<u>**Faculty Member Contact Information**</u>

Name **Contact Info**	Dr. Adriana Martinez
SIUE Email	adrmart@siue.edu
Campus Box	1099
Department	Environmental Science

1 Funded URCA Assistant

	This position is **ONLY** open to students who have declared a major in this discipline.	**M**
X	This project deals with social justice issues.	💙
X	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?

- 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)

- 6

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

- Yes, 1-3 credit hours of ENSC 499 or 496

Location of research/creative activities:

- Science West 2240

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

This work will include GIS analysis and sediment sample processing. Dr. Martinez has been conducting a research project on the Rio Grande at Eagle Pass where the State of Texas has placed buoys in the Rio Grande to prevent migrants from crossing at that point in the river. Along with the buoys, the state has restricted access to the river, even on public property. Dr. Martinez will be conducting field work on the river in the November and December 2024 to obtain sediment samples and drone imagery. The student selected will dry the sediment samples and run sediment size analysis to determine the size of sediment present around the buoys and in the river. The student will also be conducting GIS analysis and image processing from drone imagery. This work will involve learning a fairly simple image processing software and using basic GIS skills to map out the areas. GIS skills are not necessary for this work. You will learn a bit about the software during the project.

Brief description of student responsibilities?

The selected student will take sediment samples gathered in the field and dry them in lab ovens. Sediment samples will the be hand ground and run through an instrument to separate out into the sizes of sediment present. The student will record the weight of each of the sizes of sediment present and graph them in excel. If time allows, or if fewer sediment samples are collected in the field, the student will help process drone imagery gathered in the field. This will involve learning the software AGISOFT Metashape (fairly simple to learn) which will produce DEMs and aerial photos of the area. These files are then opened in GIS where the student will create maps of the study sites.

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 learn two major methods: how to process sediment samples and how to process drone imagery to create 3D models of the areas flown and map out the site. These are two skills not typically learned in the classroom and the student will be interacting with the faculty member to learn these skills. In addition to these skills, the student will have the opportunity to present this research if they would like to in the form of a poster or paper at conferences such as the Illinois State Academy of Sciences. Any publications or presentations by Dr. Martinez will include the student as a co-author.

<u>Requirements of Students</u>

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:

- N/A

Other requirements or notes to applicants:

- None