



**Research group:** Cease Lab (<https://cease.lab.asu.edu/>) and Living with Locusts project ([www.livingwithlocusts.org](http://www.livingwithlocusts.org))

**Title of the research project:** Understanding the evolutionary drivers and trade-offs of locust plague outbreaks.

**Estimated dates that project/s will be available:** Starting now through at least the end of Fall 2018 semester, with the possibility to continue.

**Explanation of any prerequisites for the project/s:** Previous lab experience is preferred but not essential. Should be comfortable working with and handling live insects. Attention to detail, effective time management and punctuality, are a must.

**Brief description of the research project:** We are looking for an undergraduate to work various projects exploring the mechanisms of locust outbreaks as they pertain to nutritional ecology. This project more broadly related agroecology, plant-soil-insect interactions, and their relationship to land use. The chosen applicant will receive experience in working with live insect colonies, behavioral and nutritional ecology, as well as other standard lab techniques. The time commitment is between 8–10 hours per week which can apply toward course credit.

**Background:** Locusts are grasshoppers that can form massive migrating swarms and devastate food security. This landscape-level pattern is

regulated at the level of the individual through a phenotypic plasticity termed locust phase polyphenism. Locusts can transform between a cryptic solitary phase that avoids other locusts and a swarming gregarious phase that aggregates and subsequently undergoes collective, long distance, and physiologically challenging migration. However, despite the impact of locusts on ecosystems and people, little is known about how environmental factors, such as nutrition, modulate the threshold at which locusts respond to density to undergo phase change. Our lab studies locust species from Australia, the Americas, West Africa, and China to understand the ecophysiological basis of the evolution of migratory polyphenism in stochastic environments

**How to apply with contact information:** To apply, please send an email briefly describing your previous experience and why you are interested in working on this project to Rick Overson ([rick.overson@asu.edu](mailto:rick.overson@asu.edu)).