Opportunity Title: CDC Biostatistics and Data Science Fellowship
Opportunity Reference Code: CDC-DFWED-2021-0275

Organization	Centers for Disease Control and Prevention (CDC)
Reference Code	CDC-DFWED-2021-0275
How to Apply	*Connect with ORISE...on the GO!* Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcripts – Click here for detailed information about acceptable transcripts
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- One educational or professional recommendation. Your application will be considered incomplete, and will not be reviewed until one recommendation is submitted.

All documents must be in English or include an official English translation.

Application Deadline	10/13/2021 3:00:00 PM Eastern Time Zone
Description	***Applications will be reviewed on a rolling-basis.**

CDC Office and Location: A research opportunity is currently available with the Surveillance, Information Management, and Statistics Office (SIMSO) of the Division of Foodborne, Waterborne, and Environmental Diseases (DFWED), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia.

DFWED is dedicated to development and advancement of biomedical research to improve public health through the prevention and control of disease, disability, and death caused by foodborne, waterborne, and environmentally transmitted infections. SIMSO consists of a motivated, highly skilled, and dynamic group of statisticians, surveillance epidemiologists, and IT professionals who work with epidemiologists and laboratory scientists in DFWED's five branches to apply existing and novel analytical methodology to a variety of complex research projects.

Research Project: The fellow will be training with experts in the fields of epidemiology, laboratory science, bioinformatics, and statistics to apply or develop statistical methods for the analysis of genetic/WGS data and other forms of "big data" resulting from waste water surveillance as well as CDC's Advanced Molecular Detection (AMD) initiative. The fellow will participate in developing, evaluating, and validating statistical and machine learning algorithms for outbreak/anomaly detection of multiple foodborne, waterborne, and mycotic pathogens. Reports summarizing findings and tools for implementing finalized algorithms will be produced. The fellow will also train in interpretation of results and will practice developing and providing the Division and external partners with training on tools developed as well as statistical software.

Learning Objectives:

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- Training in evaluating, extending, and developing methods for statistical analysis and applying these to projects related to foodborne, waterborne, and environmental/mycotic disease cluster detection and characterization
- Training with scientists in the Division to design, collect, and prepare complex datasets, often involving data from multiple sources, for the purpose of advanced statistical analyses, cluster and anomaly detection
- Assisting scientists on statistical and machine learning projects, studies, and investigations involving cluster detection and characterization
- Training with others in the Division to produce software implementation of cluster detection tools
- Training in preparing presentations for professional meetings and participating in the writing of reports and published manuscripts
- • Training in collaborating and coordinating with Division Branches, including the Enteric Disease Epidemiology and Laboratory Branches and the Outbreak Response and Prevention Branch, as well as other scientific groups.

Mentor(s): The mentor for this opportunity is Noelle-Angelique Molinari (nhm8@cdc.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: September 2021. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of CDC and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens and Lawful Permanent Residents (LPR) only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and CDC. Participants do not become employees of CDC, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](url). After reading, if you have additional questions about the application process please email ORISE.CDC.NCEZID@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing or have received a master's or doctoral

(preferred) degree in one of the relevant fields. Degree must have been received within the past five years.

Preferred skills:

- Experience in machine learning
- Experience analyzing genetic data is preferred.
- Strong background in biostatistics or statistics, and relevant public health experience including basic knowledge of the field of epidemiology
- Familiarity with different statistical and machine learning techniques and the ability to make use of our computational cluster to analyze high-throughput data
- Experience collaborating with scientists, including microbiologists and epidemiologists, on research projects
- Experience with data visualization techniques and statistical methods used for analysis of high-dimensional data, including cluster analysis methods
- Necessary programming skills to conduct statistical analysis and apply machine learning algorithms in R, SAS, or other statistical or computational software
- Experience with R Shiny and R Markdown and scripting experience in Linux, Python, or MATLAB
- Experience with study design, including sample size and power calculations

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (2 👁)
  - **Engineering** (1 👁)
  - **Life Health and Medical Sciences** (1 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Social and Behavioral Sciences** (3 👁)