Matt Higham

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EDUCATION

Doctor of Philosophy, Oregon State University
Statistics, June 2019
Dissertation Advisors: Dr. Lisa Madsen & Dr. Jay Ver Hoef
Committee Members: Dr. Julia Jones, Dr. Katie McLaughlin, & Dr. Debashis Mondal

Master of Science, Oregon State University
Statistics, June 2016

Bachelor of Science, Miami University (OH)   Academic Honors with Distinction
Botany, May 2014
Environmental Science Co-major, May 2014
Statistics, May 2014
Zoology, May 2014

Graduate Certificate in College and University Teaching
Oregon State University, August 2018
18 credits of graduate-level coursework   Link to Learning Outcomes

TEACHING EXPERIENCE

Assistant Professor   August 2019 - Present
St. Lawrence University

- STAT 113: Applied Statistics (Introductory Statistics).
- STAT 213: Applied Regression Analysis (Regression Analysis in R and R Markdown).

Lead Instructor for Introductory   June 2016 - July 2018, Interspersed
Statistics Courses
Oregon State University

- Presented statistics material in the context of appropriate software (R or TI-84).
- Managed Teaching Assistants for labs and recitations.

Lead Instructor for Introductory   Sep. 2017 - Mar. 2018
Ecampus Statistics Course
Oregon State University

- Supplemented course material with videos and screencasts.

Graduate Teaching Assistant   Sep. 2014 - Sep. 2016
Oregon State University

COURSE DEVELOPMENT

Graduate Data Analytics   Apr. 2017 - June 2017
Oregon State University

- Created laboratory materials for a graduate-level Data Analytics course.

Introductory Statistics   June 2016 - Aug. 2016
Oregon State University

- Revised the on campus ST 351 lab materials and assignments from Minitab to R.

RESEARCH   **Publications**

- **Higham, M.**, Ver Hoef, J., Madsen, L., & Aderman, A. (2019). Adjusting a finite population block kriging estimator for imperfect detection. (In Review at *Environmetrics*).

- **Higham, M.**, Ver Hoef, J., & Madsen, L. (2019). Estimation of the Covariance Matrix for the Element-wise Product of Two Random Vectors. (In Review at *The Journal of Statistical Planning and Inference*).

- **Higham, M.**, Hoven, B. M., Gorchov, D. L., & Knight, K. S. (2017). Patterns of coarse woody debris in hardwood forests across a chronosequence of ash mortality due to the emerald ash borer (Agrilus planipennis). *Natural Areas Journal*, 37(3), 406-411. Link to Abstract.

Grants

- United States Fish and Wildlife Grant   Dec. 2018 - August 2019
    - Develop a Finite Population Block Kriging R package.
    - Award number: TBA. Amount: $50,000.
    - Role: Graduate Research Assistant. Supervisors: Dr. Lisa Madsen & Dr. Jay Ver Hoef.

- United States Fish and Wildlife Grant   Sep. 2016 - June 2017
    - Created a Finite Block Kriging with Imperfect Detection.
    - Award number F16AC01127. Amount: $40,813.
    - Role: Graduate Research Assistant. Supervisors: Dr. Lisa Madsen & Dr. Jay Ver Hoef.

- Hughes Research Internship   May 2013 - May 2014
    - Collected and subsequently analyzed data on coarse woody debris in forest research plots with ash mortality from the emerald ash borer.
    - Amount: $4,500.
    - Role: Undergraduate Research Assistant. Supervisor: Dr. David Gorchov.

Projects

- Master's Project: "Performance of a Local Variance Estimator from a GRTS (Generalized Random-Tessellation Stratified) Sample."
    - Evaluated bias and confidence interval coverage of the GRTS spatial sampling estimator under a variety of spatial surfaces.
    - Advisors: Dr. Lisa Madsen & Dr. Jay Ver Hoef.
    - Committee Members: Dr. Debashis Mondal & Dr. Charlotte Wickham.

- Consulting Projects
    - Collaborated with university graduate students, providing statistical advice on six PhD and Master's theses.
    - Fields of Study: Integrative Biology, Engineering, Crop Science, Wood Science.

Presentations and Posters

- **Higham, M.**, Ver Hoef, J., Madsen, L. (2019). An R package for GSPE (Geospatial Population Estimator) with Detection. (1) Fish and Wildlife Service, Anchorage, AK. (2) Alaska Department of Fish and Game, Fairbanks, AK.

- **Higham, M.**, Ver Hoef, J., Madsen, L., & Aderman, A. (2018). Adjusting a finite population block kriging estimator for imperfect detection. Joint Statistical Meetings. Contributed Poster and Speed Presentation.

