

Opportunity Title: Microplastics Research Scientist
Opportunity Reference Code: EPA-NSSC-0007-57-10-20-21

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply Click [HERE](#) to apply.

Description The EPA National Student Services Contract has an immediate opening for a full time Microplastics Research Scientist position with the Office of Research and Development at the EPA facility in Athens, GA.

The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.

What the EPA project is about

Within ORD, the Center for Environmental Measurement & Modeling (CEMM) conducts research to advance EPA's ability to measure and model contaminants in the environment, including research to provide fundamental methods and models needed to implement environmental statutes. The methods and models developed by CEMM are typically applied at the airshed, watershed and ecosystem level. Within CEMM, the Watershed and Ecosystem Characterization Division (WECD) conducts research to advance EPA's ability to characterize the presence, transport, transformation, sources, and impacts of contaminants in watersheds and ecological systems.

Progress towards characterizing microplastics and pathogen indicators in the environment and uncertainties about their potential environmental health effects requires reliable and consistent methods. The Safe and Sustainable Water Research (SSWR) program of ORD is conducting research to develop and standardize collection, extraction, identification and quantification methods for microplastics (MPs) and the inactivation of pathogen indicators such as coliphages. This research is using methods for isolating, concentrating, characterizing and quantifying MPs from aquatic media in different size ranges. The work detects and characterizes MPs using UV-visible, FTIR, Raman spectroscopy, ICP-MS, thermogravimetric and pyrolysis/GC-MS analysis and analytical ultracentrifugation. Work on the pathogen indicators involves development of biological weighting functions that describe their photoinactivation in the aquatic environment. The research is developing methods that minimize interferences to these methods by common constituents in natural waters such as dissolved organic matter and suspended sediments. Results from studies conducted under this task will be used in conjunction with other related studies to determine exposure of humans and ecosystems to chemical and biological contaminants from point and nonpoint sources in aquatic environments.

What experience and skills will you gain?

As a team member, you will have the opportunity to work within a multi-



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disciplinary research team to provide technical support for the development of methods for measuring ENMs, microplastics, and for obtaining data to predict the release, phototransformation, and transport of engineered nanomaterials (ENMs) and microplastics in environmental systems and/or the photoinactivation of pathogens in natural and built aquatic systems. The laboratory is located in Athens, Georgia close to the University of Georgia where multiple research activities occur continually, including research at the Center for Advanced Polymers, Fibers & Coatings which develops materials and plastic replacements that completely break down and return to nature when discarded, either in soil, water, or marine environments.

Responsibilities will include:

- Developing new methods and refinement of existing methods for isolation and characterization of microplastics and ENMs in water and sediments.
- Developing methods that minimize interferences to these methods by common constituents in natural waters such as dissolved organic matter and suspended sediments.
- Conducting laboratory studies that provide data for evaluating effects of weathering on concentrations and releases of microplastics and ENMs in aquatic systems.
- Conducting experiments to quantify the effects of temperature, pH and salinity on methods for characterization of microplastics and ENMs in water and sediments.
- Assisting with obtaining and analyzing data to quantify relationships between the weathering rate of microplastics or ENMs and environmental conditions such as solar irradiance and temperature;
- Obtaining data and developing relationships that can be used to assess the photoinactivation of pathogen indicators in water, sediment, and natural organic matter suspensions
- Providing identifications and concentrations of microplastics and ENMs using mass spectral and spectroscopic techniques;
- Conducting standard water quality analyses for water samples and sediment suspensions investigated in the laboratory and field studies (including pH, DO, dissolved and suspended solids, COD, BOD, and TOC).
- Conducting internet and literature searches to elucidate significant light-induced transformation pathways of microplastics, carbon and metallic ENMs and pathogen indicators in environmental systems;
- Compilation and summarization of data and literature references into organized computer files;
- Statistical analysis of data using Excel and/or statistical software packages;
- Communication of results via presentation(s) and/or written reports; and
- Assisting with quality assurance and instrument maintenance.

All necessary instructions and training will be provided by EPA staff.

The team member will perform duties, as requested, according to specifications and instructions provided by the mentor. Where appropriate,

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you will maintain careful and accurate records in designated laboratory notebooks. These notebooks and all other data produced under this order will be the property of the Environmental Protection Agency. All necessary instructions and training will be provided by EPA staff. The team member may be expected to participate in conferences and seminars.

Location: This job will be located EPA's facility in Athens, GA.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of \$29.27 for hours worked.

Hours: Full-time.

Travel: Occasional overnight travel may be required.

Expected start date: The position is full time and expected to begin November 2021. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA. The initial project is through May 14, 2022, with up to 3 additional option periods.

For more information, contact EPAjobs@orau.org. Do not contact EPA directly.

Qualifications Required Knowledge, Skills, Work Experience, and Education

- Demonstrated education and/or experience in environmental chemistry, microbiology and/or analytical chemistry;
- A working knowledge of gas chromatography-mass spectrometry, Fourier transform infrared spectroscopy; Raman spectroscopy, and thermogravimetric analysis;
- A working knowledge of isolation and measurement of microplastics in water and sediments in aquatic environments **and/or**
- A working knowledge of isolation and measurement of organic, metallic and/or metal-organic polymers and polymer composites in water and sediments in aquatic environments;
- A working knowledge of equipment and procedures used to obtain data on weathering of polymers and/or microplastics in environmental systems including isolation of weathered polymers and identification using mass spectral and spectroscopic techniques;
- A working knowledge of obtaining data and developing relationships that can be used to assess the transformation of nanomaterials and their composites with polymers in environmental systems including releases of nanomaterials;
- A working knowledge of obtaining data and developing relationships that can be used to assess the photoinactivation of pathogen indicators in water and sediments including isolation from water and sediments;
- Excellent oral, written, and electronic communication skills; and
- Experience with common computer operation and software usage (e.g., Microsoft Office Professional Suite, including Excel, Word and PowerPoint.) is required.

Qualifications:

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- Be at least 18 years of age **and**
- Have earned at least a Master's degree in Chemistry, Microbiology, Ecology, Environmental Health Science, Toxicology, Biological Science, Biochemistry, or related disciplines from an accredited university or college within the last 24 months **and**
- Be a citizen of the United States of America or a Legal Permanent Resident.
- **Provide proof of a COVID vaccination per the Safer Federal Workforce Task Force Guidance for Federal Contractors**

- Eligibility Requirements**
- **Citizenship:** LPR or U.S. Citizen
 - **Degree:** Master's Degree received within the last 24 month(s).
 - **Overall GPA:** 2.00
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) 👁)
 - **Engineering** ([27](#) 👁)

Affirmation I certify that I am at least 18 years of age; a recent graduate with at least a Master's degree in Chemistry, Microbiology, Ecology, Environmental Health Science, Toxicology, Biological Science, Biochemistry, or related disciplines from an accredited university or college within the last 24 months; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

Click [HERE](#) to apply.

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