

**Opportunity Title:** Determining the Health and Stability of Microbial Communities at the Hanford Site

**Opportunity Reference Code:** DOE-MSIPP-16-35-PNNL

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

**Reference Code** DOE-MSIPP-16-35-PNNL

**How to Apply** A complete application must include the following to be considered:

- Completion of all required fields in the application
- Undergraduate transcripts
- One Recommendation (minimum)

If you have questions, send an email to Elizabeth Nelson at [Elizabeth.Nelson@orau.org](mailto:Elizabeth.Nelson@orau.org) . Please include the reference code for this opportunity in your email.

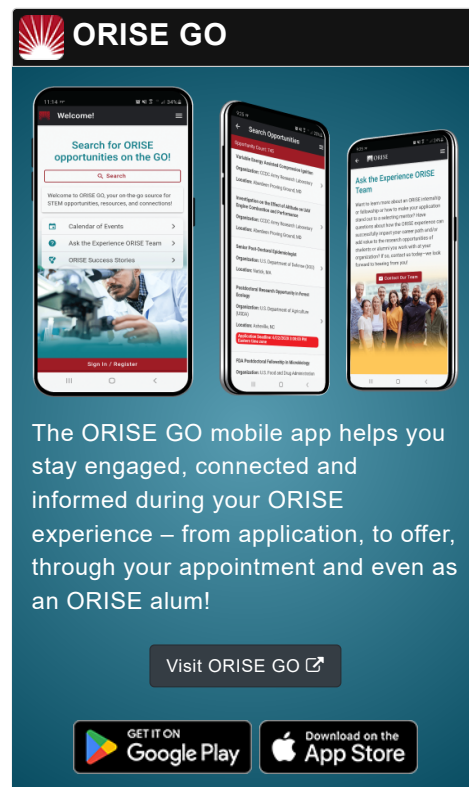
**Application Deadline** 3/16/2016 11:59:00 PM Eastern Time Zone

**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.

This project involves the isolation of organisms, fingerprinting and sequencing of the community present in the deep vadose zone and groundwater at the Hanford site in Washington. Groundwater is contaminated with a range of metals, rads, and chlorinated solvents. This project will involve the utilization of molecular biological tools (MBTs) to evaluate the presence and activity of microbes in these systems. The objectives include determining the overall health and stability of these communities as well as determining the range of degrading functions present in samples AND determining the activity of important populations in these samples. This project will also involve engineering biological systems using indigenous microorganisms from the Hanford Site to determine radioactive iodine biotransformation. Groundwater from the Hanford site is contaminated with a range

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of radionuclides, including iodide, iodate, and organo-iodide. The student will be responsible for engineering and operating lab scale fed-batch reactor systems to monitor iodine transformation over time. The student will learn growth patterns and growth kinetics, fed-batch operation at quasi-steady state, microbiological and molecular tools, and various other bioprocess engineering methodologies. Various substrates, iodine species, and other constituents will be investigated.

**Qualifications** The successful candidate will be studying biology, microbiology, environmental studies, or a related scientific discipline.






Eligibility Requirements:

1. Be currently enrolled as a full-time undergraduate or graduate student at an accredited Minority Serving Institution \*see criteria for Minority Serving Institutions here <http://srnl.doe.gov/msipp/internships.htm>
2. Be working towards a science, technology, engineering, or mathematics (STEM) degree
3. Have an undergraduate cumulative minimum Grade Point Average (GPA) of 3.0 on a 4.0 scale
4. Be a United States citizen
5. 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.
6. Reference must be received by March 6, 2016 at 11:59 PM ET

For more information about The Minority Serving Institutions Partnership Program (MSIPP) Internships, please visit <http://srnl.doe.gov/msipp/internships.htm>

To see all MSIPP position postings visit:  
[www.orise.orau.gov/MSIPP](http://www.orise.orau.gov/MSIPP)

#### Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's Degree.
- **Overall GPA:** 3.00
- **Academic Level(s):** Graduate Students, Post-Bachelor's, or Undergraduate Students.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 )
  - **Computer, Information, and Data Sciences** (16 )
  - **Earth and Geosciences** (21 )
  - **Engineering** (27 )
  - **Environmental and Marine Sciences** (14 )

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- **Life Health and Medical Sciences** (45 👁)
- **Mathematics and Statistics** (10 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (1 👁)

**Affirmation** I certify that I am pursuing or have completed coursework  
towards a degree in science, technology, engineering,  
mathematics, or a related field.