

MSCS



Mess

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

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To Be or Not To Be...a Math/Stats/CS major or concentrator

Speakers:	St. Olaf Faculty and Students
Time:	7:00pm Thursday, November 2
Place:	SC 282 and (SC lobby)

Abstract: Meet Team MSCS at this year's gala celebration of why mathematics and its relatives should be part of your life, and how you can make that happen. There are many reasons to attend:

- ?**learn** what courses to take next – no matter what you're taking now
- ?**learn** how to build mathematics and CS majors that complement your interests
- ?**learn about** exciting careers to aspire to
- ?**boldly explore** different parts of the MSCS universe (math, stats, cs, math ed)
- ?**discover** further sources of information, animate and inanimate
- ?**meet** MSCS faculty, staff, and experienced students
- ?**enjoy root beer floats**

The event opens with a short "warm up" led by MSCS Head Coach Paul Zorn. After that the action moves into the wider arena of the Science Center Lobby where inquisitive students can ask individual questions of and mingle with faculty and

seasoned, experienced, and soon-to-graduate veteran students who have done the MSCS thing up close and personal. This interaction will be lubricated by draft root beer and ice cream, which you are welcome to consume separately or mixed together in a root beer float.

While designed primarily for first and second year students curious about the benefits and mechanics of completing a program in MSCS, the evening has benefits (among them root beer and ice cream) for older students as well. Besides, where else can you see MSCS faculty wearing team tights?

New Courses and Updates for Spring

Math 384: Seminar on Bayesian Statistics
Offered T/Th @ 9:30 by Professor Kohnen

The focus of this seminar will be on the application of Bayesian Statistics in the areas of missing data and data confidentiality. The use of Gibbs Sampling and Markov Chain Monte Carlo techniques will be introduced and utilized throughout. Other topics, such as Bayesian Model Averaging, may be introduced if time and interest allows.

Prerequisites: Statistical Theory (Stat 322) would be ideal, otherwise Probability (Math 262) and Statistical Modeling (Stat 272) would be fine. See

Prof Kohnen (kohnen@stolaf.edu) with any questions.

Statistics 316: Advanced Statistical Modeling is now scheduled MWF 2:00-2:55

Math 382 Topics in Mathematics: Graph Theory Offered T/Th @ 9:30 by Professor Garrett

One of the earliest results in Graph Theory was a paper on the Seven Bridges of Konigsberg written by L. Euler in 1736. The problem centered around a town with seven bridges and four land masses where inhabitants would wonder if a person could walk through town crossing each bridge exactly once and end up at the very place they started. Come to the first day of class to see the answer to this question!

In this course we will study graphs, graph colorings, network problems and other results. Along the way we will discuss applications of graph theory to Linear Algebra, Topology, Computer Science and Combinatorics. Students will also have a chance to investigate some of the many open questions in the field.

If you have questions about the course, please talk to Prof. Garrett (OMH 204 or garrettk@stoalf.edu).

Math 352: Abstract Algebra II Offered T/Th @ 11:45/12:45 by Professor Dietz

Did you love Abstract Algebra when you took it? Are you anxious to get back to proving theorems about your old friends groups, rings, and fields? If so, then Math 352 is the course for you. We'll study groups, rings, and fields in more depth than in AA I; in particular, we'll cover group actions, the Sylow theorems, and Galois theory. This course is a "must" for

those of you thinking about going to graduate school in (pure) mathematics, and a must for you algebra-lovers in need of a 300-level core course to complete your math major.

Fellowship for Future High School Teachers

Interested in Teaching? Want free money to learn how? Does participation in a community of teacher-scholars sound intriguing? If you would like to teach math or science in a US high school and will have a bachelor's degree in math or science (not necessarily math ed), you may apply for the 2007 Science Teaching Fellowships and Mathematics Teaching Fellowship, offered by the Knowles Science Teaching Foundation (KSTF). The fellowship provides both financial assistance and professional support for up to five years. Applications and more information are located at www.kstf.org. The deadline for application is January 16, 2007.

Math Grad School Night!

Graduate students and Faculty in Mathematics will lead a panel discussion on Wednesday, November 1 in SC 188 on how to apply, get in, pay for, and survive graduate school in mathematics. Come hear these students talk about their experiences and answer questions such as:

1. What IS graduate school like?
2. How do I pick a program? Are all programs pretty much the same??
3. Will I be prepared? Will I like it?? Will I survive???
4. What can I do with a Masters or a Ph.D. in mathematics? Will anyone want me??
5. Are you kidding? Can I really get paid for going to school!?!?

Superior Food at 6:00pm, Panel Discussion at 7:00pm, extended Q&A to follow.

ASC Seeks Statistics Tutors

The Academic Support Center currently has more requests for help in Stat 110 and Stat 272 than it has approved tutors in Statistics. If you've taken either of these two courses and are interested in sharing some of what you learned, please apply to be a statistics tutor at <http://www.stolaf.edu/services/asc/tutorApp.html>

If you have questions, call the ASC at x3288 or e-mail bolstad@stolaf.edu.

Missed the Math Practicum Interviews?

The interviews for the interim 2007 edition of the vaunted Math Practicum are now over. If you are interested in spending interim learning how mathematics and statistics are really used in the "real world," let Profs. Garrett or McKelvey know. There may be still be time to get permission to sign up for the course, but you'll need to move quickly. At this point the limited roster slots are filled pretty much on a first come first served basis.

Jokes for Geeks

Question: What do you get if you divide the circumference of a jack-o-lantern by its diameter?

Answer: Pumpkin Pi!

Question: What did one math book say to the other?

Answer: Don't bother me, I've got my own problems.

Problem of the Week (POW)

The First Prime. The numbers 1 through 10^{10} are written in formal English (i.e. "two hundred eleven" or "one thousand forty two") and then listed in alphabetical order. What is the first prime number on the list?

Submit all solutions before the appearance of the next problem to Josh Laison in person, by e-mail (laison@stolaf.edu), or by ocean liner. The first correct solution gets a prize; all correct solutions get fame and glory. Preference for the prize goes to problem-solvers who haven't won one yet.

Solution to the Problem of the Week

Tower of Irrationality: Find with proof:
 $\sqrt{2}^{\sqrt{2}^{\sqrt{2}^{\dots}}}$

Solution: Let $t(1)=\sqrt{2}$, $t(2)=\sqrt{2}^{\sqrt{2}}$, $t(3)=\sqrt{2}^{\sqrt{2}^{\sqrt{2}}}$, etc. So the number we're interested in is the limit of the sequence $\{t(n)\}$. First we must prove that this sequence converges. Since $t(n)$ is greater than 1, and $t(n+1)=\sqrt{2}^{t(n)}$, the sequence is increasing. By induction, since $t(n)<2$, $t(n+1)<\sqrt{2}^2=2$. So the sequence is bounded above by 2. Since $\{t(n)\}$ is increasing and bounded above, it converges to something. Let u be the limit of $\{t(n)\}$. Then $u=\sqrt{2}^u$. There are two solutions to this equation (since, for example, $f(u)=u$ and $g(u)=\sqrt{2}^u$ intersect exactly twice). These two solutions are 2 and 4. But since $t(n)$ is bounded above by 2, the limit of $\{t(n)\}$ cannot be 4. So $u=2$.

Congratulations to Koya Kato, who was the only one to submit a complete solution, and won a 24-pack of crayons.

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

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