Faculty Member Contact Information

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<thead>
<tr>
<th>Name</th>
<th>Dr. Shannon McCarragher</th>
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<tr>
<td>Contact Info</td>
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<tr>
<td>SIUE Email</td>
<td><a href="mailto:smccarr@siue.edu">smccarr@siue.edu</a></td>
</tr>
<tr>
<td>Phone Number</td>
<td>618-650-5004</td>
</tr>
<tr>
<td>Campus Box</td>
<td>1459</td>
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<tr>
<td>Department</td>
<td>Geography and GIS</td>
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1 Funded, 1-2 Unfunded URCA Assistants

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<tr>
<td>This position is <strong>ONLY</strong></td>
<td>open to students who have declared a major in this discipline.</td>
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<tr>
<td><strong>X</strong></td>
<td>This project deals with social justice issues.</td>
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<tr>
<td><strong>X</strong></td>
<td>This project deals with sustainability (green) issues.</td>
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<td><strong>X</strong></td>
<td>This project deals with human health and wellness issues.</td>
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<td>This project deals with community outreach.</td>
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<tr>
<td><strong>X</strong></td>
<td>This mentor’s project is interdisciplinary in nature.</td>
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Are you willing to work with students from outside of your discipline? If yes, which other disciplines?

- Yes, but similar fields—Political Science, Environmental Science, Ecology, Geology, Sustainability Aligned disciplines, History

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)

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

- Yes—GEOG 426 or GEOG 490 (3 credit hours)

Location of research/creative activities:

- McCarragher Biogeography Research Group Lab, AH 0347, outdoors on SIUE campus, or outdoors on MCT bikeway trails

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

One 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 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. There are many topics that can be explored within this broader umbrella theme, so topics can in some ways be tailored to student's interests.

I also have another ongoing research project that explores the geometric properties, the geomorphology, and the rare vegetation communities of unique large closed topographic depression features located throughout the clastic caprock of the Cumberland Plateau in TN and on the Mormon Mesa in AZ. These features create an interesting microclimate that are critical factors for habitat selection and other ecosystem activities. Very little is known about the unique closed topographic depressions. This project aims to characterize and understand these unique features using remote sensing and geospatial technology.

Students are welcome to assist with one or both of these projects, depending on their interests and background knowledge.

Brief description of student responsibilities?

1) Research primary literature and conduct a content analysis of peer-reviewed literature about a topic that interests the student related to urban greenspaces.

2) Conduct weekly midday (11:30 AM - 1:30 PM; ideal = 12-1 PM) and/or AM (8-10 AM), and/or PM (4-6 PM) greenway observations that record traffic and activity counts (and weather surveys, as applicable) at assigned points along greenways.

3) Assist with the characterization of urban structure and urban cover along greenways (and/or characterize of the unique closed depression features, depending on student's interest) using
remote sensing and GIS (e.g. digitization, geospatial analyses, spectral imagery classifications, etc.).

4) Assist with data analysis from 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 record environmental observations and field experiences in a scientific logbook.

3) Learn how to perform basic statistical comparison of environmental data.

4) Gain experience reading, interpreting, extracting, analyzing, and synthesizing data from primary peer-reviewed literature for a meta-analysis.

5) Learn, enhance, and apply remote sensing and geographic information system skills to explore real world biogeographic topics.

**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) from 12-1 PM. If not available from 12-1 PM, students should be available for a one hour time frame sometime between 11:30 AM - 1:30 PM at least one day a week (M-F). AM observations need to be completed between 8-10 AM and PM observations need to be completed between 4-6PM. Beyond that, the other research tasks can be completed anytime.

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 face-to-face, outdoor activities and remote work, as well as Research Group lab meetings and discussions via Zoom.

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

- N/A
Other requirements or notes to applicants:

- N/A