1135-91-1257 **Sophia R Mancini*** (mancinsr@dukes.jmu.edu). *Anti-Games on Steiner Triple Systems.*

The card game Set can be turned into a two-player tic-tac-toe style game: all cards are laid out on a table, and two players alternate taking one card at a time. The winner is the first to hold a set in their hand. "Anti-Set" is a variation of this game in which the first player to hold a set loses the game. Previous researchers found a first-player winning strategy for Anti-SET and related games. In this talk, I generalize the game of Anti-Set to a larger category of combinatorial objects called Steiner Triple Systems. These well-studied objects share many of the key geometric features that determine the winning strategy for Anti-Set. I establish a winning strategy for these games using geometric and combinatorial properties of Steiner Triple Systems. This research was conducted as part of the 2017 REU program at Grand Valley State University. (Received September 20, 2017)