

**Opportunity Title:** Evaluation of potential leaching from landfill barriers under different climate scenarios

**Opportunity Reference Code:** DOE-MSIPP-21-5-ANL

**Organization** U.S. Department of Energy (DOE)

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- 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](mailto:MSIPPInternships@orau.org). Please include the reference code for this opportunity in your email.

For Technical information, contact Lisa Reed at [lisareed@anl.gov](mailto: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:** Landfills have been the most common form of waste disposal in the United States. Water is usually allowed to seep through the cover of the landfill, saturate the wastes, and come out the bottom or sides as leachate, which, in turn, often flowed into groundwater, potentially impacting the groundwater. This study is to leverage a computer code called RESRAD-OFFSITE developed at Argonne National Laboratory to evaluate the performance of different barriers in terms of the amount of seepage through the barrier under different climate scenarios in long term. A variety of barriers and climate scenarios will be analyzed first and characterized into input parameters to the RESRAD-OFFSITE code. Detailed analysis of barrier performance will then be conducted based on the model output. This study can help barrier selection in future landfill design.

**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.



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**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 junior or senior undergraduate student studying microbiology, biochemistry or chemistry.
- Have the ability to complete a scientific literature review on subject of study.
- Have skills and maturity to operate advanced laboratory instruments, perform experiments, analyze data, and maintain records in the environmental biotechnology laboratory.
- Have ability to follow all laboratory safety rules and procedures.

**Desired Knowledge, Skills, Work Experience, and Education**

**It is desirable for the candidate to have:**

- Be familiar with Microsoft Office software
- Have background on soil science and hydrology
- Have basic knowledge on landfill

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Currently pursuing a Bachelor's Degree.
  - **Overall GPA:** 3.20
  - **Discipline(s):**
    - **Engineering** ([1](#)👁)
    - **Environmental and Marine Sciences** ([2](#)👁)

**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.