1125-J5-1632 **Suzanne Sumner*** (ssumner@umw.edu), 1301 College Avenue, Fredericksburg, VA 22401.

Environmental Applications: Introduction to Mathematical Modeling.

The University of Mary Washington's Introduction to Mathematical Modeling course originated through an NSF grant to improve pre-service teacher preparation in STEM fields, so they become better mathematics and science teachers. This course focuses on the environment, i.e., every example describes some environmental issue, such as overpopulation, endangered species, pollution, limited resources, natural disasters, and epidemiology. The mathematical topics covered are linear regression, curve fitting, and difference equations. The first project involves finding the best-fit model (linear, exponential, power, or logarithmic) to a data set from Pfaff's Sustainability Math website, e.g., carbon emissions, global temperature, grain production, oil consumption, ozone depletion, or wind power production. For the second project, students create difference equations to describe environmental scenarios such as pollution, recycling, overpopulation, and invasive species. The third project studies the biology of infectious diseases, which makes it easier to model disease spread with a Susceptible-Infective-Removed difference equation model. Using pre-course and post-course surveys, classes have shown significant improvement in students' confidence in their mathematical abilities. (Received September 18, 2016)