Vincent Jodoin, M.S.

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Education

University of Tennessee - Graduate School 2023 - 2027
Doctor of Philosophy in Mathematics, with concentration in Mathematical Biology *Knoxville, TN*

- **Interdisciplinary Graduate Minor** in Computational Science

University of Tennessee - Graduate School 2023 - 2025
Masters of Science in Mathematics *Knoxville, TN*

University of Kentucky - Graduate School 2021 - 2023
Masters of Science in Applied Statistics, Magna Cum Laude *Lexington, KY*

University of Tennessee 2015 - 2020
Bachelors of Science in Mathematics, Cum Laude *Knoxville, TN*

- **Concentration** in Applied Mathematics
- **Minor** in VolsTeach:Secondary Education

Relevant Coursework:

Generative AI	Math Biology	Regression Modeling
Design of Experiments	Optimal Control	High Performance Computing
Applied Bayesian Analysis	Data Visualization	Quantitative Modeling in Wildlife Health

Project Experience

Giraffe Herd Fecal Testosterone Levels vs Behaviors Fall 2024
Independent Research *Chattanooga Zoo*

- Worked in collaboration with Anthony L. Ashley, DVM. of Chattanooga Zoo and Dr. Lenhart of UTK
- Investigated the correlation between giraffe pacing time and fecal testosterone levels using Pearson correlation and regression modeling, finding significant positive associations for two subjects.
- Applied linear regression models and utilized Akaike Information Criterion (AIC) to determine optimal models, emphasizing simplicity and predictive power without additional factors.
- Conducted hypothesis testing and evaluated model strength with R^2 values, demonstrating robust analytical skills and an evidence-based approach to behavioral data interpretation.

Data-Driven Population Health Surveillance at Scale for Pandemic Readiness Summer 2024
Education Collaboration Program *Oak Ridge National Lab*

- Worked under the supervision of Dr. Hanson
- Employed Modeling strategies to simulate in both spatial and aspatial scenarios, enabling data-driven decision-making for enhanced public health measures.
- Performed literature review and data cleaning to build a robust model for COVID-19.
- Took part in and led part of the weekly journal club where several researchers, scientists, and interns discussed interdisciplinary papers within the field of applied mathematics.
- Developed skills in geographic mapping within the R Studio environment, leveraging strong skills in the use of R, and R Studio

Agent-Based Social Network Models of the Prescription Opioid Epidemic Summer - Fall 2020
Undergraduate Research Assistant for Independent Study *University of Tennessee*

- Worked under the supervision of Dr. Strickland
- Conducted interdisciplinary research, demonstrating proficiency in data analysis.
- Collaborated in compiling the findings into a manuscript to submitted to Mathematical Models and Methods in Applied Sciences (M3AS).

Modeling Networking and the Opioid Epidemic Summer 2019

Undergraduate Researcher for Summer Research Experience *NIMBioS*

- Worked under the supervision of Dr. Lenhart and Dr. Strickland
- Collaborated effectively in a summer research experience for undergraduates.
- Conducted comprehensive literature reviews, and produced a preliminary research report
- Presented findings in both poster format and conference talks.
- Developed foundational skills in NetLogo (ABM Software) and Python

Modeling of Treadmilling FtsZ Filaments in E. Coli Spring 2017

Undergraduate Researcher for Research Methods *University of Tennessee*

- Worked under the supervision of Dr. Jann Mannick and Dr. Susan Riechert
- Crafted a research proposal and delivered an organized oral presentation.
- Developed foundational skills in MatLab

SC14–Supercomputing Conference Fall 2014

Student Cluster Competition Intern *University of Tennessee and ORNL*

- Worked under the supervision of Dr. Betro and Dr. Peltz
- Contributed to the HPC university programming team as one of only two high school students
- Developed preliminary skills in OpenMI and MPI in paralleization of code.
- Developed foundational skills in C++, Cuda, and Fortran

Publications, Presentations, and Invited Talks

Webinar Talk | Morsels from Numbers and Nature 2025

- Vincent Jodoin and Brenna Kelly, **"From CDC to the Classroom: Advancing from Spatial to Spatiotemporal Modeling of COVID-19 Impacts"**

Conference Talk | 103rd Meeting of the Southeastern Section of the Mathematical Association of America 2024

