Elizabeth W. **Eisenhauer**

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**Address:** 158 E Cherry Lane, State College, PA 16803

**EDUCATION**

**PENNSYLVANIA STATE UNIVERSITY       University Park, PA**

*Ph.D. in Statistics, GPA 3.84* / 4.00   2017 – August 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 3.77 / 4.00* 2013 – 2017

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

**PEER-REVIEWED PUBLICATIONS**

* **Eisenhauer, Elizabeth**, Ephraim Hanks, Matthew Beckman, Robert Murphy, Tricia Miller, and Todd Katzner. "A Flexible Movement Model for Partially Migrating Species. " *Spatial Statistics* (2022): 100637.
* 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.

**RESEARCH EXPERIENCE**

**PENNSYLVANIA STATE UNIVERSITY        University Park, 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:** Proposed a flexible model for a partially migrating species, demonstrated using yearly paths for golden eagles. Compared our proposed approach using varying coefficients to a latent-state model, which we define differently for migrating, dispersing, and local individuals. All models rely on a time-varying potential surface defined by several attractors.
* **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.

**ADVISING EXPERIENCE**

**PENNSYLVANIA STATE UNIVERSITY University Park, PA**

*Research Advisor*                      May – December 2021

* Co-advised an undergraduate researcher with Dr. Ephraim Hanks 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

**TEACHING EXPERIENCE**

**PENNSYLVANIA STATE UNIVERSITY        University Park, PA**

*Instructor of Record*

* [STAT 401: Experimental Methods](https://sites.psu.edu/eisenhauer/teaching/) (In Person, 52 students) Fall 2021
* STAT 401: Experimental Methods (Online, 56 students) Spring 2021
* [STAT 200: Elementary Statistics](https://sites.psu.edu/eisenhauer/teaching/) (Online, 24 students) Summer 2021
* STAT 200: Elementary Statistics (Online, 34 students) Summer 2020
* [MATH/STAT 318: Elementary Probability](https://sites.psu.edu/eisenhauer/teaching/) (Online, 58 students) Fall 2020
* MATH/STAT 318: Elementary Probability (In Person and Online, 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

**PROFESSIONAL EXPERIENCE**

**PENNSYLVANIA STATE UNIVERSITY CONSULTING CENTER University Park, PA**

*Statistical Consultant*                      Spring 2021

* Advised clients from a variety of research fields on appropriate statistical methods and participated in weekly discussions with other consultants in a graduate course

**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

**AWARDS & HONORS**

**WINNER OF HARKNESS AWARD**            2021

*For outstanding efforts in teaching and scholarly approaches to teaching and learning,*

*especially at the 300 level.*

Pennsylvania State University Department of Statistics

**STUDENT AWARD FOR ORAL PRESENTATION (2ND PLACE)**           2021

*Modeling Yearly Patterns in Golden Eagle Movement*

EURING Analytical Meeting & Workshop | $481

**RUNNER-UP FOR HARKNESS AWARD**            2020

*For showing excellence in teaching as well as innovation in developing an assessment of*

*student attitudes toward probability.*

Pennsylvania State University Department of Statistics

**STUDENT PRIZE FOR CONTRIBUTED TALK**            2020

[*A Lattice and Random Intermediate Point Sampling Design for Animal Movement*](https://sites.psu.edu/eisenhauer/2020/06/30/a-lattice-and-random-intermediate-point-sampling-design-for-animal-movement/)

Virtual International Statistical Ecology Conference (vISEC)

**GRADUATE STUDENT ONLINE TEACHING CERTIFICATE**           2019

Penn State World Campus

**SAS CERTIFIED BASE PROGRAMMER FOR SAS 9**            2015

SAS Institute

**FELLOWSHIPS**

**VOLLMER-KLECKNER SCHOLARSHIP IN SCIENCE**           2018 – 2019

Pennsylvania State University | $ 28,750

**DISTINGUISHED GRADUATE FELLOWSHIP**           2017 – 2018

Pennsylvania State University | $ 28,750

**TRAVEL AWARDS**

**STUDENT & EARLY CAREER FUNDING AWARD**            2020

*A Lattice and Random Intermediate Point Sampling Design for Animal Movement*

Symposium on Data Science and Statistics (SDSS) | $185

**TRAVEL FUNDING BY STATMOS GRANT**            2019

STATMOS Spatial Statistics Workshop | $478

**TRAVEL FUNDING BY NSF GRANT**            2018

American Statistical Association’s Statistics for the Environment (ENVR) Workshop | $1,000

**RESEARCH FUNDING**

**UNDERGRADUATE RESEARCH SUPPORT FOR ADVISEE**           2021

Office of Science Engagement, Eberly College of Science, Pennsylvania State University | $1,000

**LEADERSHIP & PROFESSIONAL SERVICE**

**PENN STATE STATISTICS DEPARTMENT CLIMATE AND DIVERSITY COMMITTEE**

*Committee Member*                     2019 – present

* Collaborated with departmental leadership to develop and deploy departmental climate survey
* Distributed resources and encouraged difficult conversations within the department on issues of diversity, equity, and inclusion
* Held community-building departmental events such as virtual game night

**METHODS IN ECOLOGY AND EVOLUTION**

*Reviewer*                            2021 & 2022

**JOURNAL OF AGRICULTURAL, BIOLOGICAL, AND ENVIRONMENTAL STATISTICS**

*Reviewer*                       2020

**PENN STATE SCIENCE POLICY SOCIETY**

*Executive Chair*           2019 – 2020

* Helped organize, publicize, and host monthly science on tap events at a local restaurant featuring researchers who discussed their work with attendees in a friendly setting
* Worked collaboratively with other graduate students to write and submit public comments

**PENN STATE STATISTICS GRADUATE STUDENT ASSOCIATION**

*Wellness Chair*           2018 – 2019

* Organized yoga sessions for department members one or two days a week

**TCNJ ENVIRONMENTAL CLUB**

*President* 2016 – 2017

* Led weekly meetings and organized events such as weekly campus clean-ups, educational film screenings, and recycling presentations

*Secretary* 2015 – 2016

* Sent weekly reminders and meeting minutes

**TCNJ VEG LIFE CLUB**

*Vice President & Co-Founder* 2016 – 2017

* Co-founded an official campus club for students interested in vegetarian and vegan food

**PRESENTATIONS**

**INVITED PRESENTATIONS**

Guest lecture for STAT 592 (Teaching Statistics) at Penn State 2020

* **Topic:** Implementing the 2016 GAISE Guidelines

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**

Joint Statistical Meeting (JSM)                       2021

* **Topic:** [Survey of Probability Attitudes](https://sites.psu.edu/eisenhauer/files/2021/09/2021_jsm15min.pdf)

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

**WORKSHOP & CONFERENCE ATTENDENCE**

International Association for Statistical Education (IASE) Satellite Conference 2021

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

**TECHNICAL SKILLS**

* **Computer Programming:**  Advanced in R (tidyverse and base R), Stan, Git, GitHub, & Latex; Exposed to MATLAB, SAS, C++, HTML, & CSS
* **Software**: Adobe Creative Suite, Microsoft Office Suite, Keynote, SPSS, & Minitab