGHLIN

Oregon State University
Department of Statistics
227 Weniger Hall
Corvallis, OR 97331

katherine.mclaughlin@oregonstate.edu
www.science.oregonstate.edu/~mclaugka/
(541) 737-3269

EDUCATION

University of California, Los Angeles 2011-2016, Ph.D. June 2016
Department: Statistics GPA 4.00

Honors: Chancellor's Prize Fellowship (2011-2012, \$10,000)
National Science Foundation Graduate Research Fellowship
(Awarded May 2011; On Tenure 2012-2015, \$32,000/year)
Dissertation Year Fellowship (2015-2016, \$20,000)
UCLA Most Promising Applied Statistician (Awarded June 2013)
UCLA Jeffrey L. Hanson Distinguished Service Award (Finalist, 2015)
Affiliations: California Center for Population Research (January 2014-Present)
Hard-to-Reach Population Methods Research Group (HPMRG) (March 2014-Present)

University of California, Berkeley B.A. May 2011
Majors: Statistics, Classical Civilizations GPA 3.74
Honors: Graduated with Honors in Statistics, *cum laude* in Classical Civilizations

ACADEMIC APPOINTMENTS

Oregon State University, Department of Statistics September 2016-Present
Assistant Professor

RESEARCH EXPERIENCE

University of California, Los Angeles October 2012-Present
Graduate Student Researcher (funded by the National Science Foundation)

- Dissertation topic: Decision-theoretic modeling of preferential recruitment for respondent-driven sampling (RDS), with particular application to hidden populations at high-risk for HIV/AIDS
- General work in:
 - Social network analysis, including exponential family random network models
 - Network visualization techniques, including graph layout algorithms
 - Sampling and population size estimation techniques for hard-to-reach populations
- Advisor: Mark S. Handcock

zEconomy, Los Angeles, CA February-May 2014
Consultant

- Creation and implementation of algorithms to examine optimization of time-dependent flow over a network
- Work on creation of realistic simulation data
- Advisor: Sam Bizri

California State University, San Marcos
Consultant, MARC Curriculum Improvement Project

November 2012-February 2014

- Designed and implemented a survey to measure levels of collaboration relationships among professors from five science departments at the university over time
- Analyzed data using a variety of social network analytic methods, including descriptive summaries, data visualization, and dynamic network modeling
- Advisors: Denise Garcia, Richard Bray

United States Department of Energy, Washington, D.C.
Mathematical Statistician, Energy Information Administration

June-September 2012

- Worked with sensitive nationwide household-level survey data on energy consumption to compare various existing and original missing data imputation methods
- Compared imputation goals, such as unbiased estimators and maintenance of underlying distribution, using hot deck, parametric, and machine learning-based methods
- Presented findings and led discussion about the current state of imputation, and outlined areas of future research
- Advisor: Hiroaki Minato

University of California, Berkeley

January 2010-June 2011

Research Assistant (including VIGRE REU funded by the National Science Foundation)

- Used real election data to simulate relative workloads of several risk-limiting audit techniques and created methods to reduce workload while maintaining same risk level
- Contribution to an R library of auditing methods
- Worked with county registrars and government officials to make workload-reducing methods practical to implement and usable in real elections
- Advisor: Philip Stark

Public Health Institute, Berkeley, CA
Intern and Consultant, Child Health and Development Studies

June-November 2010, June-August 2008

- Cleaned and analyzed large data sets from various health surveys conducted in conjunction with Kaiser Permanente hospitals, and derived statistical trends and vectors for further investigation
- Ran ANOVA and multiple regression models on data from assay results received from different laboratories
- Modeled reproductive health determined by several fertility measures based on pre-natal and contemporary risk factors, adjusted for demographic parameters
- Advisors: Barbara Cohn, Piera Cirillo

PUBLICATIONS

Johnston, L.G., **K.R. McLaughlin**, S.A. Rouhani, and S.A. Bartels, 2016. Measuring a hidden population: A novel technique to estimate the population size of women with sexual violence related pregnancies in South Kivu Province, Democratic Republic of Congo. Accepted to Journal of Epidemiology and Global Health.

Johnston, L.G., **K.R. McLaughlin**, H. El Rhilani, A. Latifi, A. Toufik, A. Bennani, K. Alami, B. Elomari, and M.S. Handcock, 2015. A novel method for estimating the size of hidden populations

using respondent-driven sampling data: Case examples from Morocco. *Epidemiology*, 26(6):846-852.

