

*MSU Undergraduate Research Apprenticeship (URA):*  
**Climate Effects on Species Interactions in Aquatic Systems**

**Mentors:** Laura Twardochleb (PhD Student), Dr. Phoebe Zarnetske (Assistant Professor)

**Affiliations:** Kellogg Biological Station, Department of Fisheries and Wildlife, Department of Forestry, Ecology, Evolutionary Biology, and Behavior Program, Michigan State University

**Summary:** The student will have the opportunity to gain hands-on experience with field sampling and lab-based experiments in freshwater ecosystems. Responsibilities will include assistance in field- and lab-based data collection. The student will be responsible for working ~20 hours/week from May 21-August 4, 2017, and will be expected to live on-site at Kellogg Biological Station and have a positive attitude for the duration of the 11-week program. Field research requires the ability to work in all non-hazardous weather conditions. This is a paid position and includes housing and meals.

**Research Project:** Effects of climate warming on freshwater invertebrate predator-prey dynamics and population sizes: Climate warming will increase water temperatures in Michigan over the next century. Increased water temperatures are expected to influence the strength and dynamics of predator-prey interactions, and in-turn, alter population sizes of predators and prey. We are using pond surveys and laboratory warming experiments to understand the consequences of climate warming for freshwater invertebrate predator-prey interactions. The data from our field surveys and experiments will be used to create mathematical models that predict population abundances of freshwater invertebrates under future climate warming. The URA student will gain experience in standardized sampling of pond invertebrates, including benthic macroinvertebrates and zooplankton, and water sampling. Student will also gain experience in setting-up and monitoring laboratory experiments. Field sampling will occur at Lux Arbor Reserve, near Kellogg Biological Station in southwestern Michigan.



**For questions** regarding this opportunity, please email Laura Twardochleb: [twardoch\(at\)msu.edu](mailto:twardoch(at)msu.edu).

***Deadline for application: Feb. 15, 2017.***

**Apply here:** <http://www.kbs.msu.edu/education/undergraduate-program/undergraduate-research-apprenticeships-ura/>