1154-34-1629 **Jennifer M. Miller*** (jmiller@bellarmine.edu). *The effect of an environmental toxin on a competitive species model.*

We extend a differential equations model for competitive species to include an environmental toxin that affects the species. As such, we begin with a system of four differential equations corresponding to the two species and the toxin in each. We examine the long-term system behavior when the toxin affects the birth rate, death rate, or both. Without the toxin, species X would thrive and species Y would die out. The addition of the toxin allows for a stable steady state where the two species coexist. (Received September 16, 2019)