- **Higham, M.**, Howard, E. (2018). Exploring spatiotemporal patterns in forecast data. Joint Statistical Meetings. Contributed Poster and Speed Presentation. Link to Github Project Site.

- **Higham, M.**, Ver Hoef, J., Madsen, L., & Aderman, A. (2017). Incorporating imperfect detection into the moose Geospatial Population Estimator (GSPE). Alaska Fish and Wildlife Service. Invited Presentation.

- **Higham, M.**, Ver Hoef, J., Madsen, L., & Aderman, A. (2017). Adjusting a finite population block kriging estimator for imperfect detection. Western North American Region of the International Biometric Society. Contributed Presentation.

WORKSHOPS AND PROFESSIONAL DEVELOPMENT	**Associate and Practitioner in CIRTL** Oregon State University	Sep. 2017 - Mar. 2018

- Center for the Integration of Research, Teaching, and Learning.
- Researched and applied evidence-based teaching strategies.
- Examined and integrated a "learning-through-diversity" philosophy to current teaching practices.

Prepare to Teach Workshop   July 2018
National Science Foundation

- NSF sponsored workshop for graduate students planning careers involving teaching statistics.

Stat. Education Mentoring Program   August 2018 - Present
American Statistical Association

- Mentor: Dr. Nicole Dalzell, Wake Forest University.

MENTORSHIP	**Head Boys' Tennis Coach** Crescent Valley High School	Feb. 2016 - Present, Spring

- Motivated student athletes in aspects of tennis as well as sportsmanship and discipline.
- Organized matches, held daily practices, and participated in tournaments.

Science Department Head Tutor   Aug. 2013 - May 2014
Miami University

- Supervised all Rinella Learning Center tutors in the science department.
- Improved tutor feedback to students through training sessions and through individual problem-solving.

TECHNICAL SKILLS	**Statistical Programs:** R, SAS, Matlab, Minitab.

Presentation and Collaboration: RMarkdown, knitr, shiny, LaTeX, Git and Github.

PROFESSIONAL SOCIETY MEMBERSHIP

- American Statistical Association — Jan. 2017 - Present
- WNAR Branch of the International Biometric Society — Oct. 2016 - Present
- International Environmetrics Society — Oct. 2016 - Jan. 2019
- Data Science Association — Nov. 2016 - Present

UNIVERSITY SERVICE

- **New Graduate Teaching Assistant Orientation Leader** — Sep. 2018
  - Facilitated OSU policy, diversity and inclusion, and introduction to the learning management system Canvas sessions for new GTAs.
  - Developed materials for OSU's new GTA training and orientation with a team of 11 other graduate students.
- **Department Head Search Committee Member** — Aug. - Oct. 2018
  - Served as the graduate student representative in the committee.
  - Collaborated in drafting interview questions for candidates and summarizing student and faculty feedback about the candidates for the Dean of Science.
- **Department of Fisheries and Wildlife Proposal Review** — Nov. 2017
  - Assessed and offered improvements to a research design applying the Finite Population Block Kriging estimator with imperfect detection to brown bears.
- **OSU Student Statistics Organization Vice President** — 2015 - 2016
  - Organized events designed to promote communication between Oregon State Statistics students and faculty and to encourage professional growth.
- **Datafest Workshop Leader and Consultant** — 2016
  - Created and led a workshop on the R package ggplot2 for participants.
  - Served as a consultant to help with the Datafest participants statistical techniques and visualizations.
- **Review Committee for OSU Professors** — 2016, 2017
  - Collaborated with two to three other OSU students to summarize and script student opinions on four OSU faculty up for promotion.

AWARDS AND SCHOLARSHIP

- **Li Award**, OSU Dept. of Statistics — 2019
  - Given to one PhD student per academic year with the winner determined by a Statistics Department faculty vote.
- **WNAR Distinguished Student Presentation Award** — 2017
- **Seely Award**, OSU Dept. of Statistics — 2015
  - High performance in first-year courses and on comprehensive exams.
  - Award determined through Statistics Department faculty vote.
- **Provosts Distinguished Graduate Scholarship** — 2014 - 2015
  - OSU award to "foster enrollment of students of the highest quality."
- **Scott Overton Scholarship** for Statistical Ecology — 2014 - 2015
- **Comer-Reynolds Memorial Award** in Statistics — 2013
- **Benjamin Harrison Scholarship** from Miami University — 2010 - 2014
  - Covered full tuition expenses for four years of study at Miami University.