





Faculty Member Contact Information

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Contact Info	
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Department	Civil Engineering

1 Funded, 1 Unfunded URCA Assistant

	This position is ONLY open to students who have declared a major in this discipline.	M
	This project deals with social justice issues.	
	This project deals with sustainability (green) issues.	
	This project deals with human health and wellness issues.	
X	This project deals with community outreach.	
	This mentor's project is interdisciplinary in nature.	I

Are you willing to work with students from outside of your discipline? If yes, which other disciplines?

- Yes, my project is truly interdisciplinary, please also mark me as interested in taking students from these areas: Environmental Science, Geography.

How many hours per week will your student(s) be required to work in this position?
(Minimum is 6 hours per week; typical is 9)

- 9

Will it be possible for your student(s) to earn course credit?

- No

Location of research/creative activities:

- SIUE Engineering Building and Field around SIUE Edwardsville campus

Brief description of the nature of the research/creative activity?

Calibrating Salt concentration measurement sensors and analyze temperature data to predict stream bed erosion and deposition

Scouring process of the riverbed and bank erosion affects water quality and ecosystem negatively and decreases bridge stability that may lead to failure. This is continuous project from Fall 2022. We deployed temperature sensors to measure erosion and deposition over the streambed in Spring and Summer 2024 and sensors were collected in Fall 2024 from field. An URCA student will help to and analyze sensor data to predict erosion and deposition on streambed and compare with measured erosion/deposition in the field. Furthermore, the URCA student also assist in calibrating salt concentration sensors to deploy in Fall 2025. The student will be working with the faculty and graduate students.

Brief description of student responsibilities?

- Literature search on riverbed and bridge pier scour.
- Statistical analysis of sensor data for erosion/deposition prediction
- Assist calibrating salt concentration measurement sensors
- Assist faculty and graduate student to develop manuscript for peer-reviewed journal articles.

URCA Assistant positions are designed to provide students with *research or creative activities* experience. As such, there should be measurable, appropriate outcome goals. What exactly should your student(s) have learned by the end of this experience?

- Knowledge on temperature measurement based sensors to predict erosion and deposition.
- Calibration of sensors

Requirements of Students

If the position(s) require students to be available at certain times each week (as opposed to them being able to set their own hours) please indicate all required days and times:

- Working hour is flexible. Coordinates with the faculty and graduate student

If the location of the research/creative activities involves off campus work, must students provide their own transportation?

- If there is field visit, URCA student will travel with the faculty or graduate students. So, transportation will be provided.

Must students have taken any prerequisite classes? Please list classes and preferred grades:

- N/A

Other requirements or notes to applicants:

- Need to have flexible schedule (morning/day/evening) to work in research project