

Potential Project for LM MES Internship Program

The purpose of this form is to provide a potential STEM project that can be advertised through the DOE LM Mentorship for Environmental Scholars (MES) Program (see attached MES flyer). Each scientist may submit more than one project (submit one form/project). Two to three undergraduate students who meet the following eligibility requirements (per the flyer) will be selected for the MES Program each year:

- All must be U.S. citizens (including residents of Puerto Rico, the Virgin Islands, and other U.S. territories).
- Applicants must be undergraduates attending an accredited MSI, as recognized by the U.S. Department of Education, and be members of an underrepresented group, including ethnic and racial minorities and persons with disabilities.
- Applicants must be pursuing a degree in science, technology, engineering, or math (STEM); or STEM-related field (e.g., chemistry, computer science, environmental science, biology).

Selected interns will be supported by DOE LM and will be based in Grand Junction. Field, lab (e.g., ESL), and office-based research projects/activities are welcome. If an intern is matched with a project, the scientist leading the project will be supported by the AS&T Educational Collaboration Initiative to mentor, oversee, and guide the selectee for the duration of the internship, which typically spans June-August of each year. The LMS scientist will be expected to commit up to about 4 hrs/week for 12 weeks per intern. Meetings involving LM, the prospective intern(s), and LMS scientist(s) will also be held prior to the internship, likely starting in the spring. The intern will be expected to write a technical report and present her/his work at the end of the internship.

LMS Scientist Name: Ray Johnson

Project Title: Uranium release from sediments at a former uranium mill site (Riverton, WY)

Project Description:

The focus of this internship is to assist scientists based in Grand Junction, CO with upcoming sediment core collection and processing from the U.S. Department of Energy Office of Legacy Management, Riverton, Wyoming, Processing Site (former uranium mill site). Currently, core collection is planned for June 2023 (albeit subject to scheduling changes). This core will be collected under conditions that avoid oxygen exposure and will be used in anoxic (no oxygen) column testing in the laboratory. With anoxic water as an influent, the resulting column effluent will indicate the potential release of uranium under similar conditions to what occurs at the site. The resulting data will be used to understand long-term uranium release at the Riverton site from contaminated sediments and allow for improved site management related to contaminant transport in the groundwater.

Tasks to be Performed by Intern:

Internship responsibilities will include: 1) field and laboratory preparations, such as assembly of required testing materials and equipment, 2) assistance in the field with core collection and preservation, 3) assembly and oversight of column testing in an anerobic (no oxygen) glove box at the Environmental Sciences Laboratory (ESL) in Grand Junction, and 4) assistance with data assembly and interpretations (i.e., create data tables and graphs). Generally, all geochemical analyses will be done by ESL scientists, but interns may be able to assist with that work based on interest and experience.

Project/Tasks Include (select all that apply)

Field work

List site(s): Riverton

Lab work (ESL)

Office (computer) work

Preferred or required skills/experience (include any field, lab, software, or analytical skills/experience and indicate if these are preferred vs. required). Note that required skills may significantly reduce the likelihood of matching an intern with a project:

No specific skill requirements, mainly just a strong interest in environmental science and geology. An interest in contaminant hydrogeology and geochemistry would be a plus.