# Hope Johnson | Curriculum Vitæ

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## Education

**Macalester College** **St. Paul, MN**
*B.A., Statistics, Economics* *2013–2017*
- Cumulative GPA: 3.65

- Statistics Honors Thesis: "A Statistical Analysis of Body-Worn Cameras in Officer-Involved Shootings"

- Economics Capstone: "Natural Disasters and Mobile Banking Adoption in 55 Developing Countries"

## Independent Research

**A Statistical Analysis of Body-Worn Cameras in Officer-Involved Shootings**
*Statistics Honors Thesis* *Aug. 2016 – May 2017*

- Specify a zero-inflated negative binomial regression to analyze the relationship between body-worn cameras and victim race in officer-involved shootings.

**Racial Difference in the Predictive Accuracy of a Recidivism Risk Assessment Instrument**
*Survival Analysis Term Paper* *Fall 2016*

- Test if the COMPAS recidivism risk assessment tool predicts the risk of recidivism with equal accuracy across races using a Cox proportional hazards model;

- Awarded first place in the American Statistical Association's undergraduate research paper competition (USRESP).

**Natural Disasters and Mobile Banking Adoption**
*International Development Term Paper* *Fall 2016*

- Analyze whether a country-wide environmental shock is associated with increasing adoption of mobile banking in 55 developing countries.

**Heroin and Naloxone: Disentangling an Epidemic**
*Econometrics Term Paper* *Spring 2016*

- Investigate the impact of making naloxone available to heroin users;

- Awarded third place in the Minnesota Economic Association's undergraduate research paper competition.

**Farmers' Networks and Extreme Weather Events**
*Environmental Policy Term Paper* *Fall 2015*

- Develop a Bayesian decision-tree to model the likelihood that a farmer takes signals from members of their network.

**Can Water Be Efficiently Allocated Through Price Policy?**
*Agricultural Economics Term Paper* *Fall 2016*

o Empirically investigate three water pricing mechanisms to assess how each maximize social benefit.

## Experience

**Mathematica Policy Research** **Cambridge, MA**
*Junior Front-End Data Scientist* *Sept. 2017–present*
o Develop and implement statistical network analyses to evaluate a primary care delivery program;

o Perform Bayesian statistical analysis to assess the impact of Medicaid/Medicare intervention programs;

o Simulate correlated patient-level data for regression testing;

o Innovate measure scores to quantify things like coordination of care in medical practices;

o Create polished data visualizations and dashboards using D3.js, Plotly (Julia), and ggplot (R).

**Bill & Melinda Gates Foundation** **Seattle, WA**
*Data Visualization Consultant* *Dec. 2016–June 2017*
o Clean survey data from Kenyan households on health service access;

o Visualize gaps between health services and patient care using Tableau;

o Prepare visuals, analysis, and discussion for forthcoming articles in the Journal of Infectious Disease.

**Educating Sustainability Ambassadors Initiative** **St. Paul, MN**
*Data Science Research Analyst* *June - Aug. 2016*
o Map farm-to-school programs and educational attainment gaps in Minnesota;

o Construct a linear mixed-effects model to describe the relationship between farm-to-school programs and student outcomes in Minnesota.

**Crossroads Resource Center** **Minneapolis, MN**
*Empirical Research Assistant* *June - Aug. 2015*
o Researched the economics of local food supply chains in St. Paul and Minneapolis.

## Information Technology

**Advanced Proficiency**: R, Julia, Stan, LaTex, Git, Stata, Microsoft Office
**Intermediate Proficiency**: Python, D3.js, Node.js, JavaScript, HTML, CSS, Processing, Tableau
**Basic Proficiency**: SQL, SAS

## Awards, Grants, and Honors

Recipient of the David Bressoud prize for excellent communication skills in mathematics *2017*

Eyeo Festival Student Grant *2017*

1st place, undergraduate research paper contest winner (American Statistical Association) *2017*

3rd place, term paper contest winner (Minneapolis Federal Reserve) *2016*

Educating Sustainability Ambassador (Howard Hughes Medical Institute/Macalester College)          *2016*

Omicron Delta Epsilon Economics Honors Society Member          *2016*

Dean's List (Macalester College)          *2013-14*

DeWitt Wallace Distinguished Scholar          *2013-2017*

## Presentations and Conferences

**Harvard University Center for Geographic Analysis**
*Illuminating Space and Time in Data Science*          *April 2018*
"Spatio-temporal Network Analysis"

**Macalester College**
*Honors Defense - Department of Applied Mathematics*          *April 2017*
"A Statistical Analysis of Body-Worn Cameras in Officer-Involved Shootings"

**Northwestern University**
*Graduate Research Opportunities for Women in Mathematics (GROW) Conference*          *Oct. 2016*
"Summer Research as an Undergraduate"

## Languages

**English**: Fluent
**French**: Intermediate          *Conversational*
**Arabic**: Basic          *Basic words and phrases only*
**Bambara**: Basic          *Basic words and phrases only*