1098-35-54 **Alexandra Lynn Zeller** (azeller@masonlive.gmu.edu), 6178 Otter Run Ct., Clifton, VA 20124, and **Padmanabhan Seshaiyer*** (pseshaiy@gmu.edu), 4400 University Dr, Fairfax, VA 22030. *Mathematical Modeling of Dynamic Social Processes.*

This project models the social interactions of human immigration and emigration within regions. Distinctive scenarios are proposed to impact the population movements between locations. Potential applications are discussed and include disease outbreaks, regulatory influences, and language differences. Mathematical modeling is combined with quantitative sociology in a system of differential equations that accurately projects a dynamic social process. This project also projects ways to estimate the various parameters involved in this model. The model then estimates values for both equivalent and different population sizes. In terms of future work, a specific application will be chosen and then usable data will be collected regarding the population movements. Specifically, this project hopes to address a number of new ideas including making the regulatory parameters dynamic. Also, the project will continue the parameter estimation process, eventually using real data to evaluate the error for this model. Finally, we would like to perform stability analysis on the model. Then, this will be used to better the model even further. (Received January 01, 2014)