

Undergraduate Researcher Position - River Sediment Lab Prep and Analysis

Description

We are looking for a motivated, self-driven, and curious student to aid in processing sediment samples from our research project on river and reservoir sediment from Powell Reservoir along the Utah and Arizona borders. This project aims to conduct laser [grain-size analysis](#) on three distinct depositional sediments outlined in Johnson et al., 2022 for three of our study areas in lower Cataract Canyon and Narrow Canyon along the Colorado River. This will aid in constraining the value of the shear stress of river flow (CFS) required to mobilize the bank sediments. We will also perform general [geochemical and 87Sr/86Sr isotope analyses](#) for the same sub-samples for provenance studies. The student will aid in the sample preparation, analysis, and post-processing of data that will take place in the labs on the 4th floor of FASB. There are many opportunities for the student to branch off on their own research in addition to this work after a semester with us.

Experience

- Must be an undergraduate student from the College of Science or College of Mines and Earth Science.
- Basic understanding or interest in hydrology, sedimentology, community science, sustainability initiatives, or desert/riparian ecosystems.
- Ability to work 120 hours per semester; ~10 hours per week (breaks not included).
- Drive to apply and work on a UROP project in the Spring 2025 semester
- **1 page CV or resume** with previous relevant experience (work, courses, volunteering, etc.)
- **1-page personal statement** about yourself, what you will bring to the research, and why you are interested in it.

Funding

- Fall 2024 **\$15/hr.** at 10 hours per week
 - Funding will come from Dr. Brenda Bowen and the Wilkes Climate Center
- Spring 2025 \$1200 semester stipend through [UROP](#) (Undergraduate Research Opportunity Program)
 - Student will apply during the Fall semester
 - Per UROP, the student's hours won't exceed 120 hours per semester.

Duration

Fall 2024 through Spring 2025

Student Goals

- Grow confidence working in a research environment: making observations, forming hypotheses, designing experiments, preparing laboratory samples, processing raw data, analysis of data, and public presentation of findings.
- Experience the complexity of desert riparian ecosystems and engineered projects' influence on these systems.
- Build the foundations for fluvial geomorphology concepts about sediment erosion and transport.
- Become familiar with or gain more experience using Excel, R Studio, and ArcGIS Pro software.

Mentors & PIs

- **Sam Bagge:** Master's Student, [GSCS Fellow](#), Wilkes Climate Center Fellow
 - She will be the main contact and PI (principal investigator) on this project as it is aiding in completing her Master's degree.
 - Most communication will be virtual as Sam Bagge lives on-site in Moab, UT.
 - sam.bagge@utah.edu
- **Dr. Brenda Bowen:** Graduate student advisor, Atmospheric Sciences Chair, Community Development and Engagement Working Group Co-Lead for [NSF Southwest Sustainability Innovation Engine](#).
 - brenda.bowen@utah.edu
- **Dr. Diego Fernandez:** Research Professor Geology and Geophysics, PI for EarthCore ICP-MS and Particle Size Labs.

Relevant Material

- [Returning Rapids Field Binders](#)
- [Sediment Record of Annual-Decadal Timescale Reservoir Dynamics: Anthropogenic Stratigraphy of Lake Powell, U.S.A.](#)
- [Citizen Scientists Document Recovering Colorado River](#) - Smithsonian
- [The Colorado River is Running Dry, but Nobody Wants to Talk About the Mud](#) - New York Times

Apply!

If you are interested in this position, please...

- Fill out this Google Form ([HERE!](#))
- **Email** your resume/CV and personal statement to sam.bagge@utah.edu



Dr. Brenda Bowen (left) and Sam Bagge (right) on one of our fieldwork trips.



Some of the reservoir and river sediment sections will be processing sediment samples (right, left, and bottom).

