1086-05-2598 **Daniel Schaal*** (daniel.schaal@sdstate.edu) and **Corey Vorland**. *Rado Numbers for a Linear Inequality.*

In 1916, I. Schur proved the following theorem: For every integer t greater than or equal to 2, there exists a least integer n = S(t) such that for every coloring of the integers in the set 1, 2, ... , n with t colors there exists a monochromatic solution to x + y = z. The integers S(t) are called Schur numbers and are known only for t = 2, t = 3 and t = 4. R. Rado, who was a student of Schur, found necessary and sufficient conditions to determine if an arbitrary linear equation admits a monochromatic solution for every coloring of the natural numbers with a finite number of colors. Let L represent a linear equation or inequality and let t be an integer greater than or equal to 2. The least integer n, provided that it exists, such that for every coloring of the integers in the set 1, 2, ... , n with t colors there exists a monochromatic solution to L is called the t-color Rado number for L. If such an integer n does not exist, then the t-color Rado number for L is infinite. In this talk we will consider a family of linear inequalities for which the exact 2-color Rado numbers have recently been determined. We will also present some open problems and discuss the general direction of research in this area. (Received September 25, 2012)