





Faculty Member Contact Information

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| Department | Civil Engineering |

2 Unfunded URCA Assistant

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| | This position is ONLY open to students who have declared a major in this discipline. | M |
| | This project deals with social justice issues. |  |
| X | This project deals with sustainability (green) issues. |  |
| | This project deals with human health and wellness issues. |  |
| X | This project deals with community outreach. |  |
| X | 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, Engineering and other disciplines

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)

- 8 hours

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

- No

Location of research/creative activities:

- SIUE Engineering Building and field work around SIUE

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

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 2024. The predicted erosion and deposition need to be validated by field measured data. These sensors will be collect in Fall 2024 from field. An URCA student will help to measure erosion/deposition in the field and download and analyze sensor data to predict erosion and deposition on streambed. The student will be working with the faculty and graduate students.

Brief description of student responsibilities?

URCA student will work with faculty and Graduate students on following areas:

- Literature search on river bed and bridge pier scour.
- Field visit to measure riverbed erosion/deposition
- Statistical analysis of sensor data
- 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.
- Field experiments
- Data analyzing skills using excel program and other software
- Writing scientific reports
- Team work

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

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

- Transportation will be arranged by faculty and graduate student for field visit

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

- N/A

Other requirements or notes to applicants:

- Interest in river/water research