MSCS Mess

This Week's Colloquium

Title: Fun and Games with Statistical Mechanics
Speaker: Amy Kolan from the
Physics deptartment
Time: Tuesday, November 30, 1:30 pm
(treats at 1:15)
Place: SC 182

Don't worry about the title of this talk; you do not need to know either statistics or mechanics to understand this presentation. In the talk I will introduce a game developed by Bob Hanson for use in his first year chemistry courses. I will then analyze this game from a mathematical viewpoint and explain why it is of interest to physicists and chemists. Along the way we'll investigate how a head of beer decays in time, how a pearl moves through a bottle of shampoo, and how the distance varies between roadkill on a country road. Students interested in math education or the physical sciences are especially encouraged to attend.

Professor Amy Kolan has taught at St. Olaf College for 22 years. Her research has centered on simple mathematical models of physical systems that can be solved exactly. She has taught students at all levels, from first graders to graduate students, and is interested in problems that can be investigated on a variety of levels. She has used the Boltzmann Game (the subject of this talk) in working with fifth graders and college students.

Professor Ted Vessey will retire after 34 years

The end of this semester marks a real milestone for mathematics, here and beyond, as Ted Vessey will retire after more than 34 years of service to St. Olaf. Ted has received many distinctions over his career. A relatively recent honor was his recognition in 2001, by the North Central Section of the Mathematical Association of America, as the year's "outstanding college mathematics teacher."

Ted is Minnesotan through and through. Born in St. Paul and raised on the west shore of Lake Johanna, he obtained both his undergraduate and graduate degrees from the University of Minnesota. After a 4-year sojourn at the University of Wisconsin Milwaukee, he came to St. Olaf in 1970 and has been on our faculty ever since. His local achievements include having helped develop the contract mathematics major (in 1972) and 13 years' service as department chair, during which he hired a lot of faculty (and fired just a few). Ted also coached the Alpine Ski Team from 1978 to 1990, after having served as faculty advisor to the ski racing club in earlier years, and has served on countless important college boards and committees, including one that brought a PhD

mathematician, Mel George,   to St. Olaf as President. Despite his strong

Minnesota roots, Ted is anything but a homebody, having held visiting positions at the Naval Postgraduate School, Stanford University, the University of Lund (Sweden), East China Normal University (Shanghai), the University of Virginia, the University of Massachusetts, and Chiang Mai University (Thailand).

The Real Analysis Exchange Needs You!

Are you a first year student, interested in mathematics, not computer phobic and would like a solid good paying job for your next three years at St. Olaf? Then does Humke have the deal for you!!!

The *Real Analysis Exchange* is a journal that he edits and he needs help. This job will pay for your training and then 3-4 hours of editing type work per week. If you think you might be interested, drop Humke an email note at <u>analysis@stolaf.edu</u>. Hey, what can you lose? This could be great!

Hmmm…

"… There can be no doubt about faith and not reason being the ultima ratio. Even Euclid, who has laid himself as little open to the charge of credulity as any writer who ever lived, cannot get beyond this. He has no demonstrable first premise. He requires postulates and axioms which transcend demonstration, and without which he can do nothing. His superstructure indeed is demonstration, but his ground his faith. Nor again can he get further than telling a man he is a fool if he persists in differing from him. He says "which is absurd," and declines to discuss the matter further. Faith and authority, therefore, prove to be as necessary for him as

for anyone else."
-Samuel Butler from *The Way of All Flesh*.

Teaching Opportunities

Math for America:
Currently focused in New York, the Math for America Foundation was founded to improve the quality of mathematics education in public schools. They are working to attract mathematically knowledgable and competent people to teach in the public schools of New York. The *New York City Newton Fellowships for prospective mathematics teachers* is a program they have set up to facilitate this. The Newton Fellowship provides one year of Masters level teacher preparation (which includes student-teaching). For this year, Fellows receive a full tuition scholarship to the masters program and a stipend of $28,000. Fellows are then enlisted to teach for the next four years; for this they are given job-placement assistance, individualized mentoring and ongoing support.   Over the next four years of teaching, students receive an aggregate stipend of $62,000, in addition to regular teacher salary. Every year, 40 Fellowships will be awarded. Applicants for this program know and love math, enjoy working with teens, and possess excellent communication skills.   For details about application or additional information, visit <u>www.mathforamerica.org</u>.

Knowles Science Teaching Foundation:
This organization is also looking for individuals who have completed a bachelor's degree in science or math and would like to become licensed teachers. This program provides financial and professional support for up to five years, including tuition assistance and a stipend while fellows participate in a recognized teacher credential program. Further information about the program can be found at <u>www.kstf.org</u>.

***There are many opportunities in the field of math education for individuals compentent in mathematics, even without a prior education background. If you are interested in possibly teaching math in the future and would like to learn more about the range of opportunities available, talk to Professor Martha Wallace, our math education expert.

NCS Results

The North Central Section of the MAA's yearly team problem solving contest was held November 13th. 66 teams from 26 schools competed. The top 3 teams this year were from Macalester, Carleton and the University of Manitoba. St. Olaf sent 5 teams, all of whom scored in the top 50%. This is the third straight year that St. Olaf has done this! If we score like cross country team scoring we got third behind Macalester and University of Minnesota Twin Cities. Needless to say, our teams did very well. Congratulations!

Puerto Rico: 13th with 57 points
Matt Handley
Matthias Hunt
Joey Paulsen

Captain Planet: tied for 19th with 52 points
Joel Beard
Will Mitchell
Dan Visscher

Recess: in a 5 way tie for 24th with 50 points
Sara Krohn
Kaicy McLeod
Paul Tveite

Crusaders: (Note, this is a team of all first years!)
tied for 29th with 49 points
Nolan Cook
Ohmar Coughlin
Tony Zbacnik

Benders: tied for 32nd with 47 points
Doug Baumann
Chris Ebert
Phil Schulte

Problem of the Week

A soccer ball is made from pieces of black and yellow leather. The black pieces are regular pentagons and the yellow ones are regular hexagons. Each pentagon is adjacent to five hexagons and each hexagon is adjacent to three pentagons and three hexagons. The ball has 20 yellow hexagons. Does the ball have more than 10 black hexagons?

*** 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.

Last Week's Problem

Yesterday there was an arm-wrestling tournament in a mathematics classroom. Each student competed against each of the others exactly once. Each pair of competitors had 30 seconds to win the match. Each participant scored 1 point for a win, -1 for a loss and 0 points for a tie. Jack finished with 9 points and Jill with 12; was there necessarily a tie?

Solutions were submitted by **Paul Tveite '07** and **Robert Orme '05**. The solution this week is Paul's. There are other ways to argue this. Suppose there are no ties. Then in each match a student either gains or loses a point, making the change in their score 1 mod 2, since each student has the same number of matches, n-1 where there are n students in the class, if there is no tie, each student's final score must be congruent to (n-1) mod 2, this is not possible in the situation given, since one student has an odd total score, and one has an even total score.

Editor-in-Chief: Paul Roback

Associate Editor: Thomas Noah Loome

MM Czar: Donna Brakke

Problems Editor: Amelia Taylor