

# MSCS



# Mess

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

9 October 2009  
Volume 38, No 4

## This Week's Colloquium

Title: **Summer 2009 Undergraduate Research projects in CS**

Speakers: Pat Garrity '12, Mike Gesme '10, Megan Goebel '11, Stephanie Tanner '10, Mitchell Wade '11  
St. Olaf College

Date: Tuesday October 10<sup>th</sup>

Time: 1:30pm

Location: RNS 210

### About the Speakers:

**Pat Garrity '12** started doing undergraduate research in his first college semester. Pat, a CS-Math double major, is on the soccer team and likes to practice Parkour and code independently in his free time; he is also one of three Beowulf Cluster Managers, working with the Lead Cluster Manager Mike Gesme '10.

**Mike Gesme '10** (CS major) plays tuba in the St. Olaf Band, and is also the chair of the student ACM Chapter (CS student organization).

**Megan Goebel '11** is vice-president of the ACM chapter; she's a CS-Poli Sci double major who loves to swim and knit.

**Mitchell Wade '11** is a CS major/Media Studies concentrator with an interest in music, who now serves as Wikimaster for CS.

**Stephanie Tanner '10** is a CS major who started her summer research right after returning from a semester at Aberdeen (Scotland); she is a co-creator of the 2008 video Ytterboe the Dog, and produced a 3D video on construction of Regents Hall.

### About the talk:

Last summer, five current St. Olaf CS students did undergraduate research on campus for their summer work---one of those cases of getting paid for something you'd want to do anyway! They worked (often together) on several different projects, ranging from creating new ways to use the CS Beowulf clusters (for beginning and intermediate students, students at other colleges, and ecology students and researchers), to upgrading and overhauling the wiki used for teaching CS 121, to using the Beowulf clusters to carry out research on political blogs, to collaborating with Physics to create a balancing robot that can see. The student researchers will present their work; at the end, upcoming opportunities at all CS academic levels will be mentioned. Come and hear first-hand what's been going on in the world of CS projects!

## Road Trip!

Have you ever wondered what it would be like to take a road trip with math professors? OK, don't answer that! On Tuesday Oct. 20, we are organizing a field trip to Mankato! Professor Richard Brualdi from the University of Wisconsin - Madison is coming to Minnesota State (Mankato) to give a series of talks. That evening at 7 PM, he will be presenting a talk entitled "A Combinatorial Coloring Book."

In addition to being Adam Berliner's Ph.D. thesis advisor and an all-around nice person, Professor Brualdi is a very good speaker and his talk is sure to be a crowd pleaser. We would likely leave campus sometime around 5:00-5:30 and return by 9:30 or so. If you are possibly interested in going, please contact Professor Berliner (berliner@stolaf.edu) as soon as possible.

## Math 390: Making Math Matter

The Mathematics Practicum (Math 390) is an interim course that gives you the chance to work on real life math problems in cooperation with local (Twin Cities and Rochester) companies and nonprofit organizations. The course typically begins with a visit the offices of the sponsoring organization, a chance to meet the people with a serious interest in the problem.

Three weeks of hard on-campus work on the problem follow. The course ends with group presentations given to executives at the company offices. The entire course is an intense group project. Groups of between four and six students work on one problem that is separate from the problems being tackled by other groups. The course faculty will be helpful, meeting with each group daily, but will not be actively engaged in the research. Faculty will be present at, but will not participate in, the final presentation to corporate personnel. The

course involves hard work, but is unusually satisfying.

The course is primarily intended for junior and senior mathematics majors. Enrollment is limited to approximately 15 students. Admission to the course involves a short interview with the course faculty (Professors Malvadkar and McKelvey). Watch your email and the Mess for details on these interviews, which will take place shortly before interim registration.

If you want to learn more about the course, or the interview process, please contact either Prof. Malvadkar or McKelvey. We would enjoy chatting with you about the experience.

## Independent Study?

Are you a student interested in interdisciplinary nature of Math, Stats and Computer Science? Have you ever wanted to learn more about machine learning? Have you always wanted to take an Independent Study? Stay tuned! Next week in the Mess there will be more information.

## Problem of the Week

### Underspecified problem:

("What is an underspecified problem", you ask? Well, there are no instructions; a person could come up with many different solutions to the problem since so little information is in fact given. However, there is but a single solution that is so simple, so elegant, that you will know instantly that it is THE solution.)

