

# Munkhbat Charles Batsaikhan

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Email: [cbatsaik@macalester.edu](mailto:cbatsaik@macalester.edu) | Phone number: (952) 923-9267 | Portfolio: <https://cbatsaik.github.io/>

## EDUCATION

Department of Mathematics, Statistics, and Computer Science, Macalester College, St. Paul, MN.

BA in Statistics (Major) and Mathematics (Minor)

Expected May 2025

- Current GPA: 3.63/4.00
- Major GPA: 3.82/4.00
- Advisor: Prof. Brianna Heggeseth

## RELATED COURSES

Statistical Modeling, Statistical Machine Learning, Intermediate Data Science, Database Management Systems, Computational Linear Algebra, Causal Inference, Probability. Statistical Theory, Statistical Genetics.

## RESEARCH INTEREST

Statistical Machine Learning, Statistical Inference, Nonparametric methods, E-value Sensitivity Analysis.

## RESEARCH EXPERIENCE

*Capstone – Analyzing the Environmental Legacy of Racial Covenants in Minneapolis*

- Analyzed the effects of 1920s racial covenants on present-day environmental inequality using causal inference and spatial analysis (R, ArcGIS Pro).
- Integrated air quality data, social vulnerability metrics, and land surface temperature to create an Environmental Injustice Score.
- Identified persistent disparities in historically marginalized neighborhoods, highlighting the legacy of discriminatory housing practices.
- Presented findings with actionable policy insights to address ongoing environmental injustices.

*Opioid Epidemic - Intermediate Data Science*

- Cleaned and processed large datasets using R (Tidyverse) for data-driven insights.
- Applied Random Forest models to identify key predictors of opioid overdose death.
- Created interactive dashboards and regional maps for trend exploration and spatial analysis.

*Powerlifting Dataset - Statistical Machine Learning*

- Analyzed powerlifting data using R to predict outcomes.
- Applied machine learning techniques such as LASSO and Logistic Regression.

## TEACHING EXPERIENCE

*Teaching Assistant at Macalester College*

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|---|-------------|
| • STAT 354: Probability Upcoming        | Spring 2025 |
| • STAT 253 Statistical Machine Learning | Fall 2024   |
| • STAT 112 Intro to Data Science        | Spring 2024 |

## SUMMER EXPERIENCE

*College Instructor, Math Corps, Macalester College*

June-Aug 2024

- Developed and created lesson plans incorporating statistical and data science concepts.

- Trained high school teaching assistants in data collection and analysis methods
- Served as a positive role model, consistently displaying leadership and promoted collaboration among staff and students.

*Summer Intern-Accounting, Kokua Kalihi Valley-Health Center, Honolulu, HI*

May-July 2022

- Entered journal entries on MIP Fund Accounting software.
- Improved skills in Excel by running monthly expense summaries.
- Created instructional PowerPoints for office equipment use.

## **PROGRAMMING**

R; Python; SQL; Java

## **DATA ANALYTICS TOOLS**

Tidycensus, Pandas, TensorFlow, NumPy, Tidyverse, Excel, Tableau, RShiny, PowerBI, ArcGIS Pro

## **ACADEMIC AWARDS**

Macalester College DeWitt Wallace Scholarship

Aug 2021-Present

Dean's List

Spring 2023/Fall 2024

## **LEADERSHIP ACTIVITIES**

*Macalester Men's Swimming and Diving Team*

Sep 2021 - Present

- Captain of the swim and dive team
- Nominated Team "MVP" as a first, second, and third year.
- Won Gold, Silver, and Bronze Medals in the Minnesota Intercollegiate Conference Championship.
- Twenty-time record holder in swimming for the history of Macalester College.