

# Freddy Barragan

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## EDUCATION

### Macalester College

Major: Applied Mathematics and Statistics

Concentration: Community and Global Health

B.A. Expected May 2022

GPA: 3.84

**Selected Coursework:** Mathematical Statistics, Causal Inference, Probability; Machine Learning; Linear Algebra; Introduction to Data Science; Applied Multivariable Calculus III; International Public Health

**Academic Honors and Awards:** Margaret Hayes Scholarship, Macalester's Deans List, Catharine Lealtad Scholarship, DeWitt Wallace Grant, International Baccalaureate Diploma, High Academic Honors in Science, Diversity Scholarship

## SKILLS

**Conceptual:** Differential Gene Expression Analysis, Statistical Genetics, Machine Learning Classifiers, Causal Inference Methods, Applied Regression, Bootstrapping Techniques, Data Wrangling, Data Visualization

**Technical:** Highly Proficient in R; Proficient in LaTeX, Mathematica, and Excel; Familiar with Python & UNIX.

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

## WORK EXPERIENCE

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

June 2020 - Ongoing

- Mentors: Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Performed demographic and differential gene expression analysis in 5 major pediatric cancers using TARGET & PeCan datasets with 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 using Python & R.
- Prepared a NIH subsidiary grant proposal to conduct a novel form of epigenetic analysis to understand B-ALL survival disparities.

### 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.
- Independently designed and implemented new training programs for beginning DJ's that lead to a 40% increase in listener engagement.

### Facilities Services Office Assistant, Macalester College, St. Paul, MN

May 2019 - September 2019

- Handled the processing of extremely sensitive financial information and valuable materials.
- Performed data entry and cleaning in commonly used security softwares (Keystone, Wizard - Perfomo, and Excel).
- Member of a student diversity and inclusion committee which interviewed candidates for a position as director of security

## TEACHING EXPERIENCE

**Introduction to Statistical Modeling Preceptor**, Macalester College, St. Paul, MN **January 2020 - Ongoing**

- Helped instruct an introductory statistical modeling class where students learn to use dynamic data analytic methods, perform data cleaning, and understand statistical concepts in and through RStudio.
- Worked intimately with and tutoring groups of students on statistical study design, concepts in probability, and statistical computing. Also, proofread and helped prepare statistical reports in LaTeX and RMarkdown.

**Applied Multivariable Calculus Preceptor**, Macalester College, St. Paul, MN **August 2019 - December 2019**

- Helped instruct Macalester's introductory class to Applied Multivariable Calculus by designing and teaching lesson plans for various calculus concepts and modeling exercises in RStudio.
- Hosted office hours throughout the semester, actively working with students to review material and complete various assignments and projects.

## SERVICE & LEADERSHIP

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

- Selected as a student representative for the Community & Global Health concentration to advocate for student needs and interests.
- Organized & hosted an academic lecture on the biologic & epidemiological basis of the COVID-19 pandemic.
- Presented at community outreach events, lectures, and new student orientations to help guide CGH concentrators through the internship process.

**Founder and Chair**, Macalester JVP, St. Paul, MN **October 2018 - Ongoing**

- Founder and chair for Macalester's branch of Jewish Voice for Peace, a nonprofit grassroots organization aimed to educate the U.S. public about the human rights violations committed by the Israeli Government.
- Organized an academic colloquium on Palestine with academic departments, in collaboration with well-respected academics and activists across the United States. Cancelled due to COVID-19.
- Hosting and leading weekly meetings of 20-40 students, as well as, designing on-campus educational campaigns.

**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.

## TALKS & PRESENTATIONS

1. **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.

- I presented a methodological review of differential expression and its application to the analysis of sex-based disparities in pediatric cancers. Of 16 undergraduate presentations, I tied for "Best Video Presentation."

## PROFESSIONAL MEMBERSHIPS

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