

**Opportunity Title:** CDC Summer Fellowship in Forecasting and Outbreak Analytics, Predict Division, Scenarios Team

**Opportunity Reference Code:** CDC-OD-2024-0022

**Organization** Centers for Disease Control and Prevention (CDC)

**Reference Code** CDC-OD-2024-0022

**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** 3/31/2024 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 in the Centers for Disease Control and Prevention (CDC). Selected candidates must either live within a 50 mile radius of an approved CDC duty location or be able to relocate before the start of the appointment.

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 Scenarios Team at the CDC's Center for Forecasting and Outbreak Analytics is developing a respiratory virus transmission model that will be used to predict the impact of different policies on COVID-19, influenza, and RSV hospitalizations in the United States. We will use the model to address a range of "what-if" questions from policy makers in the federal government, such as the anticipated impact of increasing vaccine uptake, or of a new SARS-CoV-2 variant arising.

For this project, the fellow will collaborate closely with modelers on the Scenarios Team as we add and test model features, establish fitting procedures that use Bayesian methods to train the model on empirical data, and run mock drills to test the model's performance against historical data.

**Learning Objectives:** The fellow will be embedded in the Scenarios Team at the CDC's Center for Forecasting and Outbreak Analytics. They will gain experience with collaborative programming practices and GitHub workflows. They will learn and practice using or evaluating infectious disease modeling



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methods for medium to long term projections and scenario analysis, and learn about using Bayesian methods for fitting these models to complex empirical datasets. They will gain experience developing and using epidemic models and data analytics in an applied government setting.

**Mentor(s):** The mentor for this opportunity is Thomas Hladish ([utx5@cdc.gov](mailto:utx5@cdc.gov)). If you have questions about the nature of the research please contact the mentor(s).

**Anticipated Appointment Start Date:** **May 20, 2024.** Start date is flexible and will depend on a variety of factors.

**Appointment Length:** The appointment will initially be for 10 weeks, 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:** Stipend rates may vary based on numerous factors, including opportunity, location, education, and experience. If you are interviewed, you can inquire about the exact stipend rate at that time and if selected, your appointment offer will include the monthly stipend rate.

**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.OD@ornl.gov](mailto:ORISE.CDC.OD@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 degree in the one of the relevant fields (e.g. applied math, biology, computer science, operations research, infectious disease, etc). Degree must have been received within the past five years, or is currently in candidacy for a doctoral degree.

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**Preferred skills/experience:**

- Coursework that includes simulation modeling, differential equations, and/or numerical methods
- Python programming (high proficiency)
- Excellent spoken and written communication skills
- Visualizing and interpreting data
- Curiosity and strong desire to participate
- Training and experience in infectious disease transmission modeling
- Fitting models to data using Bayesian methods like MCMC
- Developing and implementing ordinary differential equation (ODE) models
- Using Git/GitHub in a collaborative environment

**Eligibility Requirements**

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or anticipated to be received by 5/1/2024 12:00:00 AM.
- **Academic Level(s):** Graduate Students, Post-Bachelor's, Postdoctoral, or Post-Master's.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (4 👁)
  - **Life Health and Medical Sciences** (8 👁)
  - **Mathematics and Statistics** (4 👁)
  - **Physics** (1 👁)

**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.)