

Otterbein College  
Spring 2006

# Mathematical Sciences

*"Mathematics is merely the means to a general and ultimate knowledge of man."*

- Friedrich Nietzsche

## Upcoming Events

**The ECC Mathematics Competition** will be held April 1 at Mount Union College. Participants in this year's competition include Alana Moczydlowski, Kevin Mugo, Kellen Murphy, Larsa Ramsini, and Youyou Tao. Good luck, teams!

**Coffee Talk--** Students and faculty are invited to stop by the Math Commons every Friday at 11:00 for cookies, coffee, and conversation.

**A Celebration of Scholarship—**Shawnee State University in Portsmouth, Ohio will host an undergraduate conference on Thursday, May 18. Students may submit proposals for either oral presentations or posters that document research activities or independent studies. Presentation proposals are due April 21, but early submissions are encouraged to ensure a place in the program. See Terri Contenza for more information.

**Registration** for the 2006-07 academic year will take place in April and May. Students are reminded to meet with their advisors early in the quarter. Sophomores and juniors are encouraged to run a degree audit through Cardinal Web to monitor progress toward graduation before meeting with their advisors.

## Spring Picnic-- May 18

Save the date!! The mathematical science's spring picnic will be at Alum Creek Park (next to campus on West Main) at 4:00 p.m. on **Thursday, May 18**. All mathematics, computer science, and actuarial science majors are invited to join us for an afternoon of free food and fun. Bring your frisbees, volleyballs, and appetite! Graduating seniors will be recognized and departmental scholarships will be announced.

### *Important Dates:*

Fri-Sat, Mar 31/April 1  
*MAA Conference*

Sat, April 1  
*ECC MathCompetition*

Fridays, 11-12  
*Coffee Hour, Math Commons*

Thursday, May 18, 4 pm  
*Department picnic*

Early May  
*Distinction proposals due*

May 25  
*Honors Convocation*

**Colloquia—** Three colloquia are planned for the spring quarter. Colloquia are typically held on Wednesday afternoons. Watch for notices announcing dates and times!

## Hello, Goodbye

The Mathematical Sciences Department is happy to announce that Mr. Matt McMullen will join the faculty as a member of the full-time academic staff effective Fall 2006. Mr. McMullen is currently a visiting instructor in the department.

This spring marks Mr. David Holl's last quarter at Otterbein. Mr. Holl joined the staff as a full-time instructor in 2000 after leaving the Worthington school district. We wish him well in his retirement.

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## Math in Nebraska

by Larsa Ramsini

I attended the “Eighth Annual Nebraska Conference for Undergraduate Women in Mathematics” Friday, February 3 through Sunday, February 5 of this year. I had heard about it from another student at Math Day at the University of Dayton last fall. The University of Nebraska paid for my plane ticket to Lincoln, and I arrived on Friday afternoon. I was roomed with another freshman from the University of Mississippi, and that whole first day I met so many awesome people. It was great to be around over 200 people who are interested in the same things that I am, and I definitely didn’t feel like a “math geek” that weekend, because everyone else loved math too! We even left our reservation at Applebee’s under the name Euler (my idea).



Larsa (left) and friends at the University of Nebraska.

I attended fourteen presentations by undergraduates covering a wide variety of topics from “Selftopes and their properties” and “Tropical Mathematics” to “Robustness and transients applied to falcon harvesting.” There were also representatives present from the National Security Agency (the number one employer of mathematicians in the U.S.) and the National Science Foundation, who discussed employment opportunities during and after graduate school. There were also two panel discussions about careers in mathematics and how to choose a graduate program, both of which were very informative.

Most of the presentations went over my head since I haven’t had very many college math courses yet, but I can’t wait until the time when I can actually understand what *is* going on during most of the talks! I was happy to be roomed with another freshman, because she felt the same way I did. But we both did learn a lot about graduate school and possible career paths to which a degree in mathematics can lead. I am so glad I decided to go to this conference, and I can’t wait to go again next year!

### Graduating Seniors

As you prepare to leave Otterbein, don’t forget to visit our department’s webpage ([math.otterbein.edu/dept](http://math.otterbein.edu/dept)) to register as an alumnus. Let us know where you’re going, what you’ll be doing. And keep in touch—we love to hear from old friends. Enjoy your final ten weeks of college! We wish you well!!!

## Congratulations!!!

Mathematics professor **Jeff Smith** was recently awarded a \$114,621 grant from the Ohio Board of Regents for his research in Cognitively Guided Instruction (CGI). CGI is a professional development initiative that integrates research findings on how children think about numbers and arithmetic operations with findings on how teachers make instructional decisions. This is the second year of funding for the project which provides professional development to ten elementary schools in the Columbus Public school district.

Senior **Kevin Mugo** presented his research at the Joint Meetings of the American Mathematical Society and Mathematical Association of America in San Antonio, TX. His work was completed with a team of students at a summer research program at Miami University. His team’s poster won a cash prize at the Joint Meeting’s Undergraduate Poster Session. Kevin will enter a doctoral program in mathematics in the fall.

