

The Möbius Trefoil Tribune

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What I did on my Summer Vacation - by Carolyn Otto (Sr. Math Major). This summer I was fortunate enough to travel to Budapest, Hungary in order to do mathematics research. At the beginning of August, Dr. Michael Penkava and I began our journey to Budapest. Over the course of the next two weeks we conducted collaborative research with Dr. Alice Fialoski.

While the primary reason for this trip was in fact research, I was able to travel around the city and learn a great deal about the culture. Every morning before I started research, I would explore the city and typically go to the marketplace and buy food for my lunch. When I had time off, I went to the zoo, museums, and other tourist attractions. My favorite thing to do was to talk to the various different types of people.

This trip was completely funded by the NSF, ORSP, and the UWEC math department. The experience was one of the most memorable of my life and I had a fantastic time.

Two new faculty members join our Department.

Dr. SHERRIE SERROS joins the faculty this fall, though she is not entirely new to UWEC, having spent the fall of 1993 here as a Distinguished Visiting Professor of Women and Science. She completed a Ph.D. in mathematics at UW-Milwaukee a couple of decades ago, taught at UW-Platteville for 15 years followed by a five-year stint at Western Kentucky University. Over time she has developed strong interests in mathematics education, the history of women in math/science and educational barriers to equitable participation in mathematics.

Dr. CHRIS HLAS also joins us this fall after recently finishing his Ph.D. in mathematics education at the University of Iowa. His dissertation focused on student engagement within Standards-based mathematics classrooms. Besides student engagement, Chris is also interested in issues regard technology, motivation, and mathematical problem-solving.

Comprehensive Major in Actuarial Science. Beginning with the 2006-07 academic year, a new major in the mathemat-

ics department will be available to UW-Eau Claire students. The new 60-credit comprehensive major in actuarial science will replace the current 36-credit actuarial emphasis. The minor in actuarial science will continue to be available. Beginning in 2005, the professional actuarial societies (Society of Actuaries (SOA) and Casualty Actuarial Society (CAS)) have removed several topics previously included on the professional exams. Instead of directly testing these topics on the exams, a new validation by educational experience (VEE) requirement has been implemented. These VEE topics include economics, applied statistics, and corporate finance. In completing the new comprehensive major in actuarial science, students will complete all three VEE categories. In addition, students will obtain the necessary background for the first two professional exams and a portion of the third. Currently, only approximately 55 United States Colleges and Universities prepare actuarial students to this level. For additional information regarding actuarial careers, explore the www.BeAnActuary.org website or attend a meeting of the Actuarial Network student organization. For additional information regarding UW-Eau Claire actuarial programs, send an email to Kris Presler at preslekk@uwec.edu.

Poster Day Bonanza. The Math Department scored big on poster day last spring winning two first place prizes. Darin Mohr won first place in the Natural & Physical Sciences division with his poster titled TEMPERATURE PROFILE OF POLYMER FLOW. Darin's mentors were Bob Langer and Mohamed Elgindi. Danielle Aanenson won first place in the Business and Professional Studies division with her poster titled REGIONAL RESEARCH AND EVIDENCE-BASED HEALTHCARE PRACTICE IN THE COUNTRIES OF EASTERN EUROPE AND THE FORMER SOVIET UNION. Danielle worked with Lindsey Duwell and Rebecca Hutchinson and her mentors were Marc Goulet and Ruth Cronje.

Six other posters were entered by Mathematics students, they were: SURREAL AND TRANSFINITE NUMBERS by Derek Franz - Bob

Andersen mentor. SPECTRAL METHODS IN MATHEMATICAL PHYSICS by Darin Mohr - Simei Tong mentor. MODELING AIRBURSTS IN TITAN'S ATMOSPHERE by Darin Mohr - Paul Thomas mentor. LEAST IS BEST: ENVELOPE FOLDING PROBLEM by Lori Scardino and Chee Yang - Veena Chadha mentor. MODULI SPACES OF LIE ALGEBRAS OF LOW DIMENSION by Carolyn Otto - Michael Penkava mentor. NUMERICAL COMPUTATION AND NECK-IN AND EDGE BEADING IN FILM CASTING by Tyler Birkel and Jessica Eckles - Bob Langer and Mohamed Elgindi mentors.

