

Opportunity Title: CDC Waterborne Environmental Microbiology & Engineering Laboratory Bioinformatic Fellowship

Opportunity Reference Code: CDC-NCEZID-DFWED-2023-0135

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. 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 9/1/2023 3:00:00 PM Eastern Time Zone

Description *Applications will be reviewed on a rolling basis.

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 Environmental Microbiology and Engineering Laboratory (EMEL) Team in the Waterborne Disease Prevention Branch (WDPB) at the Centers for Disease Control and Prevention in Atlanta, GA is initiating a 12-month project examining the use of next-generation sequencing technologies to detect and characterize pathogenic and non-pathogenic microorganisms directly from environmental samples. Among the goals of this project are to develop methods and bioinformatic tools that support environmental microbial profile analysis, pathogen typing, identification of pathogen-associated microbes, and source tracking from environmental samples that can be employed during waterborne disease outbreak investigations or studies.

The CDC EMEL Team is seeking a qualified and motivated ORISE fellow to join this project beginning immediately. The successful candidate will train and collaborate with senior bioinformaticians, laboratory scientists and staff to develop and implement bioinformatic analytic workflows to detect and characterize waterborne pathogens from environmental metagenomic and targeted sequencing data extracted from diverse matrices, including water



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and non-water environmental sources. The fellow will incorporate data extracted about the ecology of multiple environmental matrices to evaluate the suitable uses of metagenomic sequencing for waterborne disease outbreak response and prevention. This laboratory and bioinformatic effort will support CDC's capacity to conduct advanced molecular detection in environmental settings and enable bioinformatic method, pipeline, and database development to inform guidance for the public health use of advanced sequencing technologies and interpretation of environmental metagenomic and sequencing data.

Learning Objectives: The fellow will have opportunities to learn how to perform basic bioinformatic analyses of sequencing data with the guidance of WDPB bioinformaticians. They will also train to improve their skills with bioinformatic method and pipeline development and apply those tools for the identification and typing of waterborne and environmental microorganisms. The fellow will also gain experience collaborating with scientists in other CDC laboratories, teams, and branches, and conducting public health-focused scientific research.

The WDPB Bioinformatics Team has established a strong bioinformatics program led with several Masters- and PhD-level bioinformaticians on staff, providing a robust technical support system. The fellow will also have opportunities to engage with laboratory scientists, epidemiologists, and bioinformaticians who are part of WDPB with expertise in infectious disease research, and with diverse staff in other branches. The branch participates in several bioinformatics trainings and seminar series, including those offered through the Office of Advanced Molecular Detection and administered by experts at the Georgia Institute of Technology, that provide continuing education on the latest bioinformatic algorithms and informatics solutions. The fellow will have the opportunity to participate in these trainings and seminars to increase their knowledge base, skills, and network with other bioinformaticians and scientists. Within our program we focus on high-performance computing and cloud environments to support resource-intensive bioinformatic analyses. The fellow may have the opportunity to assist in development within these environments and increase their knowledge in preparation for future career opportunities.

The Fellow will also have access to different professional development opportunities, such as attending project related trainings and seminars, or presenting their research at one of the agency's internal scientific research conferences, such as AMD Day and the OLSS Laboratory Science Symposium, and attending Division and Branch-wide seminars. Additionally, the fellow will be encouraged to develop, contribute to, and publish in laboratory- and bioinformatic-focused manuscripts with data that arise from their project.

Mentor(s): The mentor(s) for this opportunity is Mia Mattioli (kuk9@cdc.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: August 21, 2023. Start date is

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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 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 or doctoral degree in one of the relevant fields (e.g., Microbiology, Public Health, Bioinformatics, Biological Sciences), or be currently pursuing a doctoral degree with completion before August 1, 2023. Degree must have been received within the past five years.

Preferred skills:

- Familiarity and experience with basic bioinformatic tools and methods, and an understanding of bioinformatic analysis
- Familiarity with next generation and/or third generation sequencing, methods, and data analyses.

Eligibility Requirements

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**

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- **Computer, Information, and Data Sciences** ([2](#))
- **Engineering** ([2](#))
- **Environmental and Marine Sciences** ([6](#))
- **Life Health and Medical Sciences** ([8](#))

Affirmation I certify that I have not previously been employed by CDC or by a contractor working directly for CDC. I understand that CDC does not permit individuals with a prior employment relationship with CDC or its contractors to participate as trainees in the ORISE program. (Exceptions may be granted for individuals who, since the previous CDC employment, have obtained a new STEM degree which necessitates training in a new field.)