The role of reservoirs and nonnative species in chytridiomycosis and amphibian decline

The lab of Dr. James Collins is looking for students to assist with field and laboratory studies of boreal chorus frogs (*Pseudacris maculata*), tiger salamanders (*Ambystoma tigrinum*), and Rio Grande Leopard Frogs (*Lithobates berlandieri*). Our research focuses on the host-pathogen interaction between amphibians and the fungal pathogen *Batrachochytrium dendrobatidis* (Bd) and its role in global amphibian decline. The populations of nearly half of all known amphibian species are decreasing, and one third are globally threatened. Bd is a major component of this decline. The pathogen infects the skin of amphibians, leading to death in most cases. However, some species are able to safely tolerate infection. We are currently investigating the potential for tolerant species, like the tiger salamander, to act as disease reservoirs. Salamanders, although not directly impacted by the fungus, may transfer it to more susceptible species like the chorus frog and indirectly contribute to population declines. We are also studying the potential for an invasive species (Rio Grande Leopard Frog) to transmit disease to native amphibian populations.

Student responsibilities include feeding and caring for captive amphibians, conducting field surveys on the Mogollon Rim and Sonoran Desert, and testing animals for infection using qPCR (real-time polymerase chain reaction) to detect fungal DNA. Students should be able to commit at least 10 hours weekly between the hours of 7 am and 7 pm. Field work will be on weekdays and some weekends, either as full day trips or at night for several hours. Those with experience or interest in ecology, epidemiology, herpetology, or amphibian care are especially encouraged to apply. Students contributing significantly to the project will have the opportunity to become authors on publications arising from this research.

If you are interested in this position, please send a resume and short statement about your experience and research goals to Evan Brus (ebrus@asu.edu), Nick Massimo (nmassimo@asu.edu) or James Collins (jcollins@asu.edu).