

MSCS



Mess

Department of Mathematics, Statistics and Computer Science
St. Olaf College
Northfield, MN 55057

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This Week's Colloquium

Title:	Three-Dimensions in the Mathematics Classroom
Speaker:	Jonathan Rogness, University of Minnesota
Time:	Tuesday, September 27, 1:30 pm (treats at 1:15)
Place:	SC 186

Math teachers and students alike know how tricky it can be to draw three-dimensional pictures on a two-dimensional blackboard or sheet of paper. Computer programs such as Maple let us rotate three dimensional pictures, but many people still have trouble interpreting these images. Help may be on the way! New systems, such as the GeoWall installed in St. Olaf's Graphics Lab, allow us to view images in true 3D.

Here's what Jonathan told us about his talk...

In this talk I will present some possible uses for a GeoWall system in the mathematics classroom. We will look at a number of pictures and interactive examples used in classes at the University of Minnesota; these were originally intended for web pages, but using the Graphics Lab we'll view them in all their new-and-improved three-dimensional glory. I will mainly use examples from the calculus sequence, but anybody interested in

mathematics should be able to follow the talk. We'll mostly focus on what is technically feasible, and what would be useful for students, rather than try to cover all of calculus in one hour.

And here's a little bit about Jonathan himself...

Jonathan finished his Ph. D. at the University of Minnesota in 2005. He is currently a visiting faculty member at the University, where he teaches for the math department and the U of M's Talented Youth in Mathematics Program (UMTYMP). He did his undergraduate work at Augustana College in Sioux Falls.

Problem of the Week (POW)

Since there is a foreign language component at St. Olaf college, the Psychology and MSCS departments got together to study the retention of new words in students. They found that most students start at St. Olaf knowing, on average, 15 words. Then each week students learn about 30 new words, but also forget 5% of the words they have already learned. How many words have been learned after n weeks? What is the maximum number of words they can ever hope to learn in this scenario?

*** Please submit all solutions by Wednesday at noon to Amelia Taylor by e-mail (ataylor@stolaf.edu) or by placing them in her box at OMH 201.

New Faculty Spotlight: Urmila Malvadkar

Urmila grew up in Oklahoma City, Oklahoma, where she developed an interest in hard math problems even as a child. She received her B.S. from Vanderbilt University in 1997, graduating with a double major in mathematics and environmental science. Urmila's next stop was Princeton University, where she put both majors to use when writing her thesis, "Evolutionary Causes and Ecological Consequences of Diel Vertical Migration in Zooplankton." She graduated in 2002 with a Ph. D. in applied and computational mathematics with an emphasis in mathematical biology.

Before arriving at St. Olaf last spring, Urmila spent two years on the West Coast teaching at UC-Davis. She has continued to conduct research in areas of mathematical biology, and most recently has been working on modeling fish movement in marine reserves.

Urmila says she is still in the process of getting acquainted with Northfield, since most of her non-math time is spent with her 1.5-year-old daughter, Ava. "She's my main hobby," Urmilla says.

Get Ready for the Carlson Contest

Short on cash? Each year the St. Olaf MSCS department has its own home grown problem solving contest with cash prizes. There are prizes at 3 levels: upper-class, first year students and Calculus 1 students. This is a great opportunity to play with mathematics in a very casual environment with the possibility of cash at the end.

The dates will be Wednesday, October 5 and Thursday, October 6. Mark your calendars and

watch for details in next week's Mess, your classes and the math-probsolv alias.

Send any questions to Amelia Taylor at ataylor@stolaf.edu with the subject line "Carlson Contest".

Last Week's Problem

A girl carrying a brand new five-foot fishing pole is told she cannot ride the bus with an object that has a dimension of more than four feet. She goes back into the store where she bought the pole and explains her dilemma. The owner of the store gives her something that solves her problem. When the next bus comes, the girl gets a ride with her fishing pole in one piece, with no questions asked. What was the owner's solution?

Congratulations to many solvers this week. Correct solutions were submitted by Joseph Anderson '07, Doug Bauman '06, Robert Crawford '05, Daniel Endean '09, Mark Kingsbury '05, Nick Larson '05, Thomas McConville '09, Will Mitchell '06, Joey Paulson '07, and Will Voorhees '08. The solution is to put the pole in a box that is 4ft, by 3ft, by a depth that will fit the pole, for example 1ft (but anything under 4 ft will do). The diagonal of this box is more than 5 ft, since the diagonal of one side is 5 ft, by the Pythagorean Theorem, so the box diagonal is longer than this. Thus the pole fits, but has no linear dimension over 4 feet.

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