Opportunity Title: EPA High Throughput Ecotoxicology Internship
Opportunity Reference Code: EPA-ORD-CCTE-GLTED-2020-05

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Organization	U.S. Environmental Protection Agency (EPA)
Reference Code	EPA-ORD-CCTE-GLTED-2020-05
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	8/19/2020 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:** An important aspect of EPA's mission is to protect human health and the environment from harmful effects of chemicals. Hazards that chemicals pose to humans or wildlife have traditionally been assessed using toxicity tests in which animals are exposed to a chemical of interest for days to weeks and then effects on survival, growth, reproduction, or health outcomes are evaluated. While effective, these approaches are costly and time-consuming, making it impractical to collect toxicity data for tens of thousands of chemicals currently in commerce and present in the environment. In order to address this challenge, there has been a strong interest in employing advances in biotechnology, miniaturization, robotics, and computing to collect chemical safety information in a more rapid and cost-effective manner. This has been termed high throughput toxicology. In recent years a number of pioneering high throughput toxicology programs such as ToxCast and Tox21 have generated data for thousands of chemicals. However, to
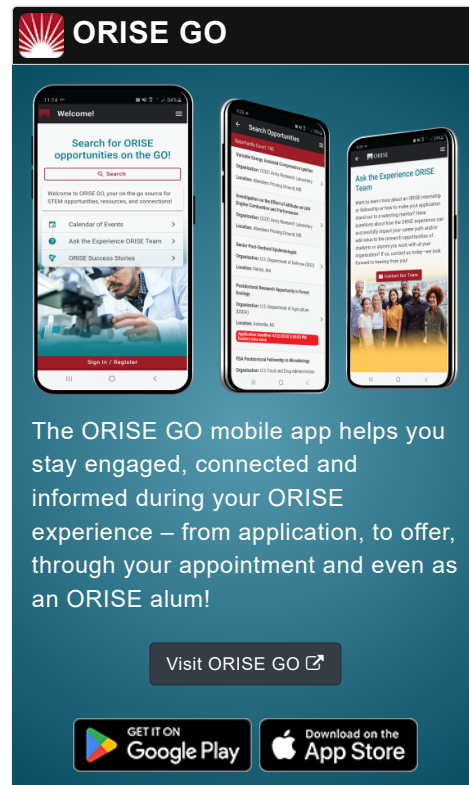
date, these programs have focused solely on human health. Unique aspects of the physiology of aquatic organisms, invertebrates, plants, and many other taxa are currently not considered in the high throughput testing batteries, leaving potential gaps when it comes to detecting hazards a chemical may pose to wildlife and ecosystems.

The research participant will be trained in the development and application of high throughput assays for detecting potential hazards that chemicals may pose to wildlife and ecosystems. The research participant will also engage in development and organization of the scientific evidence that provides the foundation for applying data collected from the nascent high throughput methods in risk-based decision-making using the adverse outcome pathway (AOP) framework.

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

- Adapting existing toxicity testing methods with aquatic vertebrates, invertebrates, plants and/or algae to high throughput formats
- Optimizing assay conditions
- Developing high throughput approaches for collecting phenotypic data from exposed organisms
- Developing high throughput techniques for collection, batch processing, and analysis of biofluid and tissue samples suitable for molecular, biochemical, and/or histological analyses
- Designing workflows and data analysis pipelines for automated and standardized analysis of large data sets
- Developing and implementing a data archiving and storage system

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

The selected participant will be integrated into a trans-diciplinary research team and engaged in multiple aspects of project planning, communication and coordination, research implementation, and analysis. The research participants will be afforded an opportunity to interact with internationally recognized leaders, both within and outside EPA. The 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 new technologies and associated data to regulatory decision-making at the local, national, and/or international scale and to pursue graduate education or a professional career in life sciences research.

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Mentor(s): The mentor for this opportunity is Kevin Flynn (Flynn.kevin@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@orau.org and include the reference code for this opportunity.

Qualifications

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

Preferred skills:

- Previous research experience, beyond lab-oriented course work alone
- Previous experience working with aquatic organisms such as fish, crustaceans, insect, plants, or algae
- Cell culture experience (e.g., plating, maintaining, freezing animal cells using aseptic technique)
- Computational skills (e.g., programming, R-based statistics)
- Experience with analytical chemistry instrumentation and extraction methods
- Experience with basic molecular biology techniques used for analysis of

proteins and nucleic acids (e.g., gel electrophoresis, PCR, quantitative real-time PCR, use of thermocyclers and/or bioanalyzers, etc.)

- Course work in biostatistics and/or bioinformatics

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor'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** (4 👁)
  - **Computer, Information, and Data Sciences** (3 👁)
  - **Environmental and Marine Sciences** (3 👁)
  - **Life Health and Medical Sciences** (10 👁)
  - **Mathematics and Statistics** (1 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).