Retreat! Yes, it is not too early to sound retreat. The math retreat that is. Next April the Department of Mathematics will hold the fifteenth annual Mathematics Retreat. Student speakers are needed! So if you have something to say, or even if you don't (then we'll find something for you), find your favorite prof and tell her (or him) that you want to give a presentation. Having the ability to give oral presentations is a great asset for everyone. The math retreat is a great place to practice.

Along with your oral presentation you may also make a poster for poster day - it all looks good on your resumé and will help you get into that graduate school or land that job that you want.

Math Offerings for Spring 2006. It is time to register for next term. Here are the upper division mathematics courses for the Spring Semester of 2006.

- *Differential Equations (mth 311/511)*, 3 cr. 10-11 a.m. MWF, Elgindi.
- *Discrete Mathematics (mth 314/514)*, 3 cr. 8-9 a.m. MWF, Serros.
- *Intro to Real Analysis (mth 316/516)*, 3 cr. 9-10 a.m. MWF, Reynolds.
- *Intro to Intro to Complex Variables (mth 318/518)*, 3 cr. 12-1 p.m. MWF, Reid.
- *Abs. Alg. for Elem. Teachers (mth 322)*, 3 cr. 5:30-6:45 p.m. MW, Bloss.
- *Linear Algebra and Matrix Theory (mth 324/524)*, 3 cr. 10-11 a.m. MWF, Passell& 2-3:15 p.m. TR, Howe.
- *Modern Geometry (mth 330/530)*, 3 cr. 12-1 p.m. MWF, Giamati.
- *Intro to Probability and Math Stat (mth 345/545)*, 4 cr. 10-11 a.m. MWRF, Goulet.

- *Mathematical Statistics (mth 347/547)*, 4 cr. 10-11 a.m. MWF, 10-12 a.m. R, Alarcon.
- *Theory of Interest (mth 350)*, 3 cr. 2-3 p.m. MWF, Presler.
- *Patterns of Problem Solving (mth 365)*, 3 cr. 3-4:15 p.m. MW, Balas.
- *Abstract Algebra I (mth 425/625)*, 3 cr. 10-11 a.m. MWF, Heeg.
- *Abstract Algebra II (mth 426/626)*, 3 cr. 3-4 p.m. MWF, Penkava.
- *Fourier Optics (mth 440)*, 3 cr. 7-7:15 p.m. MW, Walker.
- *Nonpar Statistics (mth 447)*, 2 cr. 11-12 a.m. TR, G. Applebaugh.
- *Teaching 6-12 w/ Tech (mth 451/651)*, 3 cr. 5-8 p.m. M, Foster.
- *Oper Research (mth 456/656)*, 3 cr. 10-11 a.m. MWF, S. Chadha.
- *History of Math (mth 462/662)*, 3 cr. 5-8 p.m. M, Langer.
- *Capstone Seminar (mth 493)*, 1 cr. Time TBA, Bloss.
- *Applied Statistical Procedures (mth 748)*, 3 cr. 5:30-7:40 p.m. T, W. Applebaugh.

Is this the Pythagorean Theorem?

A triangle has two acute angles, A and B. Show that the triangle is a right triangle if, and only if, $\sin^2 A + \sin^2 B = \sin(A + B)$.

Ask Dr. Math.

Dear Dr. Math

"And what are these fluxions? The velocities of evanescent increments. And what are these same evanescent increments? They are neither finite quantities, nor quantities infinitely small, nor yet nothing. May we not call them ghosts of departed quantities?"

Bishop Berkeley

Dear B.B.,

You ask tough questions. Perhaps Professor Cauchy can help you out.

$$\lim_{x \rightarrow a} f(x) = L \text{ iff } \forall \epsilon > 0 \exists \delta > 0$$

such that $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$.