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**Glenn Ledder\*** (gledder@unl.edu). *Using a Virtual Laboratory to Teach Mathematical Modeling.*

Mathematical modeling involves the construction, analysis, and validation of mathematical systems based on assumptions that are believed to fit a physical system of interest. Constructing a model requires physical insight best gained by observation or experiment. While a mathematics classroom is not an ideal setting for observation and experiment in the real world, it is just the right place for observation in a virtual world. In this talk, we show how to use the BUGBOX-Population virtual laboratory to teach mathematical modeling. The laboratory provides the data and observations needed to develop stage-structured models for the population growth of an insect species, with four varieties allowing for a transition from very simple to almost realistic. We use the model to make predictions about population growth and then validate the model by testing the predictions. (Received September 17, 2013)