

Opportunity Title: EPA Aquatic Toxicity with Bioinformatics Internship
Opportunity Reference Code: EPA-ORD-CCTE-GLTED-2020-09

Organization U.S. Environmental Protection Agency (EPA)

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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.

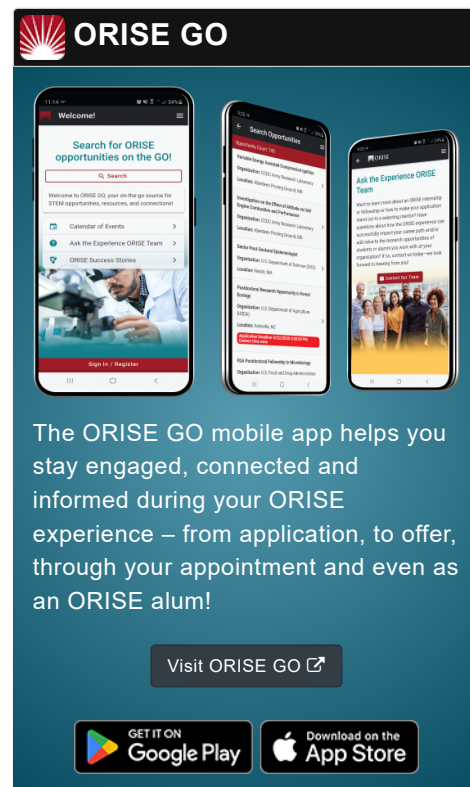
Application Deadline 8/24/2020 3:00:00 PM Eastern Time Zone

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 at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Computational Toxicology and Exposure (CCTE), Great Lakes Toxicology & Ecology Division (GLTED) located in Duluth, Minnesota.

Research Project: Per- and polyfluoroalkyl substances (PFAS) are a complex class of thousands of chemicals that are used in a wide variety of commercial products and industrial applications. Given their properties and widespread use, PFAS have become widespread throughout the environment and are highly persistent. While a few select PFAS (e.g., perfluorooctanesulfonate [PFOS]; perfluorooctanoic acid [PFOA]) have been highly studied, there are thousands more PFAS structures for which little fate or effects data exist.

Given the costs and time it would take to characterize thousands of PFAS using traditional animal testing, "new approach methodologies (NAMs)", such as cell-based bioassays, high throughput transcriptomics, and structure-based bioactivity prediction models, are being used to identify potential biological targets and pathways PFAS may interact with. This project will focus on transcriptomics approaches for evaluating effects of



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PFAS on aquatic species. Therefore, bioinformatics will be used to evaluate these large transcriptomic datasets.

The research participant will be engaged in dynamic research aimed at understanding the effects of PFAS across diverse species. This will involve developing aquatic toxicity experiments and analyzing next generation sequencing data using a variety of bioinformatic tools and techniques.

With guidance from the mentor, the research participant may be involved in any or all of the following training activities:

- Assisting in the development of experimental designs (high throughput transcriptomics, plate-based embryo-/Larval exposures in small fish models)
- Applying statistical and bioinformatics approaches to solve environmental problems associated with aquatic exposures to PFAS chemicals
- Preparing, curating, and analyzing next generation sequence data
- Presenting research results at regional, national, and/or international conferences and workshops.
- Contributing to the preparation of peer-reviewed journal articles and disseminating research results to project partners and stakeholders.

Learning Objectives: The research participant will learn a diversity of laboratory techniques which can be applied across physical and life sciences research fields. The research participants learn to operate and use a range of bioinformatics approaches and tools. The research participant will learn to evaluate data quality, troubleshoot research results, apply statistical methods for data analysis and interpretation.

The research participant will be integrated into a transdisciplinary research team and engaged in multiple aspects of project planning, communication and coordination, research implementation, and analysis. The research participant will be afforded an opportunity to interact with internationally recognized leaders, both within and outside EPA. The research participant will have the opportunity to contribute to and/or publish original research. It is expected that this training opportunity will provide an early career scientist with knowledge, skills, and abilities needed to apply analytical methods and associated data to regulatory decision-making at the local, national, and/or international scale and to pursue a professional career in analytical chemistry research.

Mentor(s): The mentor for this opportunity is Carlie LaLone (LaLone.Carli@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Fall 2020. All start dates are flexible and vary depending on numerous factors. Click [here](#)

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for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed up to three additional 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 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 see the [FAQ section](#) of our website. After reading, if you have additional questions about the application process please email EPArpp@ornl.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a bachelor's or master's degree in one of the relevant fields, or be currently pursuing one of the degrees and will reach completion by September 2020. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Completed advanced course work in computer science or bioinformatics
- Experience in analyzing next generation sequencing data (e.g., RNA-seq, RRBS data)
- Proficient programming skills with at least one computing language (e.g., R, Perl/Python, C++)
- Solid interdisciplinary knowledge in statistics, biology, bioinformatics, and computer science
- Strong written and oral communication skills to present scientific data and methods
- Familiarity with Windows, Linux system and HPC (High Performance Computing) environment
- Familiarity with literature search tools and strategies





Eligibility

- **Citizenship:** U.S. Citizen Only

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Requirements

- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or anticipated to be received by 9/30/2020 11:59:00 PM.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (7 )
 - **Environmental and Marine Sciences** (3 )
 - **Life Health and Medical Sciences** (11 )
 - **Mathematics and Statistics** (1 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).