MATH 108 – INTRODUCTION TO COMBINATORICS
AND ITS APPLICATIONS

Lectures: MWF 9:00-9:50, in Bldg. 300 - Rm. 300
Office hours: W 10:00-12:00, F 1:00-2:00, in Bldg. 380 - Rm. 382-X

Instructor: Matthew Kahle
Email: first initial + last name “at” math “dot” stanford “dot” edu
Office: Bldg. 380, Rm. 382-X
Website: http://math.stanford.edu/~mkahle/
Course text: Van Lint & Wilson, “A Course in Combinatorics”
Course assistant: Sukhada Fadnavis (office: Bldg. 380, Rm. 380-L)

Course description: Combinatorics is a branch of mathematics primarily concerned with finite structures. It is especially rich in its connections to other branches of mathematics, and has serious applications in theoretical computer science, and other applied disciplines. In this course we will be concerned with introducing some of the most fundamental combinatorial structures, and the techniques for analyzing them. In particular, the first part of the course will be concerned with graph theory, including a discussion of the somewhat controversial proof of the Four Color Theorem. Later we will develop enumerative techniques; i.e. “advanced methods for counting.” Along the way, we will see connections to many other areas of math, and there may also be time for an application or two as well.

Grades: 60% of your grade in this course will be based on homework. You are encouraged to work together on the homework sets, but everyone must turn in their own assignment. Please note that late homework will not be accepted! Their will be homework about every two weeks. 15% of your course grade will be based on an in-class midterm. (Date to be announced, but roughly halfway through the quarter.) The remaining 25% will be based on the final. (Details for final exam also to be announced.)

A note on homework: I want to keep everyone challenged, but not overwhelmed. So when I assign homework, there will be one-star, two-star, and sometimes three-star problems. One-star means that I think this is a reasonable problem, so it is required for the course. Two-stars means that I think it is a bit harder, perhaps unreasonable, so it is optional. If you solve any of these, and write them up nicely, it will count as extra credit. Three-stars means unsolved, at least as far as I know, so highly optional.