





### Faculty Member Contact Information

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### **1 Funded, 2 Unfunded URCA Assistant**

	This position is <b>ONLY</b> open to students who have declared a major in this discipline.	<b>M</b>
<b>X</b>	This project deals with social justice issues.	
<b>X</b>	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.	<b>I</b>

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

- I am open to taking students outside of my discipline, but only those in similar fields.

**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?**

- Yes, 1-2 credit hours CHEM 296, 396, or 496

**Location of research/creative activities:**

- SW 2000 on SIUE campus

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

The project deals with democratizing access to scientific data by developing inexpensive instruments. A \$16 multiwavelength light sensor was used to construct a visible spectrum spectrophotometer as a general purpose instrument. Although this sensor has been used by other investigators, its performance as a spectrophotometer has not been thoroughly explored. The project will characterize the performance of the sensor under realistic conditions of chemical analysis. In short, we need to know how well this very inexpensive device performs and whether it is a real option for better diffusion of scientific tools.

**Brief description of student responsibilities?**

The student will be responsible for conducting the experiments, including preparation of standards and samples, testing of physical / chemical properties, basic operation of instrumentation, and data analysis. The specific methods of analysis will be selected with the project supervisor. Basic statistical analysis of the quality of the data is also expected. The student will write a summary report and participate in the writing of any peer-reviewed outcomes or reports to collaborators.

**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?**

The student will become proficient with analytical laboratory procedures and equipment for making quantitative standards and making chemical measurements with spectrophotometry. They will learn the basics of experimental design and numerical techniques for assessing data quality. The student will learn to work in and maintain a laboratory environment suitable for chemical analysis. They will also become familiar with the fundamentals of visible light spectrometry and the challenges associated with that technique. Opportunities to learn and use Python programming will be available, but not required.

**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:**

- N/A

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

- N/A

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

- Students must have passed CHEM 121B (or its transfer equivalent).

**Other requirements or notes to applicants:**

- Preference will be given to students who have passed or are concurrently enrolled in CHEM 331.