

# Monica Alexander

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## Academic Appointments

### University of Toronto

*Assistant Professor*, Statistical Sciences and Sociology  
(Maternity leave: April 2019 – December 2019)

July 2018 – *current*

## Professional Appointments

*Lead statistical consultant*

### UN Interagency Group

on Stateless Populations Estimation

January 2021 – *current*

*Fellow*

### Institute for Clinical Evaluative Sciences

January 2019 – *current*

*Lead statistical consultant*

### World Health Organization Group

on Estimation of Causes of Maternal Mortality

January 2019 – December 2020

## Education

Ph.D (Demography), **University of California, Berkeley**, 2018.

*Dissertation title:* Bayesian Methods for Mortality Estimation.

*Committee:* Josh Goldstein (chair); Ken Wachter; Dennis Feehan; Jas Sekhon.

M.Arts (Statistics), **University of California, Berkeley**, 2015.

M.Social Research (Demography), **Australian National University**, 2013.

B.Science (First Class Honors) (Maths and Chemistry), **University of Tasmania**, 2008.

## Papers

### *Peer-reviewed articles*

**Alexander, M.**, Polimis, K., and Zagheni, E., ‘Combining social media and survey data to nowcast migrant stocks in the United States’, *Population Research and Policy Review*, 2020. <https://doi.org/10.1007/s11113-020-09599-3>.

**Alexander, M.**, Polimis, K., and Zagheni, E., ‘The impact of Hurricane Maria on out-migration from Puerto Rico: Evidence from Facebook data’, *Population and Development Review*, 2019, 45(3): 617-630.

Hug, L., **Alexander, M.**, You, D., and Alkema, L. ‘National, regional, and global levels and trends in neonatal mortality between 1990 and 2017, with scenario-based projections to 2030: a systematic analysis by the United Nations Inter-agency Group for Child Mortality Estimation’, *Lancet Global Health*, 2019, 7(6): 710–720.

Kiang, M.V., Basu S., Chen J., and **Alexander, M.** ‘Assessment of Changes in the Geographical Distribution of Opioid-Related Mortality Across the United States by Opioid Type, 1999-2016’. *JAMA Network Open*. 2019, 2(2):e190040.

Gemmill, A., Kiang, M.V., and **Alexander, M.** ‘Trends in pregnancy-associated mortality involving opioids in the United States, 2007–2016’, *American Journal of Obstetrics and Gynecology*, 2019, 220(1): 115–116.

**Alexander, M.**, Kiang, M.V., and Barbieri M., ‘Trends in Black and White Opioid Mortality in the United States, 1979–2015’, *Epidemiology*, 2018, 29(5): 707–715.

**Alexander, M.**, and Alkema, L., ‘Global Estimation of Neonatal Mortality using a Bayesian Hierarchical Splines Regression Model’, *Demographic Research*, 2018, 38(15): 335–372.

**Alexander, M.**, Zagheni, E., and Barbieri, M., ‘A Flexible Bayesian Model for Estimating Subnational Mortality’, *Demography*, 2017, 54(6): 2025–2041.

**Howlett, M.**, Gray, M., and Hunter, B., ‘Wages, government payments and other income of Indigenous and non-Indigenous Australians’, *Australian Journal of Labour Economics*, 2016, 19(2): 53–76.

Hunter, B., **Howlett, M.**, and Gray, M., ‘The Economic Impact of the Mining Boom on Indigenous and Non-Indigenous Australians’, *Asia & the Pacific Policy Studies*, 2015, 2(3): 517–530.

Gray, M., **Howlett, M.**, and Hunter, B., ‘Labour Market Outcomes for Indigenous Australians’, *The Economic and Labour Relations Review*, 2014, 25(3): 497–517.

Biddle, N., **Howlett, M.**, Hunter, B., and Paradies, Y., ‘Labour Market and Other Discrimination Facing Indigenous Australians’, *Australian Journal of Labour Economics*, 2013, 16(1): 91–113.

#### *Other published papers*

Hunter, B., **Howlett, M.**, and Biddle, N., ‘Modelling Exposure to Risk of Experiencing Discrimination in the Context of Endogenous Ethnic Identification’, *IZA Discussion Paper #8040*, March 2014.

Gray, M., Hunter, B., and **Howlett, M.**, ‘Indigenous Employment: A Story of Continuing Growth’, *CAEPR Topical Issue 2/2013*, Australian National University, Canberra.

