

1096-VG-942

**Ghan S Bhatt\*** (gbhatt@tnstate.edu), 3500 John A. Merritt Blvd, Nashville, TN 37209, and  
**Ross Beckley, Cametria Weatherspoon, Michael Alexander, Anthony Johnson** and  
**Marissa Chandler**. *Modeling epidemics using differential equations*. Preliminary report.

The well known SIR models have been around for many years. Under some suitable assumptions, the models provide information about when does the epidemic occur and when it doesn't. The models can incorporate the birth, death, and immunization and analyze the outcome mathematically. In this project we studied several SIR models including birth, death and immunization. We also studied the bifurcation analysis associated with the disease free and epidemic equilibrium. (Received September 11, 2013)