

**Opportunity Title:** EPA Nanomaterial Database Curation and Analysis

Internship

**Opportunity Reference Code:** EPA-ORD-CPHEA-PHITD-2020-04

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

**Reference Code** EPA-ORD-CPHEA-PHITD-2020-04

**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 Public Health Environmental Assessment (CPHEA), Public Health and Integrated Toxicology Division (PHITD) located in Research Triangle Park, North Carolina.

**Research Project:** EPA ORD is involved in research on the potential environmental effects of engineered nanomaterials. We are building a database containing the results of ORD research on the environmental and biological effects of engineered nanomaterials, which will enable analysis of relationships between the physical and chemical properties of nanomaterials and their environmental actions. The database structure has been developed and is being populated with data from existing publications regarding the environmental fate, transport, transformations, exposure and toxic effects on ecological or human species. During this research opportunity the participant will gain experience in curation of the data, extracting data relevant for the database, and collaborating with a research team to conduct novel analyses of the database. The research participant may conduct research in developing novel applications to analyze the data in the database, and to integrate with external nanomaterial databases such as those in the US



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and Europe. The research participant will have opportunities to write and co-author manuscripts based on analyses of the database. Knowledge of nanomaterial environmental and toxicological science will benefit the applicant in understanding relevant parameters to extract from the published literature, as well as conducting novel assessments of the completed database.

**Learning Objectives:**

- Understanding nanomaterials, their role in industry and commerce, and potential release into the environment
- Understanding the physical and chemical properties of nanomaterials
- Learning about environmental fate, transport and transformation of nanomaterials
- Learning about nanomaterial toxicology
- Learning database structure and manipulation
- Conducting semantic mapping of nanomaterials to accepted nano ontologies
- Conducting statistical analysis of the relationships between nanomaterial properties and their environmental actions including potential toxicity to humans or key environmental species
- Learning novel data analysis and display applications and their implementation
- Learning data integration strategies and cross-platform mapping strategies
- Collaborating with a team to write and edit scientific manuscripts for submission to peer-reviewed journals

**Mentor(s):** The mentor for this opportunity is Will Boyes ([boyes.william@epa.gov](mailto:boyes.william@epa.gov)) and the co-mentor is Holly Mortensen ([mortensen.holly@epa.gov](mailto:mortensen.holly@epa.gov)). If you have questions about the nature of the research please contact the mentor(s).

**Anticipated Appointment Start Date:** September 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.

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**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 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:

- Completed coursework in organic chemistry, cell biology or physiology, and statistics
- Experience with statistical programming languages, engineered nanomaterials, computer science or environmental sciences
- Interest in discovery of novel relationships between nanomaterial properties and their actions in environmental or biological systems

## 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** (2 )
  - **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 )
  - **Science & Engineering-related** (1 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).