#### *Current working papers and manuscripts in progress*

**Alexander, M.**, and Alkema, L., ‘A Bayesian cohort component projection model to estimate adult populations at the subnational level in data-sparse settings’, <https://arxiv.org/abs/2102.06121>.

**Alexander, M.**, Chong, M.Y.C., and Pejcinovska, M. ‘Estimating causes of maternal death in data-sparse contexts’. <https://arxiv.org/abs/2101.05240>.

**Alexander, M.**, and Root, L., ‘Competing effects on the average age of infant death’. <https://osf.io/preprints/socarxiv/z4qg9/>.

Sussman, H., **Alexander, M.**, and Alkema, L.. ‘Temporal models for demographic and global health outcomes in multiple populations: Introducing a new framework to review and standardize documentation of model assumptions and facilitate model comparison’. <https://arxiv.org/abs/2102.10020>.

**Alexander, M.**, and Goldstein, J., ‘Deaths without denominators: using a matched dataset to study mortality patterns in the United States’,  
<https://osf.io/preprints/socarxiv/q79ye/>.

Maheu-Giroux, M, Sardinha, L, Stöckl, H, Meyer, S, Godin, A, **Alexander, M.**, and García-Moreno, C. ‘A framework to model global, regional, and national estimates of intimate partner violence’. <https://www.medrxiv.org/content/10.1101/2020.11.19.20235101v1>.

Kiang, M. V., Chen, J. T., Krieger, N., Buckee, C. O., **Alexander, M.**, Baker, J. T., Buckner, R. L., Coombs III, G., Rich-Edwards, J. W., Carlson, K. W. and Onnela, J.-P. ‘Sociodemographic Characteristics of Missing Data in Digital Phenotyping’. <https://www.medrxiv.org/content/10.1101/2020.12.29.20249002v1>.

Chung, P.H., and **Alexander, M.**, ‘Kin Dependency Ratios: An Extension and Application of the Goodman Method for Estimating the Availability of Kin’,  
<https://p-chung.com/paa/2019/abstract/>.

## Grants awarded

### Principal Investigator:

**Social Sciences and Humanities Research Council** 2019–2022  
**Insight Development Grant**  
*Using Facebook data to measure and understand international migration patterns in Canada*  
 CAD \$59,000

**University of Toronto Connaught New Researcher Award** 2019–2021  
 CAD \$18,900

### Partner Investigator:

**Australian Research Council** 2019–2022  
**Discovery Project Grant**  
*Developing Robust Small Area Population Forecasts for Planning and Policy*

## Professional Experience

**World Health Organization**  
*Consultant* September 2016 – June 2017

**Data Science for Social Good**  
*Fellow* May 2016 – September 2016

**Human Mortality Database**  
*Graduate Student Researcher* January 2015 – May 2016

**UNICEF Technical Advisory Group**  
*Consultant* March 2014 – July 2015

**The Centre for Aboriginal Economic Policy Research**  
*Research Officer* April 2012 – December 2014

**Reserve Bank of Australia**  
*Analyst/Senior Analyst* February 2010 – June 2013

## Teaching

### University of Toronto

|   |                             |
|---|-----------------------------|
| Applied Statistics II (graduate, statistics)  | Winter Semester, 2020, 2021 |
| Demographic Methods (graduate, statistics)  | Winter Semester, 2019       |
| <i>Materials:</i> <a href="https://github.com/MJAlexander/demographic-methods">https://github.com/MJAlexander/demographic-methods</a> |                             |
| Intermediate data analysis (graduate, sociology)  | Winter Semester, 2021       |
| Intermediate quantitative methods (undergraduate, sociology)  | Fall Semester, 2020         |

### University of California, Berkeley

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| <i>Instructor</i> , Formal Demography Workshop           | June, 2017          |
| <i>Instructor</i> , Formal Demography Workshop           | August, 2015        |
| <i>Graduate Student Instructor</i> , Demographic Methods | Fall Semester, 2014 |

### Other

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|--|--------------|
| <i>Instructor</i> , Introduction to Causal Inference, ITAM             | March, 2017  |
| <i>Instructor</i> , IUSSP Workshop on social media data and demography | August, 2016 |

## Conference presentations and invited talks

### 2021

#### *A Bayesian cohort component projection model for estimating subnational populations*

Pop Center Brown Bag, *Florida State University* (February)  
 STAB Working Group, *University of Washington* (February)

