William Ranis

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Education

Auburn University — Auburn, AL
Ph.D. Mathematics — Expected 2031

Miami University — Oxford, OH
M.S. Mathematics — 2026
Dynamical Systems and Mathematical Modeling Certificate
GPA: 3.95/4.00

University of Wisconsin–Platteville — Platteville, WI
B.S. Mathematics — 2024
Finance & Actuarial Science Emphasis
Minors: Applied Statistics, Spanish
GPA: 3.84/4.00

Professional Experience

Graduate Teaching Assistant — Miami University & Auburn University — Aug. 2024–Present

- Lead discussion and recitation sections for undergraduate mathematics courses.
- Grade homework, quizzes, and examinations while providing timely feedback.

Mathematics Tutor — University of Wisconsin–Platteville — Feb. 2022–May 2024

- Tutored undergraduate students in calculus, linear algebra, differential equations, and statistics.
- Adapted instruction to students with varying mathematical backgrounds.

Demand Analyst Intern — Plexus Corp. — Jun. 2023–Aug. 2023

- Analyzed demand planning data using Kinaxis, JD Edwards, Excel, and Power BI to support forecasting and operational decision-making.
- Developed customer-facing reports and dashboards in Power BI and Microsoft Excel.

Technical Projects

Undergraduate Research — 2022–2024

- Conducted research on an open mathematical problem under faculty supervision.
- Presented research findings at regional mathematics conferences.
- Co-authored a paper published in the *Pi Mu Epsilon Journal*.

Master's Research Project — 2025–2026

- Derived and analyzed logistic regression and related statistical learning models from first principles.
- Developed an event-driven algorithmic trading framework in Python for evaluating multiple trading strategies.
- Implemented statistical learning algorithms to classify favorable trading strategies using historical market data.
- Investigated optimization methods including L-BFGS for large-scale maximum likelihood estimation.

- Designed data pipelines for processing financial time-series data and evaluating model performance.
- Assessed trading strategies using financial metrics including Sharpe ratio and maximum drawdown.

Honors & Awards

- Excellence in Graduate Studies (Mathematics) 2025, 2026
- Outstanding Academic Achievement Award (Mathematics) 2022
- Chancellor's List 2022
- Chancellor Scholar 2020–2023

Publications

Frayer, C., and Ranis, W. (2024). *The Geometry of Quartic Polynomials.* Pi Mu Epsilon Journal.

Technical Skills

Programming: Python, R
Statistical Learning: Logistic Regression, LDA/QDA, KNN, Random Forest, Gradient Boosting
Libraries: NumPy, pandas, SciPy, scikit-learn, statsmodels
Tools: Power BI, Microsoft Excel, Jupyter Notebook, LaTeX