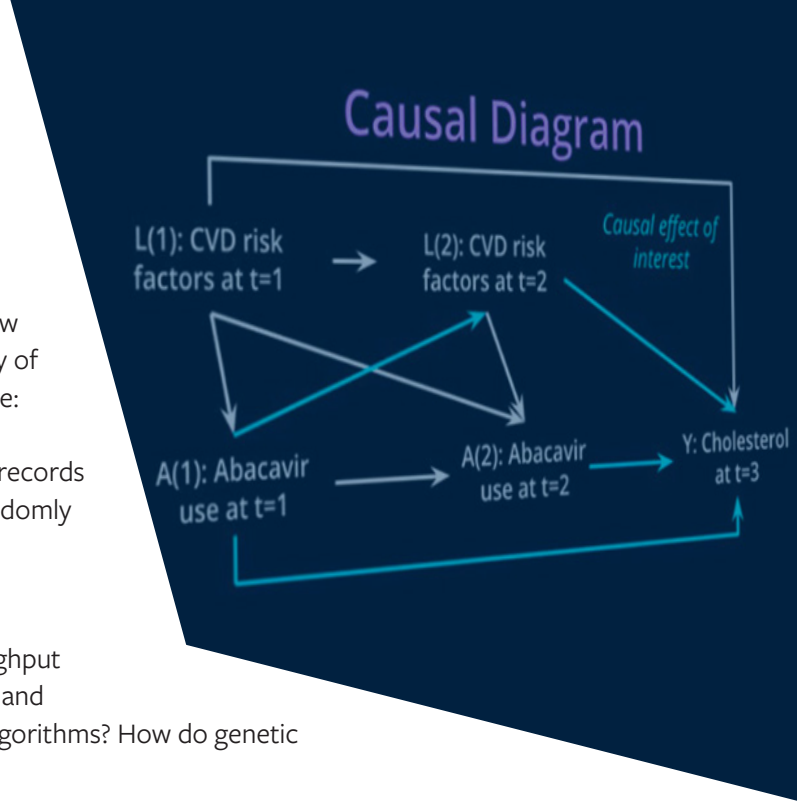
Berkeley
UNIVERSITY OF CALIFORNIA

Biostatistics Programs

School of Public Health

RECRUITMENT GUIDE



What is biostatistics?

Biostatisticians analyze biological data, especially data related to human biology, health, and medicine. We know how to work with large datasets collected from a variety of sources. The types of research we do at Berkeley include:

• **Causal Inference:** How can we use electronic health records and health registry data, in which treatments are not randomly assigned, to study the long-term impacts of antihyperglycemic drugs on risk of dementia?

• **Genetic analysis:** How should we analyze high-throughput sequencing data to better understand genetic functions and interactions using machine learning and deep learning algorithms? How do genetic variants affect molecular and cellular phenotypes?

• **Randomized trial design and analysis:** How do population-level strategies for delivering HIV testing, treatment, and prevention options impact community health outcomes in Kenya and Uganda?

• **Disease modeling:** What role could novel mosquito control strategies play in eliminating diseases such as malaria, dengue and Zika virus? Which data sets are most informative for characterizing mosquito and pathogen populations to support intervention planning?

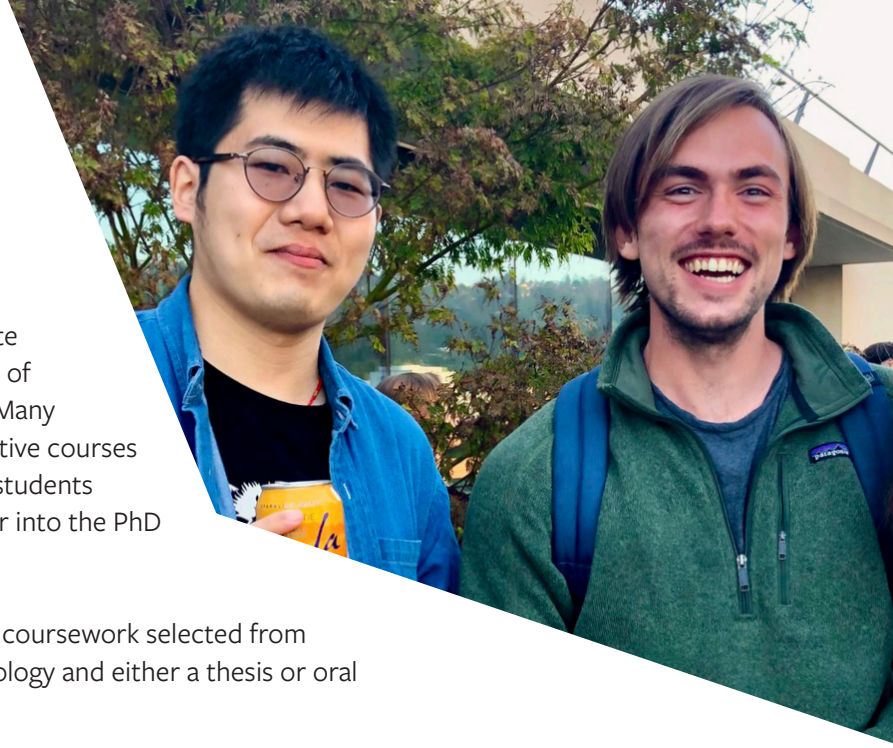
• **Health disparities:** How does traffic-related air pollution impact the risk of preterm birth for Asian, Black, Latina, and White mothers living in Oakland and San Jose, California?

