Elizabeth **Eisenhauer**

Email: eisenhauer@psu.edu | **Phone:** 609.247.8104 | **Website:** sites.psu.edu/eisenhauer
Address: 113 W Clinton Avenue, State College, PA 16803

EDUCATION

PENNSYLVANIA STATE UNIVERSITY **State College, PA**
Ph.D. in Statistics, GPA 3.8 / 4.0 2017 – May 2022 (Expected)

- **Dissertation:** Advances in Stochastic Models for Animal Movement and Assessment of Probability Attitudes
- **Co-Advisors:** Ephraim Hanks and Matthew Beckman

THE COLLEGE OF NEW JERSEY **Ewing, NJ**
B.A. in Mathematics with a Statistics specialization, GPA 3.8 / 4.0 2013 – 2017

- **Honors Thesis:** Structural Equation Modeling of Signaling Networks in Head and Neck Squamous Cell Carcinoma
- **Honors:** *magna cum laude*, Departmental Honors, Phi Beta Kappa, Pi Mu Epsilon Mathematics Honor Society

PEER-REVIEWED PUBLICATIONS

- Wijeyakulasuriya, Dhanushi A., **Elizabeth W. Eisenhauer**, Benjamin A. Shaby, and Ephraim M. Hanks. "Machine learning for modeling animal movement." *PloS one* 15.7 (2020): e0235750.
- **Eisenhauer, Elizabeth**, and Ephraim Hanks. "A lattice and random intermediate point sampling design for animal movement." *Environmetrics* (2020): e2618.

TEACHING EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **State College, PA**
Instructor of Record

- STAT 401: Experimental Methods I (In Person, 52 students) Fall 2021
- STAT 401: Experimental Methods I (Virtual, 56 students) Spring 2021
- STAT 200: Elementary Statistics (Virtual, 24 students) Summer 2021
- STAT 200: Elementary Statistics (Virtual, 34 students) Summer 2020
- MATH/STAT 318: Elementary Probability (Virtual, 58 students) Fall 2020
- MATH/STAT 318: Elementary Probability (In Person and Virtual, 69 students) Spring 2020
- MATH/STAT 318: Elementary Probability (In Person, 68 students) Fall 2019

Lab Instructor

- STAT 200: Elementary Statistics (In Person, >50 students) Fall 2018

RESEARCH EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **State College, PA**
Graduate Researcher 2018 – present

- **Project 1:** Proposed a novel sampling design called lattice and random intermediate points (LARI) for animal movement data inspired by an existing sampling design in geostatistics. Compared LARI and regular samples in a stochastic differential equation model framework with three examples: (1) a carpenter ant dataset estimating spline representations of potential and motility surfaces; (2) guppy dataset with regression; (3) a simulated example using Bayesian analysis.
- **Project 2:** Developed and compared flexible latent state and varying coefficient models for yearly movement of golden eagles.
- **Project 3:** Developed the Survey of Probability Attitudes (SPA) to measure students' attitudes toward probability. Obtained Penn State IRB exempt status. Administered the pre and post SPA in 20 Penn State course sections in Spring 2021 through collaboration with 15 instructors.

THE COLLEGE OF NEW JERSEY **Ewing, NJ**

Undergraduate Researcher 2016 – 2017

- Creation of structural equations and graphical models to understand the limits of learnability of cell signaling networks based on high-throughput biological measurements with a focus on cell signaling networks in head and neck squamous cell carcinoma.

PROFESSIONAL EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY CONSULTING CENTER **State College, PA**
Statistical Consultant Spring 2021

- Advised clients from a variety of research fields on appropriate statistical methods

TERRACYCLE, INC. **Ewing, NJ**
Operations Intern 2015 – 2016

- Analyzed shipping operations through manipulation of Excel spreadsheets
- Improved zero-waste office collection program

THE COLLEGE OF NEW JERSEY OFFICE OF STUDENT ACTIVITIES **Ewing, NJ**
Graphic Designer 2014 – 2016

- Consulted with faculty and student organizations on how best to meet their design goals
- Completed individual graphic design projects and packages (logos, posters, t-shirt designs, and murals)

THE RAINBIRD FOUNDATION **Madison, WI**
Statistics Project Manager 2014 – 2015

- Compiled a national child abuse database through collaboration with state agencies

ADVISING EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **State College, PA**
Research Advisor May 2021 – Present

