Opportunity Title: Risk Analysis Framework for Assessing Plastics in the Environment
Opportunity Reference Code: DOE-MSIPP-21-10-ANL

Organization U.S. Department of Energy (DOE)

Reference Code DOE-MSIPP-21-10-ANL

How to Apply

- Completion of all required fields in the application and successful application submission
- Undergraduate or graduate transcripts as appropriate
- Two recommendations

If you have questions, send an email at MSIPPInternships@orau.org. Please include the reference code for this opportunity in your email.

For Technical information, contact Lisa Reed at lisareed@anl.gov.

Certification:

I certify that I am at least 18 years of age and a US citizen, and am currently enrolled as a student in a degree seeking undergraduate or graduate program in a STEM field at an accredited Minority Serving Institution (MSI).

Application Deadline 1/29/2021 11:59:00 PM Eastern Time Zone

Description

The Minority Serving Institutions Partnership Program (MSIPP) Internships is a new program to promote the education and development of the next generation workforce in critical science, engineering, technology, and math (STEM) related disciplines that complement current and future missions of DOE national laboratories. The MSIPP Internship program is designed to provide an enhanced training environment for next generation scientists and engineers by exposing them to research challenges unique to our industry.

MSIPP Interns will be given the opportunity to complete Summer Internships aligned with ongoing U.S. Department of Energy Office of Environmental Management (DOE-EM) research under the direction of a host national laboratory. The internship will be performed at the host national laboratory, utilizing their facilities and equipment under the guidance of a research staff member.

Minority Serving Institutions are institutions of higher education enrolling populations with significant percentages of undergraduate minority students.

Project: The accumulation of discarded plastics in the environment is a significant and growing problem, with slow degradation rates that can extend hundreds of years. These wastes pose a threat to ecological species and a potential threat to humans, with wide-ranging impacts to ecosystem functions and services. This project will involve searching the scientific literature to characterize the disposition of used plastics, their environmental fate and transport, and potential exposures and effects. The focus will be on both current fossil-fuel-based plastics and new-design plastics, including bioplastics. Management of such materials at DOE legacy sites will also be considered. Activities will include (1) expanding a database of environmental factors and properties of polymers and chemical additives that influence the transport and fate (including degradation rates) of various types of discarded plastics across multiple geographic settings and media (soil, surface water, sediment, groundwater, air), as well as ecological and human exposure and effect levels; and (2) synthesizing this information, including considering the impact of changing environmental conditions on the fate of both common and novel materials; and (3) developing an environmental reference framework and decision tree with an environmental index to help inform options for mitigating the impacts of discarded plastics by developing novel plastics that are more biobenign, to promote a circular

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economy.

Salary: Selected candidate will be compensated by either a stipend or salary, and may include one round trip domestic travel to and from the host laboratory. Stipends and salaries will be commensurate with cost of living at the location of the host laboratory. Housing information will be provided to interns prior to arrival at the host laboratory, and will vary from lab to lab.

Qualifications Eligible applicants must:

- Be a citizen of the United States,
- Be at least 18 years of age**,**
- Currently enrolled as a full-time undergraduate or graduate student at an accredited Minority Serving Institution, https://orise.orau.gov/msipp/documents/approved-msi-school-list.pdf,
- Working toward a science, technology, engineering, or mathematics (STEM) degree,
- Have an undergraduate or graduate cumulative minimum Grade Point Average (GPA) of 3.0 on a 4.0 scale, and
- Pass a drug test upon selection to participate in the MSIPP *The process and timing for drug testing varies from lab to lab. Use of Marijuana/Cannabis or its derivatives if prescribed is legal in some states. However, having these drugs in your system is NOT legal at United States Federal Contractor sites and National Laboratories.

Required Knowledge, Skills, Work Experience, and Education

Successful candidates will:

- Be a rising sophomore, junior or senior undergraduate student with coursework relevant to environmental science or engineering
- Have the ability to complete a scientific literature review on subject of study
- Have skills and maturity to analyze and synthesize data and maintain records relevant to environmental management
- Have ability to follow all safety rules and procedures required by the laboratory.

Desired Knowledge, Skills, Work Experience, and Education

It is desirable for the candidate to have:

- Be familiar with Microsoft Office software
- Have background in environmental science and technology
- Have basic knowledge on environmental fate and transport

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Currently pursuing a Bachelor's Degree.
- **Overall GPA:** 3.20
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (11 👁)
  - **Computer, Information, and Data Sciences** (4 👁)

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- **Earth and Geosciences** (3 👁)
- **Engineering** (10 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (46 👁)
- **Mathematics and Statistics** (4 👁)
- **Science & Engineering-related** (1 👁)

Affirmation Certification:

I certify that I am at least 18 years of age, a US citizen, and currently enrolled as a student in a degree seeking undergraduate or graduate program in a STEM field at an accredited Minority Serving Institution (MSI). Click here to verify that you are enrolled at a current MSI.