Fill in the blanks:

\_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    30030  
 \_\_\_\_\_    \_\_\_\_\_    ...

When you have the solution, tell Prof. Weimerskirch the 5th number, and you may win a prize.

## Words from Hungary (The BSM St. Olaf Chronicles)

**This week, Jeff Stamp '11 writes:**

Hello MSCS students, faculty, and staff! Here are some thoughts on my experience thus far in Hungary for Budapest Semesters in Mathematics, from both a mathematical and cultural perspective. I will comment on the math, of perhaps greatest importance, first. The classes here are, without a doubt, a cut above most courses you would take at Olaf (no disrespect to our wonderful math program or anyone related to it, of course). If you are looking for a challenge beyond math classes on the hill, you should seriously consider applying to BSM. At Olaf, the application requirements are prior completion of ERA or Abstract Algebra; I would highly recommend completing both before coming. As far as I can tell, the entire syllabi of both courses are assumed basic knowledge here, and one would be hard-pressed to catch up on the main ideas of those courses at the start of a BSM semester. In addition, having taken both those courses opens up possibilities of more advanced courses you can take here. Introduction to Number Theory (MATH 238) and Probability Theory (MATH 262) are not bad preparation either. Also, there are many basic notions in set theory that professors here assume everyone is familiar with, but with which I was not. Since set theory is not offered as a full course at Olaf, and unless you are very confident in your set theory knowledge, I would recommend taking some time to go through very introductory set theory (either in your spare time, or as an independent study with a professor on campus), as the learning curve in that department was almost uncomfortably steep for me in September. Other than that, the courses here require what you might call a general mathematical maturity, something that you cannot really teach, but undoubtedly will

acquire after a semester of study with fellow American students under the BSM Professors.

I suppose I should comment on the Professors briefly as well. They are all notable Hungarian mathematicians, and professors from institutions around Budapest (Renyi Institute, for example). All of them speak perfect English (although the varying Hungarian accents take some getting used to), and want only that their students understand the material they present. In my experience, they are friendly, good-natured people, and fun to interact with outside of a mathematical setting; they love speaking to you about anything remotely related to Hungary.

And now a bit about the cultural experience of living in Hungary. First off, I highly recommend attending the two-and-a-half-week language course, offered through the Babylon Language School before the start of each BSM semester. It involves around six hours of attempting to learn Hungarian per day, and as such takes some self-discipline to complete (since it is obviously not compulsory you attend), but it is definitely worth it. I would say I picked up enough Hungarian to get by in grocery stores (and other food shops), to struggle through the casual restaurant experience, and to pull off very basic introductory conversations. But even my limited knowledge is enough to survive on the streets, and please most Hungarian shop owners. The locals love it even if you try and fail miserably. I have also noticed that when those students who did not attend the language class speak English to local shopkeepers, their reaction is generally quite negative and often hostile. I suggest taking the Babylon language course, if for no other reason, than out of respect for the local Hungarian culture.

Apart from the language barrier, I had no problem adapting to life in Hungary, aside from the adjustment of living in a relatively large

city (I am from Wyoming originally). Because I live in an apartment with two other American students, you could say we are a bit sheltered from what is ‘really’ Hungary, but I think this can be positive and negative. The upside is that your studies will never be interrupted by, say, your host family. However, you must make an effort to interact with Hungarians if you wish to do so. No students I know live with a family, but I’m sure it would certainly be a (different kind of) adventure.

I will close this excerpt with a short list of small things in daily life here in Hungary that are just different enough from home as to be a touch comical:

- All the light switches and toilet flushers are large, white, and always square
- Milk comes in 3.5%, 2.8%, 1.5%, and 0.5% fat content, and is only sold by the liter in cardboard containers
- The shower has no curtain, at least in my apartment, and the shower head is not fixed (so to take a shower you must hold the nozzle above your head the entire time)
- Almost all the streets, except for the very major ones, are one-way
- The classes are scheduled to start on the hour, but an X-o’clock class will almost certainly start at X:15 – we say the classes are on “Hungarian Time”

Well that’s it from me. Thanks for reading.



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|------------------|----------------------|
| Editor-in-Chief: | Vladimir Sotirov     |
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| Mess Czar:       | Donna Brakke         |

*If you would like to submit an article or math event to be published in the Math Mess, e-mail [sotirov@stolaf.edu](mailto:sotirov@stolaf.edu).*