

# Freddy Barragan

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## EDUCATION

### Macalester College

Major: Statistics

Concentration: Community and Global Health

B.A. Expected May 2022

GPA: 3.86

**Selected Coursework:** Bayesian Statistics, Mathematical Statistics, Causal Inference, Probability, Machine Learning

**Academic Honors and Awards:** Mann-Hill Fellowship, Margaret Hayes Scholarship, Macalester's Deans List, Catharine Lealtad Scholarship, DeWitt Wallace Grant, International Baccalaureate Diploma

## SKILLS

**Technical:** Highly Proficient in R; Proficient in STAN, Python, and Excel, Familiar with RShiny, Git, & Mathematica

**Spoken Languages:** English (Native), Spanish (Bilingual Proficiency)

## WORK EXPERIENCE

### Undergraduate Research Assistant, University of Minnesota, Minneapolis, MN

June 2020 - Ongoing

- Mentors: Dr. Kelsey Grinde, Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Awarded NIH Diversity Supplement Grant (PA-16-288) for Dr. Spector's R01 to independently study DNA methylation & causal mediation in pediatric ALL.
- Performed demographic and differential gene expression analysis in 5 major pediatric cancers using TARGET & PeCan datasets via linear regression, empirical Bayes, and random forest classification in R.
- Conducted survival analyses in 17 different pediatric cancers using SEER datasets in R. Confirmed evidence of survival differences by race & sex in 11 different cancers, with publication pending.
- Independently scraped public data repositories and created an in-group directory of big genomic data using Python, R, and LINUX.

### Mann-Hill Research Fellow, Macalester College, St. Paul, MN

May 2021 - August 2021

- Mentors: Dr. Kelsey Grinde, Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Using admixture methods and ancestral inference to identify the basis of major survival disparities in pediatric B-ALL using TARGET & PeCan datasets with R, RFMix, BASH and Python.
- Developing approaches to study interactions between local and global ancestry in gene expression data.
- Awarded scholarship to attend the University of Washington Department of Biostatistics's Summer Institute in Statistical Genetics.

### Preceptor, Macalester College, St. Paul, MN

August 2019 - Ongoing

- Helped instructors teach courses on Applied Multivariable Calculus (MATH 135), Introduction to Statistical Modeling (STAT 155), and Statistical Machine Learning (STAT 253).
- Hosted twice-weekly office hours, graded, and worked intimately with students to develop their fluency in study design, statistical models, and machine learning in R.
- Currently helping 65 students learn advanced regression, classification, PCA, and other unsupervised ML techniques in R and RMarkdown.

### WMCN Summer Radio Station Manager, Macalester College, St. Paul, MN

July 2019 - September 2019

- Oversaw a FCC-syndicated radio station, as lead technical manager. Maintained FCC radio standards, performed radio transmitter readings, and maintained the station's U.S. Emergency Alert System.

- Supervised and hosted radio shows throughout the summer, helping DJs perform live-sessions and interviews, while establishing new admissions methods and leading crucial studio renovations.

## SUBMITTED MANUSCRIPTS

1. Moore, K., **Barragan, F.**, Williams, L., “Survival disparities for childhood cancers exist when defined by race/ethnicity and sex”.

## RESEARCH PRESENTATIONS

1. **Barragan, F.**, Mills, L., Raduski, A., Marcotte, E., Spector, L., Grinde, K., Williams, L., “Gene Expression Differences by Race and Genetic Ancestry in B-Cell Acute Lymphoblastic Leukemia”. Contributed poster at American Society for Human Genetics Annual Meeting, 2021. (*Accepted*)
2. **Barragan, F.**, Mills, L., Raduski, A., Marcotte, E., Spector, L., Grinde, K., Williams, L., “Statistical Methods for Pediatric Leukemia: Gene Expression & Ancestry in B-Cell Acute Lymphoblastic Leukemia”. Contributed poster at Macalester Summer Research Showcase 2021, Saint Paul, MN.
3. **Barragan, F.**, Moore, K., Williams, L., “Survival disparities for some childhood brain tumors exist when defined by race/ethnicity and sex”. Contributed poster at Neuro-Oncology Symposium Conference 2021, Minneapolis, MN.
4. **Barragan, F.**, Mills, L., Spector, L., Williams, L., “Gene Expression & Clinical Differences in Pediatric Neuroblastoma by Sex”. Video presentation at Electronic Undergraduate Statistics Research Conference. (*Award for Best Video Presentation*)

## SERVICE & LEADERSHIP

**CGH Concentration Steering Committee Member**, Macalester College, St. Paul, MN **Fall 2020 - Ongoing**

- Acts as a senior student representative for 59 CGH concentrators and advocates for student needs to the academic board.
- Organized and hosted academic panels and webinars and community outreach events to connect potential students with other CGH concentrators and CGH faculty.
- Presented at community outreach events, lectures, and new student orientations to help guide CGH concentrators through the internship process.

**WMCN 91.7 FM Station Staff**, Macalester College, St. Paul, MN **January 2019 - September 2019**

- Senior staff member of a FCC syndicated FM radio station, designing programming, events, and DJing
- Independently designed and implemented new training programs in September 2019 for beginning DJs.

**MACCESS Coordinator**, MPIRG, St. Paul, MN **October 2018 - Fall 2020**

- Lead organizer in the coordination of an independent major admissions event for 50 first-generation, low-income, high school students of color from the Twin Cities’ Public School District. 2020 Session cancelled due to COVID-19.
- Collaborated with faculty to provide an introductory Computational Linear Algebra lecture on facial recognition software for 24 attendees interested in Computer Science and Mathematics.

## PROFESSIONAL MEMBERSHIPS

- American Statistical Association (ASA)
- American Society for Human Genetics (ASHG)
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)