Katherine Goode

Contact Information

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Education

Jan 2016 - Current **Doctor of Philosophy, Statistics**
Iowa State University, Ames, IA
Major Professor: Dr. Heike Hofmann
Research Topic: Diagnostics for Random Forest Models
Expected Completion: December 2020

Aug 2013 - May 2015 **Master of Science, Statistics**
University of Wisconsin, Madison, WI

Sep 2009 - June 2013 **Bachelor of Arts, Mathematics**
Lawrence University, Appleton, WI
Graduated Magna Cum Laude
Senior Capstone: "An Explanation of Double-Error-Correcting BCH Codes"

Study Abroad
Summer 2012 University of Granada, Centro de Lenguas Modernas, Spain
Fall 2010 Lawrence London Centre, England

Awards and Honors

2018 **ISU Department of Statistics Dan Mowrey Consulting Excellence Award**
Awarded in recognition of outstanding contributions in the area of statistical consulting while working toward a graduate degree.

2017 **ISU Department of Statistics Award for Experiential Development**
Presented to a student for excellent performance in multiple statistical efforts (teaching and consulting) as part of the graduate program.

2009 - 2013 **Lawrence University Deans List**
2009 - 2013 **Lawrence University Richard Warch Presidential Scholarship**
2012 - 2012 **Mortar Board Honor Society**
2010 - 2011 **Lambda Sigma National Honor Society**

Work Experience

May 2018 - Current **Senior Statistical Consultant**
Agriculture Experiment Station, Iowa State University

· Mentored and trained new consultants
· Helped the group adviser make administrative decisions
· Oversaw organizational tasks for the consulting group
· Continued with statistical consultant responsibilities

May 2016 - Apr 2018 **Statistical Consultant**
Agriculture Experiment Station, Iowa State University

· Provided statistical support on research projects for graduate students, professors, and staff from the colleges of agriculture and life sciences, engineering, human sciences, liberal arts and sciences, and veterinary medicine

· Advised clients on study designs and statistical analysis methods in areas of statistics including exploratory analyses, linear (and mixed) models, generalized linear (and mixed) models, data visualization, predictive modeling, multivariate analyses, and Bayesian models
· Assisted with the implementation of the analyses in R, SAS, and JMP

Dec 2015   **Data Analyst**
Research Administration Office, Lawrence University

· Analyzed data from a study to compare the academic success and mood towards the university of undergraduates from freshman to sophomore years
· Performed statistical analyses using SPSS

Sep 2014 - May 2015   **Academic Mentor for Minority and First Generation Undergraduates**
Center for Academic Excellence, University of Wisconsin, Madison

· Mentored minority and first generation undergraduate students enrolled in statistics courses
· Met weekly throughout the semester with individuals or small groups to review statistical concepts from class and make the material approachable
· Discussed and encouraged strategies for academic success

Data Collection Assistant
Sep 2014 - May 2015   *Research Administration Office, Lawrence University*

· Assisted with the data collection for a study on the evaluation of warning lights installed at a busy crosswalk on the university campus
· Used Tracker software to determine the deceleration rate of vehicles from videos taken of cars approaching the crosswalk

TEACHING EXPERIENCE

Seminar Leader	2018		*Predictive plant phenomics graduate student statistics bootcamp* at Iowa State University. Topics included statistical concepts of randomization, confidence intervals, and design of experiments.
Instructor	2016	STAT 101	*Introduction to statistics* at Iowa State University. Lectured, prepared, and graded exams. Topics included summary statistics, visualizations, normal distribution, hypothesis testing, confidence intervals, and JMP.
	2015	MATH 107	*Elementary statistics* at Lawrence University. Organized the curriculum. Prepared and graded homework and exams. Topics included summary statistics, visualizations, randomization tests, bootstrap, normal distribution, hypothesis testing, confidence intervals, and R.
Teaching Assistant	2015	BMI 552	*Regression methods* for population health graduate students at UW Madison. taught labs Held office hours. Topics included simple and multiple linear regression, logistic regression, survival analysis, and SAS.
	2014	BMI 551	*Introduction to biostatistics* for population health graduate students. taught labs Held office hours. Topics included summary statistics, visualizations, probability, normal distributions, hypothesis testing, confidence intervals, and R.
	2014	STAT 301	*Introduction to statistical methods* for non-statistics majors at UW Madison. Prepared and led discussions. Graded homework and exams. Held office hours. Topics included summary statistics, visualizations, probability, normal distributions, hypothesis testing, and confidence intervals.

	2014	STAT 302	*Accelerated introduction to statistical methods* for statistics undergraduate majors at UW Madison. Prepared and led discussions. Graded homework and exams. Held office hours. Topics included summary statistics, visualizations, randomization tests, bootstrap, normal distribution, hypothesis testing, confidence intervals, and R.
	2013	STAT 371	*Introductory applied statistics for the life sciences* at UW Madison. Prepared and led discussions. Graded homework and exams. Held office hours and worked in the statistics help room. Topics included summary statistics, visualizations, probability, normal distributions, hypothesis testing, confidence intervals, and R.
Statistics Tutor	2014 - 2015		Tutor for undergraduate students in introductory statistics courses at UW Madison.

RESEARCH INTERESTS

Model Assessment, Data Visualization, Random Forest Models, Interpretation of Machine Learning Algorithms, Generalized Linear Mixed Models, R Package Development

ONGOING PROJECTS

Development of diagnostic tools for the assessment of LIME applied to interpret random forest models. Part of PhD research project with Dr. Heike Hofmann.

`ggResidpanel`: An R package for easy visualization of model diagnostic plots. Produces panels of diagnostic plots for one one, panels of plots for comparing multiple models, and interactive versions of the plots. Developed with Dr. Katie Rey. Source code can be found at https://goodekat.github.io/ggResidpanel/.

CONTRIBUTED POSTERS

Goode, K. and Hofmann, H. "Using LIME to Interpret a Random Forest Model with an Application to Bullet Matching Data", Iowa State University Graduate and Professional Student Research Conference, Contributed Poster. April 2019.

Goode, K. and Rey, K. "Introducing ggResidpanel: An R Package for Easy Visualization of Residuals". Kansas State University Conference on Applied Statistics in Agriculture. Contributed Poster. May 2018.

SERVICE

2018 - Current	Graduate student representative to ISU statistics department faculty meetings
2018 - Current	Member of StatCom (Statistics in the Community)
2017 - 2019	Recycling coordinator for ISU STATers (Statistics Graduate Student Organization)
2017 - 2018	Treasurer for StatCom

COMPUTING SKILLS

Working Knowledge: GitHub, JMP, LaTeX, R, R Markdown, SAS, Shiny, SPSS
Basic Knowledge: C, Mathematica