McLaughlin, K.R., M.S. Handcock, and L.G. Johnston, 2015. Inference for the visibility distribution for respondent-driven sampling. In *JSM Proceedings*. Alexandria, VA: American Statistical Association. 2259-2267.

Sholtz, R.I., **K.R. McLaughlin**, P.M. Cirillo, M. Petreas, J.S. Park, M.S. Wolff, P. Factor-Litvak, B. Eskenazi, N. Krigbaum, B.A. Cohn, 2011. Assaying organochlorines in archived serum for a large, long-term cohort: Implications of combining assay results from multiple laboratories over time. *Environment International*, 37(4):709-714.

McLaughlin, K.R. and P.B. Stark, 2011. Workload estimates for risk-limiting audits of large contests. Honors Thesis.

McLaughlin, K.R. and P.B. Stark, 2010. Simulations of risk-limiting audit techniques and the effects of reducing batch size on the 2008 California House of Representatives elections. Published as a VIGRE, NSF report.

TEACHING EXPERIENCE

Oregon State University

Instructor for Statistics 431/531: Sampling Methods

University of California, Los Angeles

Teaching Assistant for Statistics 100B: Introduction to Mathematical Statistics

Special Reader for Statistics 218: Statistical Analysis of Networks

Instructor for Statistics 296: Modern Statistical Workflow Tools

University of California, Berkeley

Teaching Assistant for Statistics 2: Introduction to Statistics

INVITED PRESENTATIONS

Analysis of Networks with Missing Data with Application to the National Longitudinal Study of Adolescent Health August 2016
Cambridge, United Kingdom

Presenter at Network Science and its Applications Workshop,
Isaac Newton Institute

Data Analysis and Population Size Estimations using RDS Analyst October 2015
Co-instructor at WHO Collaborating Center for HIV Surveillance,
5-day workshop *Zagreb, Croatia*

Sequential Sampling-Population Size Estimation (SS-PSE) May 2015
Presenter at 3rd Global HIV Surveillance Consultation *Bangkok, Thailand*

**Interpretation and Analysis of Data from Respondent-Driven
Sampling using RDS Analyst**
Co-instructor at 4-day workshop

June 2014
Hanoi, Vietnam

CONTRIBUTED PRESENTATIONS AND POSTERS

**Using Respondent-Driven Sampling to Access Hidden
Populations: Current Research**
International Indian Statistical Association (IISA)
International Conference on Statistics

August 2016
Corvallis, Oregon, USA

**Modeling Preferential Recruitment for Respondent-
Driven Sampling**
Joint Statistical Meetings (JSM),
Joint SRMS, SSS, and GSS Student Paper Award Session

August 2016
Chicago, Illinois, USA

**Modeling Preferential Recruitment for Respondent-
Driven Sampling**
International Network of Social Network Analysis (INSNA)
Sunbelt Conference

April 2016
Newport Beach, California, USA

Inference for the Visibility Distribution of RDS
Joint Statistical Meetings (JSM),
Session on Society and Networks

August 2015
Seattle, Washington, USA

Population Size Estimation Using SS-PSE in Morocco
(3rd Global HIV Surveillance Consultation)

May 2015
Bangkok, Thailand

AWARDS AND FELLOWSHIPS

Dissertation Year Fellowship (\$20,000)	2015-2016
National Science Foundation Graduate Research Fellowship (\$32,000/year)	Awarded 2011; On Tenure 2012-2015
UCLA Chancellor's Prize Fellowship (\$10,000)	2011-2012
JSM Joint SRMS, SSS, and GSS Sections Student Paper Award (\$800)	2016
JSM SRMS Student Travel Award (\$800)	2016
UCLA Jeffrey L. Hanson Distinguished Service Award	Finalist, 2015
UCLA Most Promising Applied Statistician	Awarded June 2013

UNIVERSITY SERVICE

Internal President , Math and Physical Sciences Council	August 2014-September 2015
President , Statistics Graduate Student Association	September 2014-August 2015
Data Manager , American Statistical Association DataFest	2014 and 2015
Organizing Chair , Exploring Your Universe Outreach Event	2013 and 2014
Secretary , Math and Physical Sciences Council	August 2013-July 2014
Organizing Committee Member , User! Conference	April-July 2014

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Statistical Association, (ASA)

2012-Present

International Network of Social Network Analysis, (INSNA)

2016-Present