- Vincent Jodoin, **"Unraveling Plague Dynamics: Basic Modeling of Transmission Pathways in Black-Tailed Prairie Dog"**

Journal Paper | Submitted to Mathematical Models and Methods in Applied Sciences (M3AS) 2025

- Pearcy, Queen, **Jodoin**, Lenhart, Strickland, **"Construction and Data-driven Analysis of a Stochastic, Individual-based Opioid Epidemiology Network Model"**

Invited Talk | Joint Math Meetings 2020

- **"Modeling the Effects of Social Networks on the Spread of Opioid Use,"** American Mathematical Society invited presentation

Workshop Leader | Big Orange Science Saturdays 2019

- "Virtual Reality in the Classroom"

Keynote Speaker | American Museum of Science and Energy 2018

- "AMSE's Impact on My Educational Career," Grand Re-Opening

Experience in Teaching and Research

University of Tennessee

Graduate Research Assistant *Oak Ridge National Lab*

- Worked under the supervision of Dr. Hanson in the Graduate Research Program at ORNL (GRO)
- Continued in building a data collection to clean and implement into our model.
- Reviewed literature for understanding common strategies in the field as well as new methods to identify where needs are present for developing a mechanism for predicting the bio-preparedness for a region.
- Developed a proof of concept model using R studio and the `rinla` package to perform aspatial, spatial and spatio-temporal modeling.

Graduate Teaching Associate *Mathematics Department*

- Developed both formative and summative assessments as well as interactive note takeing guides.
- Provided feedback to student work and develop teaching resources to improve student mastery.
- Took part in the TAPDINTO-STEM program at UTK as a graduate mentor to 10 undergraduate students.
- Spring 2025 — Instructor of record for a section of Math 151 - Calculus for the Life Sciences, and lead instructor at The Math Place.
- Fall 2024 — Instructor of record for two sections of Math 125 - Basic Calculus.
- Spring 2024 — Instructor of record for two sections of Math 125 - Basic Calculus.

Graduate Teaching Assistant *Mathematics Department*

- Fall 2023 — Co-instructed two sections of Math 119 - College Algebra.

The Academies of Grand Island Senior High

Educator *The Academy of Freshmen Exploration*

- Piloted a new resources, and developed teaching aids and supplemental items to enrich the learning experience for students of different abilities.
- Collaborated with local Universities to invite professors from the mathematics department to teach micro lessons on topics from class.
- Instructor of record for six sections of Algebra 1 and Geometry Honors

Columbus Middle School

Educator *STEM Department*

- Instructor of record for seven sections of students. Topics ranged from CAD/ 3D Printing, Drafting, Programming, Wood shop, Electronics
- Developed and wrote the new curriculum for the STEM department to align with state standards and district goals.

Farragut High School

Educator *Mathematics Department*

- Instructor of record for four sections of Geometry college prep and honors.
- Developed resources for students of different abilities and adapted content for both modification and accommodations.

Professional Organizations and Affliations

Nebraska State Chess Association: Vice President, Board of Directors
Association for Women in Mathematics at UT: Member
Society for Advancement of Chicanos/Hispanics and Native Americans in Science at UT: President, Executive Board
Society for Industrial and Applied Mathematics at UT: Member
Mathematics Graduate Student Council: Vice President, Executive Board

Honors, Awards, and Certifications

Graduate Student Senate Award : Outstanding Graduate Student Support Award
Graduate Student Senate Award : Excellence in Service
Graduate Student Senate Award : Excellence in Graduate Student Teaching
Kaggle Certification : 5-Day Gen AI Intensive Course with Google
Certificate in Teaching: CIRTL Network, Associate level in Facilitating Undergraduate Evidence-Based Learning
Graduate Student Spotlight: Teaching & Learning Innovation at University of Tennessee
Eaves Graduate Student Teaching Award: University of Tennessee Mathematics Department
Certificate in Online Teaching & Learning: University of Tennessee
Nominated Teacher of the Year: Grand Island Public School District
Excellence in Undergraduate Research: University of Tennessee
Distinction in Undergraduate Research: University of Tennessee
Pollyanna Harris: University of Tennessee Mathematics Department
JP/Gladys Maples Fund : University of Tennessee Mathematics Department
Robert Noyce NSF: University of Tennessee College of Education