

# Math



# Mess

Department of Mathematics  
St. Olaf College  
Northfield, MN 55057

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## This Week's Mathematics Colloquium

Title: A Mathematical Monopoly?

Speaker: Irvin Hentzel

Time: Tuesday, April 8, 1:30 pm

Place: SC 182

### This Week's Colloquium

Have you ever wondered if buying a railroad is truly in your best interest? Do you worry about the consequences of going to jail? If so, then you should take the short line railroad and proceed directly to Dr. Irvin Hentzel's colloquium about Monopoly? ! His talk will be at a general level, aimed at anyone who has enjoyed playing the game of Monopoly. Dr. Hentzel will include some historical perspectives of the game, as well as answering age old questions like: "Which Monopoly is the best Monopoly on the Board? Is Board Walk/Park Place better than New York/St. James/Tennessee? How valuable is the Railroad Monopoly?" Dr. Hentzel will outline different strategies for the game and specify which Monopolies are best for each strategy. The math department strongly encourages you to attend this colloquium, although we cannot offer you \$200 as you pass through SC 182.

Dr. Irvin Hentzel has always enjoyed puzzles and game and played Monopoly everyday as a child. Like any young Monopoly player wishing to develop new strategies, Irvin signed up for 20 Statement Fortran. He completed the first assignment, which was to compute the area of a triangle, but then spent the rest of the semester writing a program to analyze Monopoly. Now seeking to expand his monopoly on game theory, Irvin is studying Mancala and Puzzle peg. When not studying Monopoly and other games, Dr. Hentzel teaches mathematics at Iowa State.

### Help Host the Pig Roast

No Mother's Day is complete without a 220-pound pig being roasted in a pit. This year's Math Pig Roast will be without the services of pig roaster extraordinaire Paul Humke, who is out of the country. This gives all you apprentice roasters a chance to go hog wild. If you are interested in helping out with roasting and/or organizing the event contact Professor Doreen Hamilton ([hamiltod@stolaf.edu](mailto:hamiltod@stolaf.edu)).

Math Department T-shirts

Congratulations to **Zane Buxton**, winner of the MAA's t-shirt design contest! Zane will receive a \$50 gift certificate along with the honor of creating the slogan, "If you were  $x^3$ , then I would be  $\frac{x^4}{4}$ ? C so I could be the area under your curves."

However, the actual design of the t-shirt going to press will not feature Zane's racy slogan.. Instead, the department t-shirt will feature the designs of **Will Dambroso** and **Eric James**. Look for the shirts to be on sale later in April.

## New Bioinformatics Course

Bioinformatics is a new and fast-developing field that lies at the intersection of computer science, biology, and mathematics. Since the unraveling of DNA in 1953, molecular biology has witnessed a tremendous increase in the ability to manipulate biomolecular sequences and generate enormous amounts of DNA-related data. The need to process such data has created new problems that are changing how to structure, access, and transform databases, how medicine is done, and how biology research is carried out.

We are lucky to have a trio of professors teaching a course in bioinformatics (CS 378), which will be offered interim 2004: (1) Laurent Trilling, an outside expert and computer scientist from the Computer Science and Applied Mathematics Institute in Grenoble, France; (2) Professor Richard Allen, a longtime member of the CS faculty at St. Olaf; and (3) Professor Rob Rutherford, a brand new faculty member in the Biology Department whose primary interests are in bioinformatics. The only prerequisite for the course is CS 172. If you are interested in more details contact Rich Allen, Dick Brown, Matt Richey or Anne Walter.

## Last Week's Problem

One problem on the 2002 Putnam was to prove that if five points are placed on the surface of a sphere, there must be four which lie in the same (closed) hemisphere. In a similar vein, how many points are necessary to ensure that five lie in the same hemisphere? **Mark Kingsbury**, **Adam McDougall** and **Noah Loome** each showed that 7 points suffice by the same logic as applies to the original Putnam problem: pick any two points and draw the great circle going through those two points. Of the remaining five points, three must lie on one side of this great circle or the other (allowing for the possibility that one or more of them is on the great circle as well). These three along with the original two form the desired set of five. But, does this allow us to say that seven points are necessary? No, not unless we can exhibit a set of six points which does not have a subset of five lying in the same hemisphere. No one addressed this part of the question.

## Problem of the Week

In the new Science Center, all of the rooms are to have six sides, but they may be irregular shapes, possibly non-convex. Prove that in any 6-sided room, it must be possible to place two security cameras which between them will be able to "see" any point in the room. Generalize.

\*\* Please submit all solutions to **David Molnar** ([molnar@stolaf.edu](mailto:molnar@stolaf.edu)) by noon on Sunday.

If you would like to receive a copy of the Math Mess in your P.O. Box weekly, please e-mail **Donna Brakke** at [brakke@stolaf.edu](mailto:brakke@stolaf.edu).

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