

MSCS Mess

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

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Upcoming Talks

Math Across the Cannon

Prof. Amie Wilkinson of the University of Chicago will be delivering this year's Math Across the Cannon lectures next week on Thursday, April 23rd. Prof. Wilkinson is a renowned mathematician whose interests include dynamical systems and ergodic theory. Her visit to Northfield is a great opportunity to interact with a famous mathematician, and find out what her mathematical interests are. Prof. Wilkinson will be giving two lectures on April 23rd:

"A dynamical way of thinking" 3:30-4:30 at Bouliou 104 at Carleton College

"What are the odds?" 7:00 in Viking Theater at St. Olaf College

More information on her talks is available at <http://pages.stolaf.edu/diveris/?p=519>. There will also be a social hour with Amie 2:00-3:00 in CMC 206 at Carleton. If you are interested in carpooling to Carleton for the afternoon talk and you need a ride, or could share a ride, please contact Prof. Diveris (diveris@stolaf.edu).

MSCS Teaching Candidate Talks

Want an advanced peek at who might be teaching your math classes next year? Over the next few weeks, MSCS will be bringing in candidates for several temporary teaching jobs. Each candidate will give a 45 minute talk, aimed at students, as part of their interview. This is your chance to see the candidates and let us know what you think of them. Here are the details for the talks being given this week. You are encouraged to come, there will be food.



Matthew Wright (Ph.D. University of Pennsylvania):

When/Where: Tuesday, April 21 at 3:00pm in RNS 310

Title: Euler Characteristic and Data Analysis

Synopsis: Euler characteristic is much more than a number associated with polyhedra – it is a marvelous mathematical tool that can help solve a wide variety of problems. For example, Euler characteristic can help classify polyhedra and determine the number of pentagons on a soccer ball. Yet Euler characteristic has many diverse applications in the world of data analysis. Euler characteristic is the basis for an integration theory that can solve applied problems that arise in sensor networks and image processing. I will give an introduction to Euler characteristic and demonstrate various applications. This talk will also highlight connections to current research and open problems that are accessible to students.



Hwayeon Ryu (PhD. Duke University):

When/Where: Wednesday, April 22nd at 3:00pm in RNS 310

Title: Feedback-Mediated Dynamics in the Kidney: Mathematical Modeling

Abstract: The glomerular filtration rate in the kidney is controlled, in part, by the tubuloglomerular feedback (TGF) system, which is a negative feedback loop that mediates oscillations in tubular fluid flow and in fluid NaCl concentration at the nephron level. In this loop, there are two parameters, TGF gain and delay, which are important in better understanding of the stability of the feedback system. In this talk, I will begin with a biological motivation of why mathematical modeling is useful in biology and continue with an introduction of the kidney and nephron. Then I will present the mathematical tools used to identify the systematic dependence of the sta-

bility of the TGF system on the above-mentioned two parameters, TGF delay and gain.



Attention Senior MSCS Majors

It's almost graduation time, way to go! The MSCS department would like to honor your accomplishments with a showcase. In order to do so, we need your help! Please send Zach Greimann, (greimann@stolaf.edu) a digital photo of yourself along with any other information you would like to share, such as:

- Your name
- Your major(s)
- Your plans for after graduation (this can include grad school, jobs, traveling, future goals, etc.)

Thanks!

April is Math Awareness Month!

As more and more industries become increasingly complex, Math has become an even more important part of our world and a valuable asset for any employee. But how does one figure out where they can apply their knowledge of Mathematics in the real world? In order to increase awareness of the myriad ways to use math in your career, the American Mathematical Society has declared April the Math Awareness Month, and has created profiles of professionals who use math outside of the world of academia. Check out this resource at www.mathaware.org/mam/2015/ to see where your Mathematics major could take you!

Epic Board Game Night Versus Carleton

Come join us **Wednesday, April 29** for our once-a-semester board game night! The MSCS Dept. owns dozens of awesome games to come and try. This semester, we challenged the Carleton Math Dept. to come over to our side of the river and play some games with us. They gladly accepted our challenge and now we get to be the gracious hosts who unfortunately must defeat them. Bring your friends for games, snacks, PIZZA, and fun!! The event will be held in the 6th floor lounge of RMS, 7-10PM.