#### *Overcoming barriers to sharing code*

Toronto Workshop on Reproducibility, *University of Toronto* (February)

#### *Using social media data to estimate migration*

Mathematics and Statistics Seminar, *Maynooth University* (February)

### 2020

#### *Future Projections of State-Level Foster Care Populations in the United States*

APPAM Annual Meeting, *Virtual meeting* (November)

#### *Bayesian hierarchical models in demographic research*

CERSI seminar series, *Yale University* (November)

#### *Using social media data to estimate migration*

Toronto Data Workshop (December)  
 Berkeley Formal Demography Workshop (June)  
 NEST seminar series, *Western University* (March)

### 2019

#### *Reproducibility in demographic research*

MPIDR Open Science Workshop, Rostock, Germany (October)

#### *Combining social media data and traditional surveys to predict migration stocks*

MPIDR-IUSSP Workshop on Migration Data and Models for a Better World: Perspectives from Academia, Data Science, and International Organizations, at ASA 2019: New York,

NY (August)  
 Cornell Population Center, *Cornell University* (February)

## 2018

### ***Combining social media data and traditional surveys to predict migration stocks***

European Symposium in Computational Social Science: Cologne, Germany (December)  
 School of Geography, *University of Queensland* (November)  
 Institute for the Study of Social Change, *University of Tasmania* (October)  
 Symposium of Digital Demography: Rostock, Germany (October)  
 Center for Population Dynamics, *McGill University* (September)  
 European Population Conference: Brussels, Belgium (June)

### ***Estimating subnational populations of women of reproductive age***

International Society for Bayesian Analysis World Meeting: Edinburgh, Scotland (June)  
 European Population Conference: Brussels, Belgium (June)  
 Max Planck Institute for Demographic Research (May)  
 PAA Annual Meeting: Denver, CO (April)  
 Institute of Disease Modeling Symposium: Seattle, WA (April)

### ***The spatial distribution of opioid mortality by race in the United States***

European Population Conference: Brussels, Belgium (June)

## 2017

### ***Modeling and understanding mortality disparities***

School of Demography, *Australian National University* (December)  
 Department of Statistics, *University of Toronto* (December)  
 Department of Sociology, *University of Washington, Seattle* (November)

### ***Temporal smoothers for use in demographic estimation***

IUSSP: Cape Town, South Africa (October)  
 Statistics working group, *University of Massachusetts, Amherst* (February)

### ***Opioid-related deaths by race in the United States: trends and patterns in multiple causes of death***

PAA Annual Meeting: Chicago, IL (April).

## Honors

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|--|-----------|
| <b>Doctoral Completion Fellowship</b> ( <i>UC Berkeley</i> )                           | 2017-2018 |
| <b>Elizabeth Scott Memorial Award</b> ( <i>UC Berkeley</i> )                           | 2015      |
| Statistics MA student showing the most promise in statistical research.                |           |
| <b>Regents-Intern Fellowship</b> ( <i>UC Berkeley</i> )                                | 2013-2015 |
| <b>Lado Ruzicka Prize in Social Research</b> ( <i>Australian National University</i> ) | 2013      |
| Awarded to the most outstanding Master of Social Research candidate.                   |           |
| <b>W.D. Borrie Prize</b> ( <i>National essay competition, Masters category</i> )       | 2012      |
| For best student paper on a population-related topic.                                  |           |
| <b>University Medal</b> ( <i>University of Tasmania</i> )                              | 2008      |
| One of three awarded to the most outstanding Science and Technology undergraduates.    |           |
| <b>Edith Rita Lowenstern Prize</b> ( <i>University of Tasmania</i> )                   | 2008      |
| Awarded to the most outstanding mathematics honors student.                            |           |

## Service

**Panel Member:** *International Union of Scientific Study of Populations panel on Digital Demography.*

**Team Member:** *Consortium on Analytics for Data-Driven Decision-Making (CAnD3).*

**Founder and Organizer:** *R-Ladies Toronto.* This community-led group aims to promote gender diversity in the R community in Toronto. Our community is designed to develop our members' R skills and knowledge through social, collaborative learning and sharing.

**Reviewer:** *Australian Journal of Labour Economics; Annals of Applied Statistics; Demography; Demographic Research; Epidemiology; European Journal of Population; Genus; Population and Development Review; Population Research and Policy Review.*