





### Faculty Member Contact Information

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### **1 Funded, URCA Assistant**

	This position is <b>ONLY</b> open to students who have declared a major in this discipline.	<b>M</b>
	This project deals with social justice issues.	
	This project deals with sustainability (green) issues.	
	This project deals with human health and wellness issues.	
<b>X</b>	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?**

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?**

GEOG 490 Up to 3

**Location of research/creative activities:**

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

It is well known that temperature extremes (hot and cold) can pose serious health risks. However, there is increasing evidence that the amount of temperature change within a day can also pose health risks. Days with larger than normal temperature swings have been shown to increase asthma flare-ups and lead to more hospitalizations for cardiovascular and respiratory diseases. In this project, the student will gather and combine data from several sources to analyze these temperature swings at the daily and sub-daily scale. Analysis will focus on determining how big these "swings" can be, how often they occur, and if the frequency of these has changed over time due to climate change.

**Brief description of student responsibilities?**

After a period of training, the student will be tasked with acquiring temperature data under the direction of the supervisor. The student will extract the data into formats suitable for future analysis. The student will combine the data with other observations (as needed) for future analysis. Depending on the interests of the student, they will have opportunities to write computer code for analysis (R or Python), to learn techniques for analyzing and visualizing these data, and the opportunity to develop and build skills in mapping data through Geographic Information Systems (GIS). The student will be responsible for setting their own schedule to perform the tasks in an efficient manner. The student will be responsible for regular communication with the faculty member regarding their progress. The work will be incorporated into one or more conference presentations and peer-reviewed scientific manuscripts, and the student may contribute to the writing process. The student is expected to contribute approximately nine hours per week to the project.

**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?**

Through this experience, the student will have the opportunity to interact closely with a faculty member on a current research project while gaining proficiency in independent scientific inquiry. The student will learn data collection and analysis techniques commonly used in geography and climatology that can be applied throughout the student's career. The student will have the opportunity to develop programming and big-data analysis skills and to develop expertise in Geographic Information Systems (GIS). The results of this work will be published and the student will develop skills in preparing peer-reviewed manuscripts. The project may result in co-authorship for the student depending on their contribution to the overall work. The student will have the opportunity to and will be expected to present this work in venues across the University and at meetings and conferences external to SIUE.

**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:**

Students are able to set their own hours. The student and mentor will meet weekly to discuss the project at a time that works for both parties.

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

No off-campus work is required.

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

None.

**Other requirements or notes to applicants:**

Basic statistical skills and some familiarity with Excel are required.

Experience with programming is desirable but not required.

Experience with GIS is desirable but not required.