**Assignment 7**

**John Hopkins University – Computational Modeling for Policy and Security Analysis**

For my Segregation Model experiment I set the Density to 95% and set the % Similar Wanted to 20, 40, 50, 60, and 80, and conducted 10 simulation runs for each value that ran for a maximum of 500 steps. To graph the results, I displayed the average number of unhappy agents as a line across each time step for each value of % Similar. The % Similar Wanted increased, the initial number of unhappy agents rose, from less than 250 at with % Similar Wanted at 20, to over 2000 when % Similar Wanted was at 80. Since the agents are randomly placed across the model, it makes sense that as they have a higher threshold more would start out as unhappy. What I found surprising was how quickly the system went from self-equilibrizing to chaotic. From values of 20 to 50 for % Similar Wanted, the amount of time it takes for all the agents to become happy increased at a fairly steady rate, but then at a value of 60 some of the models never achieve a result of all happy agents (at least over 500 runs), and at a value of 80 the number of unhappy agents does not budge from its initial number. There seems to be a very strong relationship between the % Similar Wanted and the amount of time it takes the system to produce all happy agents at % Similar Wanted values between 20-50, but by value 80 that relationship does not exist anymore. It makes sense that some agents would never be happy – as agents have a higher % Similar threshold the in effect must be surrounded by their own type, but some agents will always be left on the edge of their group and will thus not be happy. I suppose by a threshold of 80, it is not even possible for these groups of similar agents to form. It would be interesting to see if a lower Density values allow for segregated groups of agents to form even at high % Similar Wanted values.