Homework 4, Morally Due Tue Feb 26, 2013
COURSE WEBSITE: http://www.cs.umd.edu/~gasarch/858/S13.html
(The symbol before gasarch is a tilde.)

1. (0 points) What is your name? Write it clearly. Staple your HW. When is the midterm (give Date and Time)? If you cannot make it in that day/time see me ASAP. Join the Piazza group for the course. The codename is cmsc858. READ the note on the class webpage that say THIS YOU SHOULD READ that you haven't already read.

2. (50 points) Find a function $XXX(k)$ such that the following statement is true Use the NEW proof of the infinite 3-ary Ramsey theorem for graphs as a guide. *For all k there exists $n = XXX(k)$ such that for all 2-colorings of $\binom{[n]}{3}$ there is a homogenous set of size k.*

3. (50 points) Find a function $n = YYY(k)$ such that the following statement is true Use the proof of the analogous lemma for colorings of $\binom{\mathsf{N}}{2}$ that we did in class as a guide. *If $COL : \binom{n}{2} \rightarrow \omega$ such that, for all colors c and all $x \in [n]$, $\mathrm{deg_c(x)} \le 1$, then there is a rainbow set of size k.* (Try to make $n = YYY(k)$ as small as you can. For one thing, it can't be constant.)

4. (0 points) Think about a finite version of the Canonical Ramsey Theorem. It would use problem 3.