

Opportunity Title: EPA New Approach Methods for Assessing Ecological Risk to Chemicals Fellowship

Opportunity Reference Code: EPA-ORD-CCTE-GLTED-2023-01

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.

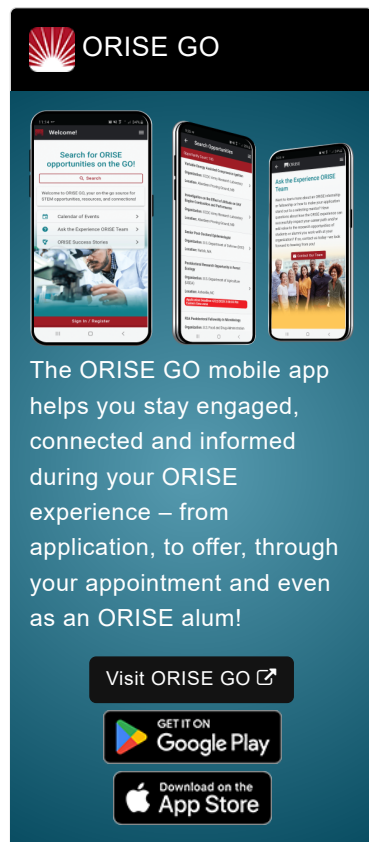
Application Deadline 7/7/2023 3:00:00 PM Eastern Time Zone

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 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 Durham, North Carolina.

Research Project: New approach methods (NAMs) are used to address the challenges of reducing animal testing and assessing risks to ecological species for the many chemicals with minimal toxicity data. Chemical grouping approaches, including the toxicity-normalized species sensitivity distribution (SSDn) method, are used to develop compound-specific hazard concentrations and dose-response relationships using data for toxicologically similar chemicals. This research project is developing an SSDn composed of acute toxicity values for multiple related chemicals that have been normalized by the sensitivity of a common species tested with each compound, with an emphasis on chemicals of emerging concern (e.g., PFAS). Toxicity-normalized hazard concentrations and dose-responses are then back-computed for given percentiles of the SSDn using the chemical-specific sensitivity of the normalization species. This allows for the generation of protective hazard concentrations, characterization of dose-response relationships for different taxa, and evaluation of relative taxa sensitivity with respect to chemical stressor responses.

The research participant will collaborate with a dynamic and transdisciplinary research team consisting of molecular biologists,



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ecologists, toxicologists, and bioinformaticians with a shared goal of expanding the chemical and taxonomic breadth of NAMS and testing their performance in different laboratory and field-based use applications. The research participant will also be able to further develop their technical skills, analytical capabilities, and communication skills. The participant will gain experience in exercising independent initiative and judgment in conducting research, in designing and conducting computational toxicology analyses, and in conceptualizing, analyzing, and publishing on probability-based statistical studies. The research participant will receive training as needed in toxicological sciences, including interspecies correlation estimation, coding, species sensitivity distributions, and computation of ecological thresholds of toxicological concern.

Learning Objectives: With guidance from the mentor, research activities may include designing, coding, and implementing computational toxicology analyses; conducting probability-based statistical studies; interpretation of multivariate exposure datasets (e.g. searching for trends, conditional relationships, patterns, etc.); presenting at professional meetings; disseminating research results to project partners, stakeholders, and the research community; and preparing manuscripts for publication in peer-reviewed journals.

Mentor(s): The mentor for this opportunity is Tom Purucker (purucker.tom@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Spring/Summer 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 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.

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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 EPArpp@orau.org 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 (e.g., Applied Math, Applied Physics, Bioinformatics, Biology, Chemistry, Computer Science, Ecology and Evolutionary Biology, Environmental Science, Mathematics, Microbiology, Public Health, Statistics, Toxicology), or be currently pursuing one of the degrees with completion before the appointment start date. Degree must have been received within five years of the anticipated appointment start date.

Preferred Skills:

- Experience with R, Python or similar language
- Experience analyzing data with statistical models
- Create novel computational approaches and analytical tools as required by research goals
- Ability to develop and test hypotheses
- Strong written and oral skills for communicate research results through conference presentations, scientific publications, or project reports
- Ability to work and collaborate in a multidisciplinary environment

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or currently pursuing.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([4](#) 👁)
 - **Computer, Information, and Data Sciences** ([1](#) 👁)
 - **Environmental and Marine Sciences** ([14](#) 👁)
 - **Life Health and Medical Sciences** ([48](#) 👁)
 - **Mathematics and Statistics** ([2](#) 👁)
 - **Physics** ([2](#) 👁)