MSCS Mess

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

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This Week: Three Talks Tuesday,Wedensday, and Thursday!!

Tuesday's Colloquium: Stats

Title: **Two Perspectives on Finite Population Sampling**

Speaker: Katie St. Clair, Carleton College

Date: Tuesday, April 1st
Time: 1:30pm (Treats at 1:15)
Location: SC 188

Abstract: Sample surveys give us a current picture of a population of interest. They can be used to provide a snapshot of current public opinion, the state of the economy, or to evaluate the condition of natural resources. The objective of a sample survey is to make conclusions about an entire finite population with information obtained from just a sample of population members. In my talk I will discuss two competing methods for making these conclusions. The first and most common approach to finite population sampling constructs estimates and confidence intervals based on how the sample was selected (i.e. the sampling design). A second approach, called the Bayesian approach, constructs estimates and confidence intervals based on a statistical model that relates the unobserved population members to the sampled members. I will describe a specific Bayesian model which uses a "Polya Urn" to relate the unobserved to the observed. I will discuss how both of these approaches can be used to estimate the density of wintering waterfowl in central Florida.

Bio: Katie St. Clair grew up in Hastings, MN and received my Ph.D. in statistics from University of Minnesota in 2004. From 2004-2207 she was an assistant professor at Colby College in Maine. Katie moved back to Minnesota in August 2007 to join the math department at Carleton College.

Wednesday's Speical Talk: CS

Title: **Computing and the Future: The Coming Demand (Special talk)**

Speaker: Dick Brown, St. Olaf CS

Date: Wednesday April 2nd
Time: 7pm (Refreshments at 6:45)
Location: SC 186

Abstract: Computer technology only came onto the scene in the last part of the 20th century, but a list of the greatest engineering achievements during that century would surely include computers, electronics, and the Internet, and these advances have had an enormous

economic impact, including over a dozen billion-dollar industries. Surprisingly, it's still just beginning: new applications of computing that will have even more impact on people's lives are already in sight. These include personalized predictive medicine, transformation of the developing world, cars that can avoid accidents, personalized education, data mining with supercomputing, and more. This talk will present these coming real-world applications of computing, and consider how we can prepare for them, both technically and ethically.

Bio: Dick Brown teaches computer science and (a little!) mathematics here at St. Olaf, and is involved at a national level in undergraduate research. He directs Beowulf cluster computing here, which includes numerous projects that apply computer science to research problems in other disciplines, including biology and genetics, environmental science, neuroscience, chemistry, and mathematics. He also likes acting, dancing, problem-solving, and playing the tuba (though he's out of shape).

Thursday's Colloquium: Math

Title: **Dreaming of pipes in Catalonia**

Speaker: Alexander Woo

Date: Thursday, April 3rd
Time: 2:30pm
Location: SC 188

Abstract: The sizes of many sets of combinatorially interesting objects are given by the Catalan numbers. I will introduce some of these sets, use one to give a formula for the Catalan numbers, and give some bijections between them. One such set of objects are known as reduced pipe dreams (for a particular family of permutations), which were recently discovered to be counted by Catalan numbers.

Bio: Alexander Woo is currently VIGRE Visiting Assistant Professor at the University of California at Davis. Alex majored in mathematics and music for his B.A. from Williams College, and his Ph.D. from the University of California at Berkeley is in algebraic combinatorics and algebraic geometry.

CS summer work opportunities

The CS program plans to hire two full-time summer workers (pending funding approval). Highlights of these two positions:

- Web and wiki master. This person would help update wiki software used by the program, work with department-related web sites, and explore and implement new ways of using these technologies in teaching and projects. Training provided. Qualifications: One or more CS courses; experience with PHP and/or web-related technologies a plus, CS major a plus.

- Cluster system administrator. This person will learn how to manage the CS Beowulf clusters from others with experience at this job, and will develop and implement new applications of the clusters, often involving other fields of study. Potential for ongoing cluster-related work in the future. Qualifications: CS 251 minimum; operating systems (CS 273), other relevant courses, or prior system management experience is a plus, CS major is a plus.

Prof. Brown also knows of some off-campus internships. To apply or for more information, contact Dick Brown (rab@stolaf.edu,x3860) or see the CS website (www.cs.stolaf.edu).

Carlson Problem Solving Contest

It's time for the annual Carlson Problem Solving Contest. You can win the largest cash prize ever awarded!

Format: The exam is an individual 75 minute exam that is taken at St. Olaf on the honor system. The exam may be picked up beginning Apr. 10 outside Old Music 304 and must be completed by Apr. 14. If you plan to take the exam, please inform Prof. Smith in Old Music 209, or Prof. Weimer in Old Music 304, or send an e-mail to weimer@stolaf.edu.

Prize Format: There are two categories, first year students in one category, upper-class in the other. Prize money will be awarded in each category as follows:

First Place = $60
Second Place = $50
Third Place = $40
Fourth Place = $30
Fifth Place = $20
Sixth Place = $10

Game Night: Wednesday April 2nd

The game of the month for April is **Misere Dots-n-Boxes.**

Dots-n-Boxes is a tradition children's game which begins with a 6x6 array of dots. Players alternate turns connecting dots which are adjacent horizontally or vertically. If a segment completes a box, that player scores a point and gets to move again. The player with the most boxes wins.

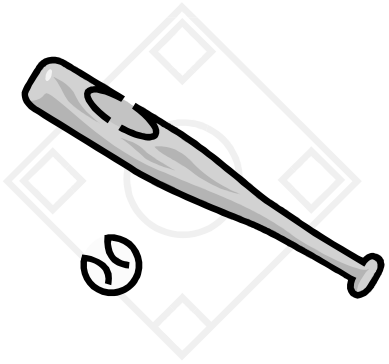
Misere Dots-n-Boxes uses the same rules, with the exception that the player with the most boxes loses.

Math Recital!

Wednesday evening, April 9th at 7:00pm in Ytterboe Lounge.

Who's invited: anyone who has taken a math, stats or CS class, or knows someone who has taken an MSCS class.

If you want to perform, contact Steve McKelvey (mckelvey@stolaf.edu, x3421)



Happy Opening Day 2008!

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If you would like to submit an article or math event to be published in the Math Mess, e-mail tummers@stolaf.edu.