

Using the Mother of Thousands Plant (*Kalanchoe*) for Semester Long Integrated Laboratories

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Kalanchoe is a common house plant that reproduces asexually by budding plantlets from its leaf margins. Plantlet production is prolific, earning the plant its common name, Mother of Thousands (MOTs). The abundance of plantlets makes large scale experiments possible, and the fact that MOTs are relatively slow growing allows us to maintain them in the laboratory through the whole semester. At the start of term, each of our students (as many as 800 in a single semester) plant individual MOTs, divided among treatments with high or low light and high or low nutrition. As students observe the differences in growth under these various regimes, they study the evolution, physiology, and ecology of *Kalanchoe*. First, students practice making phylogenetic trees from both morphological traits and DNA sequence data for several members of the Crassulaceae, including *Kalanchoe*. Next, they investigate the response of MOTs and other plants to drought stress by measuring differences in leaf water potential. In their final module, students take what they have learned and propose and conduct an ecological experiment to test MOTs' responses to population or community level factors. We are excited to share the benefits (and struggles!) of implementing this curriculum with the ABLE community.

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