





Faculty Member Contact Information

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1 Funded, 4 Unfunded URCA Assistants

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

- Only 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)

- 6-9 hours

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

- Yes-- Bio 493 (can be taken as an audit course so that students are not charged fees), ENSC 499

- 1-3. For each credit hour enrolled, students will complete on average 3 hours of research work per week. Research work includes attending lab meetings, lab work, field work, data tabulation, data scoring, and literature review.

Location of research/creative activities:

- SW 0010 DN Lee Research lab SIUE Field Station (or other on campus and off-campus research sites) SW 1090 Biological Sciences Study Room (or other on-campus computer labs)

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

The DN Lee Lab research examines the natural history, ecology, behavior and biology of nuisance rodents over habitat gradients with community stakeholders. Research includes field studies, experimental behavior observations of field mice and rats, laboratory analysis of their biological specimens, exploratory research investigating human-wildlife dynamics and interactions, plus general research support activities.

General research support activities include computer entry of collected specimen, environmental, and other research data, and downloading and organization of raw data or formal inquiries (data tabulation); evaluating video scoring software options for behavioral observation data recording, and scoring small mammal behavior (data scoring).

Field research work includes trapping, marking, and handling wild rodents to identify individuals, their nest locations, and home ranges, to study population and community interactions with other plants and animals as well as behavioral observations in novel test mazes and activities.

Lab research work includes handling and processing hair, fecal, tissue, and fluid biological samples, as well as water, soil and other environmental samples.

Science outreach work includes interacting with high school students in authentic science research activities, demonstrating and training how to use scientific tools, collect and record data, conduct field and laboratory observations, and summarizing and presenting research findings.

Exploratory research involves non-technical scientific analysis that employs contemporary digital technologies, survey, and information-gathering from public and community-sourced references that leads to future hypothetical research projects, as well as technical activities that focus on creative problem-solving, developing and crafting apparatuses to improve methods, data collections, and sampling.

DN Lee Lab research examines the following general questions:

- 1) Which habitats do different nuisance rodent species and populations live and thrive?
- 2) How does behavioral variation influence which species successfully live in given habitats?
- 3) Do different species or populations pose different nuisance risks based on their behavior?

4) How do people engage and respond to nuisance rodents over socio-environmental gradients?

5) How does engaging in authentic science experiences with near-peer mentors influence science interests, attitudes, and achievements?

Brief description of student responsibilities?

Students will

- input and organize field-generated data, behavior observations, and laboratory tests (Data Tabulation)
- score and annotate digital and video observations and/or formal inquiries or questionnaires (Data Scoring)
- review the scientific literature, execute research techniques and complete data analysis related to assigned project(s) (General Research Assistance)
- help set and bait small mammal live traps and camera traps (Field Research Assistance)
- help collect and process hair, fecal, tissue and biological samples from animal subjects to understand ecological dynamics (Laboratory Research Assistance)
- help collect and process soil, air, water, plant vegetative material observational field sites to understand ecological abiotic and biotic factors (Laboratory Research Assistance)
- provide general field ecology, laboratory, animal handling, environmental sampling, and/or data processing research support functions (General Research Assistance)
- provide leadership, train, and demonstrate proper research techniques to high school students; oversee collection, cataloging, summary, and presentation of community research observations (Science Outreach Assistance)

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?

Students will

- gain ecology, field, laboratory, animal behavior, science outreach, and/or integrated science experiences that supplement learning objectives in general biology, ecology, biodiversity, and STEM diversity.
- be introduced to exploratory research, experimental research, descriptive research, and explanatory research.
- gain research ethics certification
- participate in authentic research with SIUe Faculty and graduate students
- become familiar with scientific literature

- demonstrate research techniques and evaluation skills
- work independently and collaboratively on common projects
- improve scientific literacy and demonstrate improved scientific communication in written and oral formats

Data Scoring

- Scoring animal behavior observations
- Scoring digital, photographic or video recordings
- General research tech evaluation and summary statistical analysis
- General research and support functions

Data Tabulation

- Computer entry of research data
- Organizing entered data variables
- General summary statistical analysis
- General research and support functions

Field Research

- Handling small mammals
- Setting and baiting small mammal live traps and/or camera traps.
- Habitat assessment and setting up trapping grids or transects
- Setting up and breaking down behavioral apparatus equipment and video equipment
- Behavioral observation of animals
- Collection of biological specimens and samples
- Proper recording of animal capture information and physical measures
- Proper labeling and cataloging of specimen tubes
- General field research and support functions

Laboratory Research

- Proper biological specimen preparation and handling
- Proper labeling and cataloging of biological samples
- Processing samples for analysis
- Lab cleaning/decontamination

- Proper waste disposal
- Preparing shipping of samples to diagnostic laboratories
- General laboratory organizational and support functions

Science Outreach

- Respectful community engagement
- Sound science communication to general audiences
- Ensuring safe, positive experience while engaged authentic science work
- Demonstrating and overseeing proper and accurate science behavior
- General field research, lab research, science outreach and support functions

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:

- All students must schedule research activities in at least 2-hour block sessions and submit weekly work schedule to the professor. Students must attend weekly scheduled check ins with the professor (~30 min), usually held Tuesday afternoons. Alternatively, students can meet this requirement by attending Weekly Lab Training Meetings: 2-hour block periods during the school day decided once everyone's schedule has been submitted. All initial training must happen during the regular school day. Thereafter, flexible scheduling is possible.
- Regular field research opportunities, often coinciding with science outreach activities, are possible during the semester, approximately 1-2 weekend a month, depending on weather. More frequent field research opportunities are available during the summer term, 3-5 days a week, depending on weather and site availability.

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

- Off campus work is possible, but it is not required for most research activities. We can make arrangements for carpooling and/or mileage reimbursement.

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

- Intro Biology or Intro Chemistry or Intro Environmental Sciences (or equivalent courses) are highly preferred. It is okay if students are currently enrolled in any of these courses.

Other requirements or notes to applicants:

- All applicants must complete DN Lee Lab onboarding process within 1 week of acceptance. This includes completing the CITI training Responsible Conduct in Research (Research Ethics).
- Field and laboratory research require proper training, provided by the professor and signing appropriate safety waivers.
- Any animal contact requires completion of appropriate additional CITI Training Courses for Animal Safety and Use, proof of tetanus vaccination signed by a Physician, and approval from Institutional Animal Care and Use Committee.