



# PUBLIC HEALTH DATA SCIENCE



Use advanced data science techniques to improve the way public health is practiced around the globe.

This innovative new Public Health Data Science MPH program offers students the opportunity to combine public health and data science into one degree. It's one of the only programs of its kind in the U.S.

The program's emphasis on data analytics and visualization is ideal for those who want to develop their skills in public health analysis and communicating results to key stakeholders.

## PROGRAM OVERVIEW

The Public Health Data Science MPH program is administered by faculty and staff within the School of Public Health (SPH) Division of Biostatistics, with core MPH courses offered in partnership with faculty and staff across the school.

Students in this program enjoy small classes and individual faculty attention, state-of-the-art computing facilities, proximity to a large academic health center, a strong record in job placement, and access to a wide variety of teaching and research assistantship experiences.

## CURRICULUM

The curriculum combines a solid understanding of public health concepts with advanced data science skills and techniques.

**Students complete at least 43 credits as follows:**

- Public health core (12 credits)
- Data science core (minimum 19 credits)
- Elective courses in statistical methods and study design (minimum 6 credits)
- Elective courses in programming, visualization, and informatics (minimum 6 credits)

## EXPERIENTIAL LEARNING

As part of the core curriculum, all students complete the following experiences to embed their classroom learning into real-world settings:

**Applied Practice Experience:** The Applied Practice Experience can be completed in a wide variety of settings, from analyzing data with a non-governmental organization in a developing country, to learning about regulatory processes for drug approval in the pharmaceutical industry.

**Integrated Learning Experience:** The Integrated Learning Experience can involve a wide range of possible data-driven applied projects, such as creating a Shiny app or doing an enhanced analysis of an existing dataset.

## WHO SHOULD APPLY?

The Public Health Data Science MPH program admits individuals with a strong interest in advancing public health who would like specialized training in computational and statistical data science methods, including organizing, visualizing, and analyzing data. It is suited for both recent college graduates as well as experienced professionals wanting to add data science expertise.

## ADVANTAGES OF THE PROGRAM

**Impact.** The SPH Division of Biostatistics plays a leadership role in many national and international clinical trials. Our students have the opportunity to learn from and work alongside some of the most prominent biostatisticians in the world.

**Breadth.** Interdisciplinary research includes collaborations across the University of Minnesota with the Medical School, College of Veterinary Medicine, the Carlson School of Management, the Humphrey Institute for Public Affairs, the Supercomputing Institute, and Minnesota Population Center.

**Personal attention and opportunities.** The master's student-to-faculty ratio is approximately 3:1 and students have access to a wide variety of teaching and research assistantship experiences.

## ADMISSIONS

### REQUIREMENTS

- Official transcripts
- 3 letters of recommendation
- Resume or C.V.
- Statement of purpose and objectives

### PROGRAM PREREQUISITES

To be considered for admission, prospective students must have completed the equivalent of college algebra. Prior coursework in or exposure to statistics, programming, and calculus/linear algebra may be helpful but is not required.

## WHAT DO DATA SCIENTISTS DO?

Graduates of this program will be equipped to:

- Understand potential sources of bias in data sources relevant to public health
- Formulate data-driven questions using existing data sources
- Organize, assemble, and process raw data
- Apply appropriate analysis tools and prediction models
- Communicate results clearly and succinctly
- Ensure reproducibility throughout the data analysis process

## CAREERS

Public health is a data-driven field. As the number and diversity of data sources relevant to public health rapidly increases, so too does the demand for public health data scientists with expertise in collecting, managing, visualizing, and analyzing complex health data, and with the skills to communicate results to stakeholders and policymakers. Job prospects for data scientists are excellent, with Glass Door reporting a median base salary of \$108,000.

### EXAMPLES OF POSITIONS HELD BY PUBLIC HEALTH DATA SCIENTISTS

- Public health analyst
- Public health data analyst
- Clinical research data coordinator
- Clinical research data analyst
- Study coordinator
- Clinical research associates
- Clinical research coordinator
- Other positions that are required to set up databases, explore data, and/or create data visualizations

## EXPERT FACULTY

Public Health Data Science students engage with dedicated faculty who are some of the most prominent experts in the world.



Associate Professor **Mark Fiecas** aims to understand the structure and function of the human brain through the use of imaging technology. His experience with neuroimaging research spans a broad range of areas, from studying the connectivity of the human brain to investigating genetic underpinnings of brain phenotypes. From a methodological perspective, his primary interest is in time series analysis.