DEPARTMENT OF BIOLOGICAL SCIENCES
COLLEGE OF ARTS & SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2026

PROJECT TITLE: Behavioral Ecology of Wolf Spiders: Mating Systems, Sexual Selection, and Communication

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Project Description

Our lab investigates the behavioral ecology of wolf spiders (Lycosidae), focusing on how individuals make mating decisions and how these choices shape patterns of sexual selection. Wolf spiders provide an excellent model for studying mating systems because they use a combination of visual, vibratory, and chemical signals during courtship, allowing us to explore multiple modes of communication in a single system.

Undergraduate researchers will participate in collecting wolf spiders from local habitats and maintaining them in the laboratory. Students will design and conduct behavioral experiments that examine mate choice, courtship behavior, fecundity, and communication. For example, projects may test how environmental factors influence female receptivity, how active infection or condition affects male signaling effort, or how exposure to stressors impacts reproductive success.

Through this work, students will gain practical skills in live animal husbandry, behavioral observation, and data recording and analysis. They will also learn the logistics of experimental design, including hypothesis generation, variable control, and replication. Emphasis is placed on developing critical thinking skills; students will read and discuss primary literature, evaluate existing research, and use these insights to formulate and refine their own research questions.

Overall, this project provides hands-on experience in behavioral ecology and experimental research, offering insight into how scientists study animal communication and mate choice in natural systems. Students will leave the project with a deeper understanding of the scientific process, from idea development to data interpretation, and with transferable skills valuable for careers in ecology, evolution, animal behavior, and related fields.