

1125-H1-2118 **Jason Quinley*** (jqquinley@brookstoneschool.org), 9 Spruce St, Columbus, GA 31904. *Social Science and Servant Leadership Reflections on Game Theory at the Secondary Level*. Preliminary report.

In this talk we give several highlights from teaching a *Game Theory* seminar to advanced high-schoolers at a Southern college-prep school with a focus on *Servant Leadership*. Notable assignments include using NetLogo for simulating Schelling's segregation model in the week of the Martin Luther King Jr. holiday, white paper assignments exploring Arrow's Impossibility Theorem using \LaTeX , and classroom experiments on the repeated Prisoner's Dilemma.

Several themes emerge: connections between tolerance, population density, and economic status; the difficulty of selecting third party candidates and more generally new voting mechanisms; and mathematical techniques for modeling cooperation at both a psychological and social level. Samples of student work on altruism, evolution, and bargaining will be included. A secondary theme is the application of mathematical approaches to issues of character education.

Example Game Tables

	C	D
C	3,3	0,5
D	5,0	1,1

Figure 1: **The Prisoner's Dilemma:** Why do some situations lend themselves to cooperative behavior?

(Received September 19, 2016)