



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

Title of the research project: The effects of plant nutrient content on locust 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 (especially with chemistry) is preferred, but not essential. 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 on a laboratory project exploring the interactions between locust outbreaks and plant nutritional composition with samples from an applied ecology project in rural Senegal and other international field sites. This project is part of a larger effort involving agroecology, plant-soil-insect interactions, and their relationship to land use. The chosen

applicant will receive training in performing chemical assays (e.g. carbohydrate, protein, lipids) as well as other standard lab techniques. The time commitment is between 8–10 hours per week which can apply toward course credit.

Background: Agricultural land management practices alter plant communities via changes in soil structure and chemistry, species composition, and plant nutrient content, e.g., protein to carbohydrate ratio. These changes affect insect herbivore growth, behavior, and reproduction with consequences for population dynamics and expression of migratory phenotypes. Increases in herbivorous insect populations can then translate to elevated rangeland and crop damage and pest control costs, affecting the sustainability of food production. This feedback loop created by increases in damaging insects can occur on local agricultural lands or broadly throughout continents via pest migration (e.g. locust swarms). Our lab studies these feedback loops and measuring plant nutrient contents is critical to understanding the whole system.

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).