Opportunity Title: EPA Bioinformatician/Data Scientist Fellowship
Opportunity Reference Code: EPA-ORD-CCTE-BCTD-2023-04

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Organization	U.S. Environmental Protection Agency (EPA)
Reference Code	EPA-ORD-CCTE-BCTD-2023-04
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 • Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click here for detailed information about acceptable transcripts. • A current resume/CV, including academic history, employment history, relevant experiences, and publication list • Two educational or professional recommendations. Click here for detailed information about recommendations. All documents must be in English or include an official English translation.
Application Deadline	6/9/2023 3:00:00 PM Eastern Time Zone
Description	***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.*** Click here for information about the selection process. **EPA Office/Lab and Location:** A research opportunity is available with the Computational Toxicology and Bioinformatics Branch at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Computational Toxicology and Exposure (CCTE), Biomolecular & Computational Toxicology Division (BCTD) located in Durham, North Carolina. CCTE is responsible for developing new computational tools and providing quantitative analysis for improving environmental risk assessments and regulatory decisions pertaining to chemical safety and sustainability. <u>Research Project:</u> This research project aims to develop computational methods to predict the safety of chemicals using transcriptomics applied across multiple in vitro and in vivo exposure models. The tools to be used include novel transcriptomic data generated within EPA, publicly available databases of transcriptomic signatures and pathways, and outputs of various predictive models of chemical action. The project integrates bioinformatics, data science, software engineering, applied statistics, and predictive mathematical modeling. The research participant will collaborate in the development of novel bioinformatics and biostatistics applications to analyze transcriptomics data streams relevant to toxicological testing. Research activities may include:
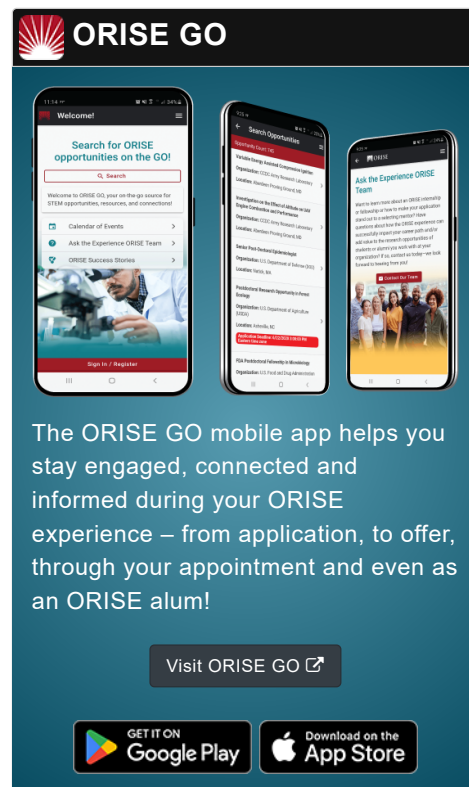
- (1) development of methods to predict chronic toxicity from transcriptomic profiles generated thru short-term exposure studies in rodent models,
- (2) evaluation of inhalation hazards for volatile and aerosolized chemicals based on transcriptomic profiling of differentiated human primary airway epithelial cells,
- (3) comparison of EPA-generated transcriptomic data to publicly available data for chemical exposures and/or disease progression, and
- (4) application of machine-learning methods to improve the biological interpretation and predictive value of transcriptomics data in toxicology.

It is expected that the research participant will author or co-author on peer-reviewed publications, and will present at local and national meetings, which should help make the research participant a strong candidate for a variety of scientific career paths across government, industry, and academia. The research participant will be a member of a multi-disciplinary research team.

Learning Objectives: This is a training appointment wherein the candidate will gain education and training in the general areas of bioinformatics, data science, transcriptomics, computational toxicology, and mathematical modeling in preparation for future career opportunities across government, industry, and academic sectors

Mentor(s): The mentor for this opportunity is Logan Everett (everett.logan@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: March 1, 2023. All start dates are flexible and vary depending on numerous factors. Click **here** for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed up to five years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click **here** for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

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 EPA. Participants do not become employees of EPA, DOE or the program

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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.

ORISE offers all ORISE EPA graduate students and Postdocs a free 5 year membership to the National Postdoctoral Association (NPA).

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 see the FAQ section of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@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 disciplines (Bioinformatics, Computational Biology, Biology, Toxicology, Computer Science, Bioengineering, Statistics, Math, Chemistry, Physics), or be currently pursuing one of the degrees with completion before June 30, 2023. Degree must have been received within the past five years.

Preferred Skills:

- Software development experience in R and/or Python, and strong written, oral and electronic communication skills.
- Proficient in developing data science applications with R and/or Python, in the use of MySQL and NoSQL database solutions, and experience in bioinformatics.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or anticipated to be received by 6/30/2023 11:59:00 PM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (4 👁)
  - **Computer, Information, and Data Sciences** (6 👁)
  - **Engineering** (2 👁)
  - **Environmental and Marine Sciences** (1 👁)
  - **Life Health and Medical Sciences** (22 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Other Non-Science & Engineering** (1 👁)
  - **Physics** (1 👁)