

**Opportunity Title:** EPA Rapid PFAS Aquatic Toxicity Testing Internship

**Opportunity Reference Code:** EPA-ORD-CCTE-GLTED-2020-10

**Organization** U.S. Environmental Protection Agency (EPA)

**Reference Code** EPA-ORD-CCTE-GLTED-2020-10

**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** 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. However, in order for those data to be reliable for use in regulatory decision-



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making, it is important that bioavailable concentrations of the test chemicals, in the assay systems, are precisely quantified and verified analytically.

Participants will be engaged in dynamic research aimed at developing and applying analytical methods for quantifying PFAS in challenging sample matrices like small water volumes (e.g., < 0.5 ml), small masses of tissues (e.g., fish embryos) and modeling approaches for estimating those concentrations based on physico-chemical properties.

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

- Preparing stock solutions of PFAS from neat chemicals and verifying stock concentrations analytically
- Developing techniques for the collection, processing/extraction, and analysis of small volume/mass samples for PFAS
- Developing and/or adapting methods for high resolution mass spectrometry-based analysis
- Compiling information from the literature and from on-line data sources relevant to analytical methods for PFAS
- Assisting with laboratory exposures to PFAS chemicals, or other reference chemicals thought to act through similar modes of action, using aquatic organisms
- Development and application of methods to enrich samples for chemicals that bind specific molecular targets for subsequent analysis
- Processing and analyzing field collected samples (environmental and biological matrices) for PFAS and other targeted chemical analytes

**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 participant will learn to operate and use a range of analytical instrumentation and scientific equipment. The research participant will learn to evaluate data quality, trouble shoot 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 research 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

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analytical chemistry research.

**Mentor(s):** The mentor for this opportunity is Brett Blackwell ([Blackwell.brett@epa.gov](mailto:Blackwell.brett@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](#) 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](mailto: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:





- Advanced course work in analytical and environmental chemistry
- Experience working with analytical instrumentation, including high resolution mass spectrometry
- Familiarity and understanding of chemical partitioning theory
- Computational skills (e.g., programming, R-based statistics)
- Skills in oral and written communication
- Experience with sample extraction and preparation

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- Previous research experience, beyond lab-oriented course work alone
- Familiarity with literature search tools and strategies

### Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **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):**
  - **Chemistry and Materials Sciences** (7 )
  - **Computer, Information, and Data Sciences** (1 )
  - **Environmental and Marine Sciences** (1 )
  - **Life Health and Medical Sciences** (9 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).