

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's Colloquium

Title:	Knot polynomials, pseudoknots and the UW-Stout REU
Speaker:	Jeff Boerner '02
Date:	Monday, February 17
Time:	3:30
Location:	RNS 410

About the talk: UW-Stout will be having an REU (Research Experience for Undergraduates) this summer. There will be an overview of what the REU is like and the projects that students will work on. The most emphasis will be on Jeff's project in knot theory, a branch of topology. Knots are 1-dimensional objects sitting in 3-dimensional space and knot polynomials help us to tell knots apart. Pseudoknots are a generalization of knots and students in his project will look at ways to adapt existing knot polynomials to pseudoknots.

About the colloquium: Jeff Boerner ('02) was a mathematics major with a concentration in computer science. While on the hill he kept busy by running cross-country and track. After Olaf, he went to graduate school in mathematics at the University of Iowa and received his PhD in 2010. Currently, Jeff is an assistant professor at the University of Wisconsin-Stout.

This Week's Seminar

Title:	Knotting in open chains, closed chains, and proteins
Speaker:	Eric Rawdon
Date:	Friday, February 21
Time:	3:35 PM
Location:	RNS 204

About the Seminar: Some proteins (in their folded functional form) are classified as being knotted. The

function of the knotting is mysterious since knotting seemingly would make the folding process unnecessarily complicated. To function, proteins need to fold quickly and reproducibly, and misfolding can have catastrophic results. For example, mad cow disease and the human equivalent Creutzfeldt-Jakob disease come from misfolded proteins.

Traditionally, knotting is only defined for closed curves, where the topology is trapped in the loop. However, proteins have free ends, as well as most of the objects we consider as being knotted (like shoelaces and Christmas lights). Defining knotting in open chains is tricky and ambiguous. We will show one definition of open knotting and search for knotted arcs within knotted open chains, closed chains, and proteins. In particular, we will talk about subknots, i.e. subchains of knotted chains that form simpler types of knots. This is joint work with Ken Millett, Andrzej Stasiak, and Joanna Sulikowska.

Konhauser Problem Fest!

This year's Konhauser Problem Fest is taking place on Saturday, February 22nd at the University of St. Thomas in the Twin Cities. In this contest teams of three will have fun solving math problems with chance at winning cash prizes and the coveted Pizza Theorem Trophy. If this sounds interesting, contact Prof. Berliner (berliner@stolaf.edu) or Diveris (diveris@stolaf.edu) to learn more. We can help you arrange transportation and find teammates. You are welcome to join us on Wednesday, February 19 at 6:00 in RNS 206 for a preparation session before the contest. As the defending champions, we need your help to keep the Pizza Trophy here at St. Olaf!

New MSCS Editor Needed!

Since the current editor is graduating this year, the MSCS department is looking for a new, motivated

person to become the editor starting Fall 2014. The new editor needs to be comfortable using LaTeX, and will be able to work with the current editor to gain a stronger understanding of the LaTeX required. If you have any questions or would like to become the new editor, please e-mail Josh Jacobson (jacobsoj@stolaf.edu).

Job Posting

Thrivent Financial for Lutherans

Thrivent Financial for Lutherans is looking for a smart, motivated problem solver who would enjoy working for a local fortune 500 company. No formal programming training is required. The job posting can be found here: bit.ly/MP9njp

Wellmark BCBS Financial Data Rotation Program

Wellmark Blue Cross, Blue Shield is looking for a St. Olaf senior with an interest in finance or analytics for their 3-year program in Des Moines, Iowa. If you are interested, click the link for more information! bit.ly/1jcFh4c

Summer Institute for Training in Biostatistics

The Summer Institute for Training in Biostatistics (SIBS) is designed to introduce quantitatively oriented undergraduate students to Biostatistics. In this program students learn about the applications of statistical methods in biomedical research through coursework and hands-on experience working with real data collected in major clinical studies. The attached flyer explains that SIBS is offered at eight sites: Boston University, Columbia University, Emory University, North Carolina State University-Raleigh, University of Iowa, University of Minnesota-Twin Cities, University of Pittsburgh at Pittsburgh and the University of Wisconsin. Each of the eight program sites has its own unique features, but they all have a well-conceived, balanced agenda and an outstanding staff of dedicated investigators and professors.

Sponsored by the National Heart, Lung, and Blood Institute and the National Center for Advancing Translational Sciences, the program has been very successful, but space is limited! Students should apply soon. SIBS is open to all US undergraduates (citizens or permanent residents). Participants receive college credit that can transfer back to their home institutions. All costs are covered: tuition, housing, meals, etc. More information can be found here 1.usa.gov/1ewS2Sz

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