Opportunity Title: CDC Mathematical Statistician Fellowship
Opportunity Reference Code: CDC-DFWED-2022-0118

Organization Centers for Disease Control and Prevention (CDC)

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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 6/1/2022 11:59:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling basis and this opportunity may close before the application deadline.**

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

The Centers for Disease Control and Prevention (CDC) is one of the major operation components of the Department of Health and Human Services. CDC works to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

Research Project: The Fellow will be training in an interdisciplinary environment with experts in the fields of statistics, 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 wastewater surveillance, other surveillance systems, and CDC’s Advanced Molecular Detection (AMD) initiative. The Fellow will participate in developing, evaluating, and validating statistical models and algorithms for improving understanding of disease transmission and incidence, as well as risk factors for and predictors of multiple foodborne, waterborne, and environmental pathogens. Reports, manuscripts, presentations, and tools will be produced and disseminated to make scientific findings and advancements available and translatable to improve public health. 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.

Learning Objectives: Under the guidance of a mentor, research activities

will include, but are not limited to:

- Practice evaluating, extending, and developing methods of statistical analysis and applying these methods to projects related to foodborne, waterborne, and environmental (mycotic) disease studies, surveillance, investigations, and interventions
- Training with scientists in the Division to prepare complex analyses of datasets, often involving data from multiple sources
- Practice advising and assisting Division branches on statistical models, methods, and machine learning projects, studies, and investigations
- Collaboration with others in the Division to produce software implementation of tools developed
- Preparing presentations for professional meetings and participating in the writing of reports and published manuscripts
- Collaborating and coordinating with Division Branches, including the Enteric Disease Epidemiology and Laboratory Branches, and the Outbreak Response and Prevention Branch, the Mycotic Diseases Branch, as well as other scientific groups.

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

Anticipated Appointment Start Date: June 2022. 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, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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.

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical

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distancing, testing, vaccination).

Questions: Please visit our Program Website. 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 have received a master's degree in one of the relevant fields (e.g. Statistics, Biostatistics, Mathematics) or be currently pursuing the degree with completion by December 31, 2022. Degree must have been received within the past five years.

Preferred skills:

- Experience in anomaly detection, machine learning, and methods of statistical modeling
- Public health experience including basic knowledge of the field of epidemiology or laboratory methods
- Familiarity with several statistical learning techniques and the ability to make use of cluster computing to analyze high-throughput data
- Experience collaborating with scientists from different disciplines, including microbiologists and/or epidemiologists, on research projects
- Experience with data visualization techniques and statistical methods used for analysis of high-dimensional data, including cluster analysis methods
- Programming skills necessary to conduct statistical analysis and apply machine learning algorithms in R, R Shiny, R Markdown, and either Python, Stata, or SAS
- Experience with other statistical or computational software such as SparkR, PySpark and scripting experience in Linux or Matlab
- Experience with quantitative study design, including sample size and power calculations

Eligibility Requirements

- **Degree:** Master's Degree received within the last 60 months or anticipated to be received by 12/31/2022 11:59:00 PM.
- **Discipline(s):**
  - **Engineering** (27 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Other Non-Science & Engineering** (1 👁)
  - **Physics** (16 👁)
  - **Social and Behavioral Sciences** (5 👁)