Opportunity Title: EPA Web Application Development to Support Non-Targeted Analysis (NTA) Research Fellowship
Opportunity Reference Code: EPA-ORD-CCTE-CCED-2020-11

Organization	U.S. Environmental Protection Agency (EPA)
Reference Code	EPA-ORD-CCTE-CCED-2020-11
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.

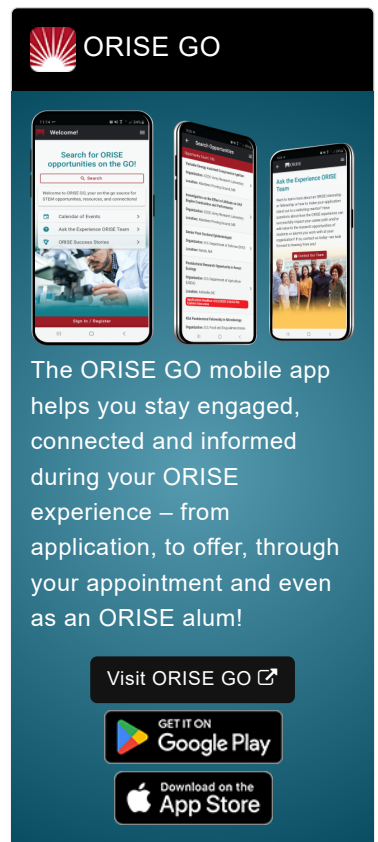All documents must be in English or include an official English translation.

Application Deadline	11/24/2020 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), Chemical Characterization & Exposure Division (CCED) located in Research Triangle Park, North Carolina.

Research Project: Throughout the course of this research project, the participant will conduct research as part of an EPA team of experts who are identifying and examining chemicals to which humans and sensitive ecological species are routinely exposed. High resolution mass spectrometry (HRMS) and non-targeted analysis (NTA) methods are currently utilized by EPA team members to identify novel environmental contaminants and rapidly screen for thousands of known (but data-poor) compounds in high-interest media such as drinking water, consumer products, and human biological samples. Large amounts of data are produced which requires advanced processing and interpretation strategies to inform appropriate decisions and actions.

New web-based tools are being developed within EPA to increase the speed, accuracy, and transparency of NTA experiments. Under the guidance of a mentor, the participant will contribute to code development, application, documentation and utilization of models used by the Agency for NTA studies and learn team programming skills in the context of modern scientific functional programming approaches. Research activities may include computer programming (Python, web scripting languages, and/or

R), numerical verification of code output, cloud-based database management, creating modules for NTA experiments, model execution, Application Programming Interface (API) development/documentation, likelihood estimation and model selection based on level of interest and skill set. The participant will learn how to contribute to a scientific code base using a source code version control system and be exposed to statistical, data management, and graphing techniques that are necessary to analyze algorithm output. The participant may leverage a web programming technology stack with a cloud computing implementation to make the product of this research publicly available as a web application. The participant may be exposed to basic scientific hypothesis testing and inferential processes in a computational context in order to give presentations and develop manuscripts. As a result, the research participant will have the opportunity to further develop statistical inference and scientific writing skills.

Learning Objectives: The research participant will collaborate with an integrated team of agency scientists towards generating critical research hypotheses, developing programmatic tools to test these hypotheses, and ultimately solving complex environmental health problems. Through this research training opportunity, the research participant will have the opportunity develop their programming, analytical, and communication skills.

Mentor(s): The mentor for this opportunity is Jon Sobus (sobus.jon@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Winter 2020/2021. 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 to four 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 master's or doctoral degree in one of the relevant fields, or be currently pursuing the degree with completion by the anticipated appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills:

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 12/21/2020 11:59:00 PM. **Discipline(s):** **Chemistry and Materials Sciences** (12 👁) **Computer, Information, and Data Sciences** (16 👁) **Earth and Geosciences** (21 👁) **Engineering** (27 👁) **Environmental and Marine Sciences** (14 👁) **Life Health and Medical Sciences** (45 👁) **Mathematics and Statistics** (10 👁) **Physics** (16 👁) **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).