

Opportunity Title: EPA Cyanobacteria and Microplastics Internship

Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2021-08

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2021-08

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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 8/27/2021 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 is concerned about the contamination from plastics in the water supply and the growth of cyanobacteria in lakes/streams that can produce harmful cyanotoxins to man and animals. The research will involve two projects: 1) cyanobacteria and 2) microplastics. The aim of the microplastic project will be to detect small microplastics particles in solutions from environment samples using a brand new Cytex Spectral flow cytometer and different types optical imaging equipment. The uptake of micro and nano plastic particles will be studied using different sizes of sub-micron polystyrene beads in mammalian cells. Possible health effects of these microparticles will be studied on cells. The cyanobacteria projects will involve 1) the study of effects that chemicals (KMnO₄, H₂O₂ and CuSO₄) used in water treatment has on cyanobacteria, and 2) the study the effects of cyanobacteria toxins on plants using the Cytex spectral flow cytometer, a Nikon Ti2 research fluorescence microscope and hyperspectral imaging equipment.

The research participant will have the opportunity to prepare samples for use in the laboratory scientific experiments. The research participant will be able to gain experience using and operating the following state of the art



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scientific equipment: 1) Nikon Ti2 research fluorescence microscope 2) Leica fluorescence stereo microscope, 3) Cytex Aurora spectra flow cytometer 4) PARISS hyperspectral equipment 5) PARISS Macro hyperspectral optical equipment 6) Nexcelom cell counter and 7) general laboratory equipment. The research participant will have the opportunity to be involved in the operation of this equipment in the lab that will be used to generate data for the cyanobacteria and microplastic projects. They will gain experience assisting in the evaluation of the data using scientific computer software programs. The research participant will have the opportunity to learn how to carry out general laboratory procedures that constitute a functional biological laboratory. In addition, with guidance from the mentor, the research participant will gain experience growing cyanobacteria cultures, mammalian tissue culture cells and water plant cultures.

Learning Objectives: The knowledge gained in the operation of this microscopic and flow cytometry scientific equipment will be an invaluable for the research participant's educational development and their future laboratory research. The research participant will learn how to use state-of-the-art equipment in these research projects. They will have the opportunity to be engaged in educationally based research and learning activities that can benefit their scientific development. The knowledge gained can be helpful for future employment in different scientific research fields and could be useful if they decide on pursuing higher education. The mastering of the techniques used in the laboratory will provide the research participant an excellent skill set for future higher education studies or employment in scientific industries. If the research participant masters the operation of these laboratory equipment, the skills learned will be extremely useful for graduate research or employment in scientific research laboratories.

Mentor(s): The mentor for this opportunity is Robert Zucker (Zucker.robert@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: August 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 or four additional years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment can be part-time or 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 ORISE.EPA.ORD@ornl.gov and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing or have received a bachelor's degree in one of the relevant fields. Degree must have been received within the past five years.

Preferred skills (if you have any such experience, please describe in your application):

- Good working knowledge of Microsoft Office programs which include Excel, Word, and PowerPoint
- Computer literate and have a good scientific understanding of physics chemistry and biology which will be used to study scientific problems
- Willingness to learn new and exciting scientific techniques

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree received within the last 60 months or currently pursuing.
 - **Overall GPA:** 3.50
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([3](#) )
 - **Computer, Information, and Data Sciences** ([3](#) )
 - **Engineering** ([3](#) )
 - **Environmental and Marine Sciences** ([5](#) )
 - **Life Health and Medical Sciences** ([9](#) )
 - **Mathematics and Statistics** ([1](#) )
 - **Physics** ([2](#) )
 - **Science & Engineering-related** ([1](#) )
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).