Computer Science professor **Duane Buck** was recently recognized at the national SIGSCE conference for his development of a Karel simulator. In his keynote address, Richard Pattis (the creator of Karel the Robot) said, “I received simulators from a few instructors who wrote their own, but Duane Buck from Otterbein College had the hands-down winner, which he continues to distribute over the net for free. Whenever anyone inquires about a Karel simulator, I point them to Duane’s. He has published papers at SIGSCE dealing both with using Karel and his simulator software.”

### Problem Corner

Submitted by Dr. Tong

A finite set of points has the following property:

If a line passes through two distinct points in the set, then it must also pass through a third point in the set.

**Prove or disprove:**

All the points in the set are collinear.

*The first student to submit a complete and correct solution to the problem will receive a gift certificate to Graeter’s Ice Cream. It could be you!!! Submit your solutions to Trish Patterson in the math office.*

## Distinction Deadline Draws Near

The Distinction Program at Otterbein involves the design and completion of an independent project within the student's major field of study. The project is carried out over the course of the senior year under the guidance of two faculty members in that discipline.

Juniors interested in completing a project should talk to their advisors and consult the faculty member of their choice about possible research topics. Proposals for distinction projects to be completed next year are due in May.

## Thank you!

Otterbein recently hosted an Academic Interest Day for high school seniors who have been accepted to Otterbein for admission next fall. Thanks to math majors Kevin Mugo and Larsa Ramsini and actuarial science major Emily Ling for their participation in the student panel.

Other students interested in volunteering at recruiting events should talk to Susan Thompson, chair of the mathematical sciences department.

## Math 150 Students Volunteer

By Sarah Jacobson

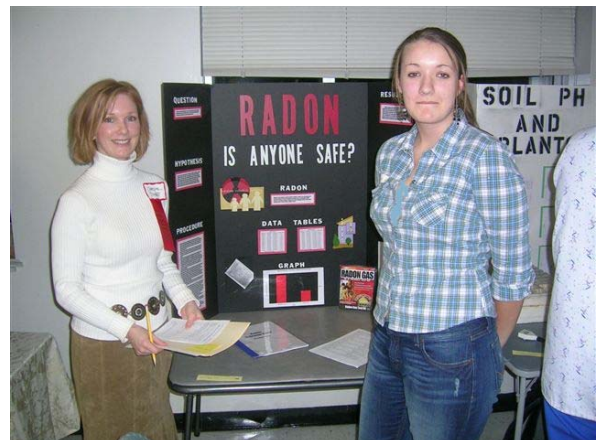
For more than twenty years Mr. David Holl has been a judge at high school science fairs. On February 9, students from Otterbein joined Holl in the judging of the projects at the 2006 Big Walnut High School Science Fair. This year's judges included two students from Holl's Math 150 class: Nate Baker and Char Donato, as well as Char's husband Chuck, and Monica McCoy. There were about 250 people, judges, spectators, and participants present at the fair.

This was the second science fair judging for McCoy, who was a Math 150 student in 2005. She is a Middle Childhood Education major with concentrations in Math and English. McCoy judged many first time fifth and sixth graders. Some of the projects McCoy judged included: 'Which microwave popcorn leaves the fewest kernels unpopped?' and 'Can you use baking soda and vinegar to blow up a balloon?' McCoy said, "I had the opportunity to judge a student that I also judged last year. She loves to bake, but has diabetics in her family. Last year her project focused on the effects of various sugar substitutes in a sugar cookie recipe. She learned a lot about the scientific method and applied that knowledge into this year's project titled, 'Is gluten really necessary in sugar cookies?' "Even if their hypothesis was proven wrong, the students learned about the scientific process and enjoyed themselves at the same time."

Baker, also a Middle Childhood Education major, was paired with two other judges for the course of the night. Baker said, "Everything seemed well organized and the night went smoothly." Some of the projects Baker judged included: Water Evaporation, Stalactites and Stalagmites, and Flood Wall Barrier Materials. Baker said, "A student chose to experiment with the contents of flood barrier bags. He used several different types of fillings, including gravel, sand, and mulch. He did an excellent job. The idea to research this topic was impressive because he took into consideration the terrible event that struck New Orleans."

Donato judged students from fifth through twelfth grades. Most projects she judged pertained to the environment and earth sciences. Donato said, "There was a sixth grader who began her project over the summer in hopes of saving her neighbor money on environmentally safe solutions to their pond scum issues. Her experiment included using several household items such as Dawn dish soap and chlorine bleach. She tested over 15 products over several weeks and her results were impressive. Another student did a radon study of 15 homes in two counties finding that there is a significant issue in our area for dangerous levels of radon. She was also very resourceful in attaining free Radon testing kits through the health department."

Overall, the judges and the participants seemed to find that the science fair was a great success as well as an important event in education. Donato said, "The enthusiasm and effort by the students who participated in this event was encouraging. This experience is invaluable to me as I am attending Otterbein in pursuit of a teaching degree for grades K-3." Baker said, "I had a great time and would be interested in doing this again in the future." McCoy said, "It is a good thing when students learn - it is a great thing when they actually apply that knowledge."



Math 150 student Char Donato (left) at the Big Walnut High School Science Fair.