Ashley K. W. Warren

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SUMMARY

Math PhD specialized in data science and data analysis – projects include a top 1.9% ranking in a Kaggle competition. Over 15 years of experience researching, teaching, and mentoring, especially with members of under-represented demographic groups. Talent for presenting complex topics in an aesthetic, approachable way to both technical and non-technical audiences.

SKILLS & CERTIFICATIONS

- Languages & platforms: Python, SQL, Tableau, R, JavaScript (d3.js, React), HTML/CSS, git, bash, VS Code.
- Python libraries:numpy, matplotlib, pandas, scikit-learn, XGBoost, PyTorch, BeautifulSoup, FastAPI/Flask.
- Technical expertise: linear algebra, multivariate calculus, inferential statistics, algorithms, data structures, neural networks.
- Soft skills: MS Office Suite, Google Suite, LaTeX. Objective- and efficiency-driven, thrives independently and in teams.
- Certifications: Erdös Institute Data Science Boot Camp (2024), Erdös Institute Data Visualization (2023).

EDUCATION

Accepted, MS in Analytics, Georgia Institute of Technology (Starting Fall 2025, Computational Data Analytics Track) **2027**

PhD in Mathematics, University of Michigan (Embedded MS in Mathematics, 2011, GPA = 3.6) **2014**

- *Ideals generated by principal minors*, under Mel Hochster. Published in two parts: Arxiv version of part 1 and part 2.

BS In Mathematics, Kansas State University (Physics Minor, GPA = 3.6) **2008**

- McNair Scholar. Designed and taught a quantitative reasoning GRE prep course for other McNair scholars.
- Nominee, Barry Goldwater Scholarship.
- 19 (top ~20% nationwide), Putnam. Earned Fung's Achievement Award for attaining the highest score at KState.

SELECTED DATA SCIENCE PROJECTS

Kaggle: Housing Prices [repository] **2025**

- Engineered 79 features using Python pipeline objects (imputing, scaling, one-hot encoding). Tested 8 models: top 3 were elastic net (RMSE 0.1256), lasso regression (RMSE 0.1259), and gradient boosting (RMSE 0.1276).
- Ranked in the top 1.9% out of over 24,000 submissions with RMSE of 0.12203.

2024 US Presidential Election Forecast [web page] **2024**

- Forecasted the outcome of the 2024 US Presidential Election using time series analysis with scikit-learn and double exponential smoothing on selected polling data from FiveThirtyEight.
- Simplified FiveThirtyEight's model and still correctly predicted the winner in 47 out of 50 states.

The Erdös Institute: Do-nothing Congress [video, slides] **2024**

- Aggregated data with Python on over 15,000 bills introduced in the 118th Congress, then applied scikit-learn's logistic regression to predict which bills would become law.
- Algorithm outperformed the baseline of 99.6% non-passage prediction (data was highly imbalanced; only 64 bills had become law as of completion of the project).

EXPERIENCE

Centre College, Visiting Assistant Professor (Danville, KY) **Aug 2023 - Aug 2024**

- R-based intro to stats, ~150 students. Assigned an R-based data science portfolio-worthy regression study. Syllabi selected for use as institution templates for ideal inclusive syllabi.
- Increased the department's problem bank by 10% using Moodle's syntax for randomized questions. Reduced faculty lecture overrun instances by cutting shared materials 25% and typesetting all solutions.

Erdös Institute, Teaching Assistant [certificate] (Online) **May 2023 - May 2023**

- Led daily ML-focused problem sessions and provided feedback on Python-based data science exercises for the Data Science Boot Camp.

Georgia Institute of Technology, Postdoc Researcher (Atlanta, GA) **Aug 2021 - May 2023**

- Intro and intermediate linear algebra, graduate-level commutative algebra, total of 200+ students. Maintained the website for the weekly faculty algebra seminar, invited ~30 outside speakers, gave two talks.
- Directed REU program: selected 3 from 500+ applicants, mentored research on toric ideals, held weekly professional development sessions, and wrote original templates for technical papers and presentations. Presented at JMM 2023.

Mount Holyoke College, Visiting Lecturer (South Hadley, MA) **Jul 2018 - Jun 2021**

- Women's college. Calc I-III, abstract algebra, discrete math, ~30 students each. Produced over 350 lecture slides for the pandemic era SY. Recorded pre-lecture videos and conducted virtual synchronous instruction five times a week.
- Coached the Putnam team, top MHC score: 10 (top ~33% nationwide). Judged HackHolyoke by invitation, over 50% of participants identified as women. Collaborated with two other authors to publish new research on matroid varieties.
- Offered an extended contract in 2021 and again in 2023 due to excellence in teaching, research, and mentorship.