• **Precision public health:** How can electronic health data collected during emergency room visits and in trauma units be used to predict patient outcomes and recommend interventions to improve outcomes for acute trauma patients?

Berkeley Public Health (BPH)

The graduate group in Biostatistics is located within Berkeley Public Health (BPH). BPH has a strong commitment to achieving health equity and justice, studying the impacts of climate change and the spread of infectious diseases, and improving human health especially of populations suffering the most burden, locally and globally.

The BPH student body is diverse. As part of the Biostatistics cohort you can attend BPH events (e.g., the brown bag lunch seminars, Dean speaker series) and participate in student organizations (e.g., BPH student government). Biostatistics strongly encourages diverse applicants to apply — your voice is critical to tackling the most pressing research challenges from a diverse range of perspectives and backgrounds. Read more about our guiding principles in our Principles of Community Statement (https://publichealth.berkeley.edu/about/principles-of-community-statement/).



Graduate Programs in Biostatistics

We accept students directly from undergraduate programs, and also students who have a variety of experiences after their undergraduate studies. Many successful students have taken several quantitative courses already like Calculus and Linear Algebra. Some students pursue only an MA degree, while others transfer into the PhD program from the MA:

- **Master's (MA only):** A 2-year program with coursework selected from biostatistics and statistics, public health, and biology and either a thesis or oral comprehensive examination in the second year.

- **Doctoral (MA to PhD):** The PhD degree program requires 4 to 6 semesters of coursework, the completion of a qualifying examination and a dissertation.
    - Most applicants to our PhD program do not already hold an MA. If admitted, they enter initially to the MA-PhD degree program, and then apply to continue into the PhD program.
    - A limited number of students with Masters degrees in biostatistics or a related field are admitted directly into the PhD program

Resources for Growth and Success

Students have several opportunities to be student instructors, student researchers, and countless access to fellowships and internships in academia and private companies in the Bay Area.

Jobs Upon Graduation

Grads have fruitful careers in academics, public health, and the private sector. Here are just some of the job titles and employers of our Alumni:

- Biostatisticians at hospitals as part of a research group at Cornell and the University of California, San Francisco
- Professors at University of Washington, Stanford, Johns Hopkins
- Research scientists and Data scientists at Google, Genentech, Lyft, and Stitch Fix

TESTIMONIALS

James Roose, MA, ***Quantitative Scientist at Flatiron Health in New York City***

My degree and training have allowed me to communicate clearly with statisticians and clinicians across the biotech/pharmaceutical industry, including at regulatory agencies. Biostatistics is essential to my day-to-day work, and Berkeley provided me with a rigorous foundation and the technical skills required to be a data scientist/statistician. Berkeley biostatistics taught me the importance of asking the right questions and translating clinical or scientific questions into parameters to estimate. The causal inference framework introduced in a number of the courses at Berkeley is directly applicable to my day-to-day work, as I work with observational data from electronic health records to answer clinical research questions.

Dr. Sherri Rose, MA, PhD, ***Associate Professor at Stanford University, Stanford, California***

UC Berkeley Biostatistics is exemplary at providing training such that students can take applied questions and translate them into statistical estimation problems that can then be estimated with rigorous, innovative tools. This background will serve you well whether you are developing new statistical methodology at the bleeding edge of semiparametric theory and machine learning or using existing approaches to answer high-impact population health questions. My degree in biostatistics also gives me a unique perspective when I collaborate with clinicians, economists, epidemiologists, and health services researchers on health care methods and policy.

Dr. Weixin (Wilson) Cai, MA, PhD, ***Senior Data Scientist at Microsoft***

The curriculum in the Biostatistics MA and PhD programs provides rigorous training; it set me apart from my peers when I pursued my career as a data scientist. The expertise I obtained in causal inference is widely sought-after in the technology and medical industries. The faculty and the research topics at Biostatistics program represent the best of the intersection of cutting-edge statistical theory, critical biomedical applications, and industry-leading methods. The Berkeley Biostatistics program empowers me to create a huge impact by doing novel statistics research and bringing my research into the data science industry.

FOR MORE INFORMATION

Website

- https://publichealth.berkeley.edu/academics/biostatistics/biostatistics-phd/
- https://publichealth.berkeley.edu/academics/biostatistics/biostatistics-ma/

Have questions? *You can email us at biostat@berkeley.edu. Applications for admission in Fall 2022 will open on September 15, 2021 and are due by December 1, 2021 at 9pm Eastern Time. You can find a link to the application on the Berkeley Graduate Division website and more information about the required application materials on the Berkeley Public Health website.*

Brochure created by Jacky Duong