

Faculty Member Contact Information

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Contact Info	
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Department	Civil Engineering

1 Funded, one 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.	
✓	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

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

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

No

Location of research/creative activities:

It is mainly computer work. Working location is flexible.

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

Quantifying a major water quality variable to predict dissolve oxygen (DO) in rivers using Machine Learning (ML) models

Surface water such as rivers, streams and lakes are the primary sources for drinking, industrial, agricultural use, and energy production. Maintaining high water quality is important for human health, recreation activities and functional ecosystem processes. One of the major indicators of water quality is dissolve oxygen (DO) in natural water bodies, such as ponds, lake, and streams, etc. Water quality parameters (e.g., dissolve oxygen, pH, temperature, salinity, etc.) including discharges are measured at different USGS gage stations. Monitoring water quality in streams is useful for water resources management, but it is expensive and time consuming. Therefore, our study is focused on the application of different machine learning (ML) models and their performance for prediction of dissolve oxygen (DO) based on readily available parameters such as salinity, water temperature, pH, etc. We will use these water quality parameters to train and test ML models to analyze performance of these models and to quantify major variable for prediction of DO among all parameters considered. The current project is continuous from previous semester (Fall 2025), where an URCA student was involved.

Brief description of student responsibilities?

URCA students will work with faculty and graduate students on following areas:

- Literature search on stream water quality and application of ML models.
- Download water quality parameters measured at different USGS gage stations.
- Assist graduate students and faculty preparing data to develop ML models and performance analyses.
- Assist faculty and graduate students to develop manuscript for conference proceeding and 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?

Yes

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?

If students help in field, the transportation will be provided.

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

NA

Other requirements or notes to applicants:

NA