

# 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, Correlated Data, Causal Inference, Statistical Machine Learning, Epidemiology, Medical Geography

**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 Python and Excel; Familiar with SQL, 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.
- Used 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.
- Developed 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 use advanced regression, classification, PCA, and other unsupervised ML techniques in R and RMarkdown for semester-long projects.

**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 processes and leading crucial studio renovations.

## CURRENT MANUSCRIPTS

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

## 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 2021 Annual Meeting, Virtual.
2. Barragan, F., Mills, L., Raduski, A., Marcotte, E., Spector, L., Grinde, K., Williams, L., “Characterizing Racial Disparities in Pediatric Cancer: Ancestry, Gene Expression, and Survival Disparities in B-Cell Acute Lymphoblastic Leukemia”. Contributed poster at Underrepresented Students in STEM Symposium 2021, Minneapolis, MN.
3. 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.
4. 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.
5. 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      **September 2020 - Ongoing**

- 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- Ongoing**

- Lead event-programming and trained shows dedicated to international music, as a senior staff member of a FM radio station.
- Independently designed and implemented new training programs in September 2019 for beginning DJs.

**Macalester JVP Chair**, Macalester College, St. Paul, MN      **October 2020 - Ongoing**

- Founded a local branch of Jewish Voice for Peace, a national political organization dedicated to educating the U.S. population on human rights abuses and violations by the Israeli government.
- Organized an academic colloquium on Palestine with academic departments, in collaboration with 4 well-respected academics and activists across the United States. Cancelled due to COVID-19.

**MACCESS Coordinator**, MPIRG, St. Paul, MN

**October 2018 - November 2020**

- Lead coordinator of an independent admissions and college counseling event for 50 first-generation, low-income, high school students of color from the Twin Cities' Public School District. 2019-2021 Sessions 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)**
- **International Society for Bayesian Analysis (ISBA)**
- **Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)**