

Faculty Member Contact Information

Name	Shannon McCarragher, PhD
Contact Info	
SIUE Email	smccarr@siue.edu
Campus Box	1459
Department	Geography and GIS

1 Funded, 2-3 Unfunded URCA Assistant(s)

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)

- 3-9

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

- Yes, in GEOG 426 or GEOG 490 for 1-3 credit hours.

Location of research/creative activities:

- McCarragher Biogeography Research Group Labs: AH 0347/SW0005; outdoors on SIUE campus, or outdoors on MCT bikeway trails; some work on own

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

- This project explores the biogeography of greenspaces within the built environment (urban landscape) to better understand the spatial patterns of urban biodiversity and ecological networks, and assess what impact, if any, urban landscape features and abiotic (non-living) characteristics have on those spatial patterns. More specifically, this research assesses the socio-ecological role of urban greenways, which serve as an interface between human and natural systems across built environments and thus may act as both an ecological network and a means for enhancing urban resilience and sustainability.
- Example projects include: 1) collecting local weather data to measure microclimate variability, identify extreme temperature zones, and gauge urban heat island effects; 2) comparing locally collected data to remotely sensed data to assess reliability, benefits,

and challenges; 3) identifying areas in need of enhanced heat refuge amenities and infrastructure gaps based on user activity along greenway networks; and 4) assessing the impact of urban land use on decomposition rates and biodiversity.

- There are many more topics that fit within the McCarragher Biogeography Research Group's broad overarching exploration of urban greenspaces, so projects can often be tailored to student's interests.

Brief description of student responsibilities?

- Responsibilities will be assigned based on student interest, availability, and appropriateness to the project with which they are assisting. The following are examples of responsibilities:
 - 1) Find and read primary literature about urban greenspace topic of interest and write annotated bibliographies to record what is known and what needs further research.
 - 2) Conduct passive observations (and shout-out surveys, when possible) that record user traffic and activity data (plus weather surveys, as applicable) at assigned points along greenways in Edwardsville, IL.
 - 3) Assist with the characterization of urban structure and urban cover along greenways using remote sensing and GIS (e.g., digitization, geospatial analyses, spectral imagery classifications, etc.).
 - 4) Assist with data analyses using data collected in past greenway research.

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?

- 1) Understand the scientific method and gain real world experience with scientific instrumentation.
- 2) Learn how to conduct field/lab techniques.
- 3) Learn how to record observations, field data, and experiences in a scientific logbook.
- 4) Learn how to perform basic statistical comparison of environmental, observation, and/or survey data.
- 5) Gain experience reading, interpreting, extracting, analyzing, and/or synthesizing data from primary (peer-reviewed) literature.
- 6) Learn, enhance, and apply remote sensing and GIS skills to explore real world biogeographic topics.
- 7) Learn about ways to develop and sustain ecologically resilient and socially equitable urban greenspaces.

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:

- Optimally, students would be available to conduct greenway observations at least one day a week (M-F). Specific time of observation is flexible and will be coordinated based on student's schedule. There will also be opportunities to participate in weather bike data rides. Beyond that, the other research tasks will be coordinated based on project needs and student's availability.

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

- Students must be able to provide their own transportation to and from SIUE campus, as needed. Project will include in-person meetings, outdoor fieldwork activities, some individual work, as well as Research Group lab meetings and discussions in-person or

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

- N/A

Other requirements or notes to applicants:

- N/A