Do you want to teach mathematics?

Are you interested in becoming a math teacher? Have you thought about it, but are unsure if it's the right career path for you? Or are you looking for a fun class to take and satisfy a GE at the same time? If you've answered "yes" to any of these questions, consider taking EDUC 290: Educational Psychology. It offers a nice introduction to our Education Department and to the world of education in general. You'll also get some "field experience," where you'll spend some time in actual schools. And you'll come out of each course with a GE credit (HBS) – so you really can't go wrong. In fact, convince a couple of friends (or more) into taking these courses with you! If you have any questions, contact Prof. Matsuura (matsuura@stolaf.edu).

Education 290: Educational Psychology (Fall semester, satisfies HBS, sophomores and above only):

Students study theories of and research into human behavior, growth, and development. Through lectures, discussions, case studies and field experiences, students analyze the impact of applied psychology upon schools, teachers, and students. Students also examine the interaction between individual characteristics and needs and political, economic and philosophical issues confronting contemporary American students. Required 20-hour field experience.

CIR Speed Session

This Monday, April 20, from 7:00-8:00 PM, YOU can come hear about 6 fabulous research projects being completed this year in the Center for Interdisciplinary Research in just 1 exciting hour! Starting at 7:00 PM in RNS410, each group will give a 4 minute (max!) oral presentation designed to pique your interest about how they are using statistics to address real research questions across a range of disciplines. Then, starting at 7:30 PM inside and outside the CIR room (RNS207), you will be able to visit the posters of projects you wish to learn more about. Snacks will be served!

Here is a complete list of projects and CIR Fellows which will be featured:

Kendra Johnson-Tesch, Adrian Rossing, Jack Werner: "High information campaigning"

Lacey Etkorn, Alex Everhart, Nick Nooney: "The effect of chronic conditions on medical mistakes"

Emily Berry, Kiegan Rice, Marc Richards: "STEM persistence, trajectories within major, and open questions of credit and curriculum at St Olaf College"

Greg Gianopoulos, Karin Sather, Stuti Thapa Magar: "Dimensional models for understanding and assessing aspects of compulsive personality"

Charlie Li, Elaine Rood, Eric Varley: "An examination of the decision to major in economics"

Stephen Crouser, Nora Peterson, Emily Voldal: "Statistical applications in exercise science"

CarlHacks

Carleton College is pleased to announce CarlHacks: the first large-scale hackathon at a small liberal arts college, bringing the inclusive liberal arts perspective to the world of hackathons. CarlHacks is a 36-hour overnight event where teams work together to build interesting apps, websites, games, and other technology-based projects.

Any student who is or was enrolled in an undergraduate collegiate institution during the 2014-2015 academic year is eligible to participate in teams of 2-5. You don't need past coding experience to participate, hackathons are a great opportunity to learn new skills or hone old ones, and whether you're a graphic designer or a dedicated Python enthusiast (or both!), you can make an important contribution to a CarlHacks project.

CarlHacks will take place April 24-26 and is completely free to attend. Carleton College will provide meals, showers, and air beds for napping. Participants need only bring a laptop, charger, student ID card, and any hardware they intend to use in their hack. Even an idea for a hack is not necessary, some of the best hack ideas are born in the heat of the hackathon!

For more information visit carlhacks.io/

and for Your Reading Pleasure...

a Math Joke

A mathematician was sitting in an airport hall waiting for his flight to go when he noticed a stranger sweating and breathing heavily next to him. The stranger noticed the mathematician's stare and apologized.

"I just have this terrible flight panic," he said.

"Hey, don't worry, only 1 in 10,000 flights crash"

"1 in 10000?" the stranger replied, "So much? Then it will surely be mine!"

The mathematician thought for a bit, and then brightened. "Well, just take the next plane! It's much more probable that you go from a crashing to a non-crashing plane than the other way round."

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