

Opportunity Title: CDC Data Science Fellowship
Opportunity Reference Code: CDC-DFWED-2021-0075

Organization Centers for Disease Control and Prevention (CDC)

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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

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

Application Deadline 4/8/2021 3:00:00 PM Eastern Time Zone

Description **Applications will be reviewed on a rolling-basis.*

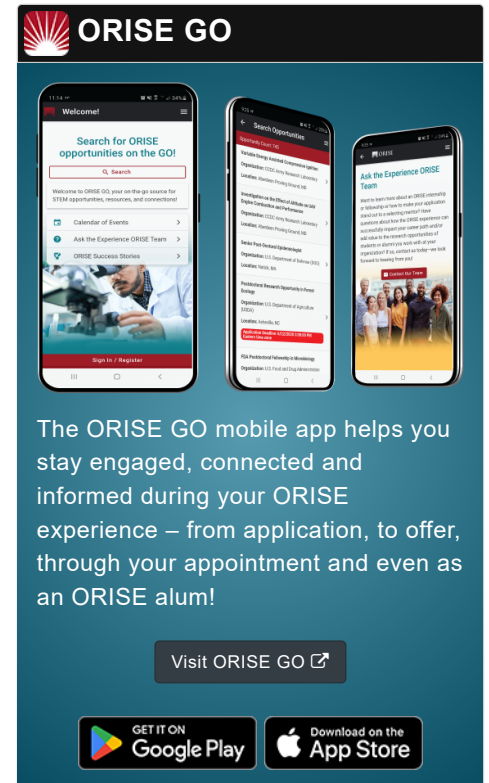
CDC Office and Location: A research opportunity is currently available in the Surveillance, Information Management, and Statistics Office (SIMSO) of the Division of Foodborne, Waterborne, and Environmental Diseases (DFWED) in the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) 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 participant will be training with experts in the fields of epidemiology, laboratory science, and bioinformatics 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 participant will be involved in developing, evaluating, and validating machine learning algorithms for outbreak detection for multiple foodborne and waterborne pathogens. Reports summarizing findings and tools for implementing finalized algorithms will be produced. The participant will also train in interpretation of results and will practice developing and providing the Division and external partners with training on tools developed.

Learning Objectives:

- Training in evaluating, extending, and developing methods for statistical analysis and applying these to projects related to foodborne, waterborne, and environmental disease cluster detection and characterization
- Training with scientists in the Division to prepare complex datasets, often involving data from multiple sources, for the purpose of cluster and anomaly



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detection

- Assisting Division branches 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
- Assist in preparing presentations for professional meetings and participating in the writing of reports and published manuscripts
- Assist 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: May 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](#). After reading, if you have additional questions about the application process please email ORISE.CDC.NCEZID@ornl.gov 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 five years of the appointment start date.

Preferred skills:

- Experience in machine learning
- Experience analyzing genetic data
- 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

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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):**
 - **Life Health and Medical Sciences** (1 👁)
 - **Mathematics and Statistics** (10 👁)
 - **Social and Behavioral Sciences** (1 👁)