Graphs in Facebook Friendships: How Connected Are We?
A Talk by Dr. Heenehan (Mathematics)

Monday, October 27
7:00PM, Room 132 Science Building

Abstract:
Suppose I’m looking on Facebook and I want to visualize the friendships. I don’t just want to see a list of friends I want to see how the friends are connected. Perhaps by seeing these connections I will find a new friend or other common interests. I can do this by creating a graph in which I have a vertex for each person and I put edges between people that are Facebook friends. I can then color the graph by assigning everyone a color in such a way that if people are friends they are assigned different colors. How many colors will I need? If there is a group of people that are all friends with each other they will each need a different color, this is a clique in my graph. More generally, if there are $n$ people who are all friends with each other then I get a clique of size $n$ in my graph, that is there are $n$ vertices that are pairwise adjacent. So, if I need to use $n$ colors, does this mean that there are $n$ people who all know each other? Or are there $n$ people that are all connected in some other way? In terms of graph theory our question is: Is there a relationship between graphs requiring $n$ colors and a clique of size $n$? A clique of size $n$ is the smallest graph that requires $n$ colors, so this is a natural question to ask. In this talk we will look at some attempts to answer this question. No prior knowledge of graph theory will be assumed.