- With Dr. Ephraim Hanks, co-advised an undergraduate researcher via weekly meetings
- The project involved archetypal analysis of yearly golden eagle movement data to identify dominant movement patterns and assess consistency of movement behavior across years for the same individual

AWARDS & FELLOWSHIPS

STUDENT AWARD FOR ORAL PRESENTATION (2ND PLACE) 2021
Modeling Yearly Patterns in Golden Eagle Movement
EURING Analytical Meeting & Workshop

STUDENT PRIZE FOR CONTRIBUTED TALK 2020
A lattice and random intermediate point sampling design for animal movement
Virtual International Statistical Ecology Conference (vISEC)

STUDENT & EARLY CAREER FUNDING AWARD 2020
A lattice and random intermediate point sampling design for animal movement
Symposium on Data Science and Statistics (SDSS)

VOLLMER-KLECKNER SCHOLARSHIP IN SCIENCE 2018 – 2019
Pennsylvania State University

TRAVEL FUNDING BY STATMOS GRANT 2019
STATMOS Spatial Statistics Workshop

DISTINGUISHED GRADUATE FELLOWSHIP 2017 – 2018
Pennsylvania State University

TRAVEL FUNDING BY NSF GRANT 2018
American Statistical Association's Statistics for the Environment (ENVR) Workshop

PROFESSIONAL DEVELOPMENT

INVITED PRESENTATIONS

Pennsylvania State University Probability and Financial Mathematics Seminar 2020
- **Topic:** Modeling COVID-19 with an SIR model accounting for temperature.

Muhlenberg College Math/CS Colloquium Series 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement.

Hawk Mountain Sanctuary Seminar 2019
- **Topic:** A lattice and random intermediate point sampling design for animal movement.

CONTRIBUTED PRESENTATIONS

EURING Analytical Meeting & Workshop 2021
- **Topic:** Modeling Yearly Patterns in Golden Eagle Movement

Joint Statistical Meeting (JSM) 2020
- **Topic:** Modeling migratory and residential movement of golden eagles

Virtual International Statistical Ecology Conference 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Pennsylvania State University Statistics Department SMAC Talk 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Joint Statistical Meeting (JSM) 2019
- **Topic:** An irregular sampling design for animal movement.

POSTER PRESENTATIONS

United States Conference on Teaching Statistics (USCOTS) 2021
- **Topic:** Survey of Probability Attitudes

Symposium on Data Science and Statistics (SDSS) 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Rao Prize Conference 2019
- **Topic:** Comparing sampling designs for carpenter ant movement data

American Statistical Association's Statistics for the Environment (ENVR) Workshop 2018
- **Topic:** Optimal sampling schemes for animal movement modeling

TCNJ Celebration of Student Achievement Poster Session 2017
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

Eastern North American Region (ENAR) International Biometric Society Spring Meeting 2017
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

TCNJ Mentored Undergraduate Summer Experience Poster Session 2016
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

OTHER WORKSHOPS AND CONFERENCES

Electronic Conference on Teaching Statistics (eCOTS) 2020
Preparing for Careers in Teaching Statistics and Data Science Workshop 2020
STATMOS Spatial Statistics Workshop 2019
United States Conference on Teaching Statistics (USCOTS) 2019
5th Annual Summer School on Sustainable Climate Risk Management 2017

PROFESSIONAL SERVICE

PENNSYLVANIA STATE STATISTICS DEPARTMENT CLIMATE AND DIVERSITY COMMITTEE

Committee Member 2019 – 2021

METHODS IN ECOLOGY AND EVOLUTION

Reviewer 2021

JOURNAL OF AGRICULTURAL, BIOLOGICAL, AND ENVIRONMENTAL STATISTICS

Reviewer 2020

PENNSYLVANIA STATE STATISTICS GRADUATE STUDENT ASSOCIATION

Wellness Chair 2018 – 2019

TCNJ ENVIRONMENTAL CLUB

President 2016 – 2017
Secretary 2015 – 2016

TCNJ VEG LIFE CLUB
Vice President & Co-Founder 2016 – 2017

TECHNICAL SKILLS

- **Computer Programming:** Advanced in R, Stan, Git, & Latex; Exposed to MATLAB, SAS, C++, HTML, & CSS
- **Software**: Adobe Creative Suite, Microsoft Office Suite, & Minitab