

Volume 1, Issue 1

Mathematics Department
 Nazareth College
 4245 East Avenue
 Rochester, NY 14618
 (585) 389-2667

**Name our Newsletter?
 (Please?)**

We were thrilled to discover that everyone so enjoyed the name "Our Newsletter" that they couldn't think of a way to improve it. Nonetheless, we will continue to accept suggestions. Any suggestions. Any at all.

Send suggestions, alumni news, ideas for articles, problems, and solutions to hlewis5@naz.edu (Heather) or mkoetz1@naz.edu (Matt).

Inside this issue:

Remembering Nelson.. 2

Math in the News:
 Fields Medal Declined . 3

Math in the News:
 Going to the Movies 3

Math in the News:
 Faster Boarding..... 3

Alumni News..... 6

More Awards 6

Department Addition.. 6

Problems..... 6

Our Newsletter

An Experience of a Lifetime

by Jenny Buttaccio

Jenny is a math major who participated in one of Nazareth College's Exchange Programs during her sophomore year: she spent the Spring semester of 2006 taking classes in Melbourne, Australia.

Julia Sorel once said, "If you're never scared or embarrassed or hurt, it means you never take any chances." Well, I took a chance when I decided to venture away to Australia all alone.

When I got off the plane (after a 15-hour ride), I met up with Desma, who is the head of International Education at Australian Catholic University (ACU). We loaded my luggage into her car, and she told me I could ride in the front. I knew that in Australia they drive on the left, but I simply forgot that the driver sits on the right hand side of the vehicle. So as I approached the front right hand side of the car, she said, "Would you like to drive?!"

I arrived at ACU with Desma, where she told me that I was going on a three day camping trip. This trip served as orientation for the Australian students, but was also open to any of the exchange students who were already in Australia.

Right about now, all I wanted to do was find out where I was going to be staying, unpack, and shower, but instead, I scrambled through my luggage and threw what I thought I would need for camping into a bag. She then introduced

with the people from my cabin, where I was soon bombarded by the Australians to try vegemite. This is a brown yeast spread, commonly put on toast, and it is grown by the Australians, who absolutely love the taste. I, on the



me to the two other exchange students, Liz from America and Jamie from England, who arrived earlier in the week and were also going camping, and Desma drove us two hours to the camp site.

The next morning, at seven o'clock, we were woken up by the sound of a trumpet, and I remember thinking that I just wanted to get some more sleep and get on the next plane home. Probably looking like a zombie, I walked to "breaky"

other hand, thought it was awful. After trying vegemite, we talked, and to my astonishment, we had a hard time understanding each other. They claimed I had a very strong accent, but they loved it. For the entire trip, people would be asking me to say certain words so they could hear my pronunciation. I could not believe how hard it was for me to understand the Australians. When I chose to travel to Australia, since both

(Continued on page 4)

Remembering Nelson

“No one knows more than I how lucky I am to have been here. It’s a great department, in which everyone works so hard and gives so much. It’s a privilege to be a part of it. The students have done everything I’ve asked and then some. They have been a joy to teach.”

—Nelson Rich, speaking to *Connections Magazine* shortly before his retirement



Image used with artist’s permission.

A new print is now hanging in the Mathematics Center, and a plaque will soon follow. “Blue Permutations (for Nelson)” was created by Nazareth College Art Professor Cathy Kirby, in memory of Nelson Rich. Nelson came to Nazareth in 1986 and retired in 2003; he passed away five months later from pancreatic cancer. Cathy Kirby provided the following words about the piece, which was purchased for the Math Department by Deb Dooley, Dean of the College of Arts and Sciences.

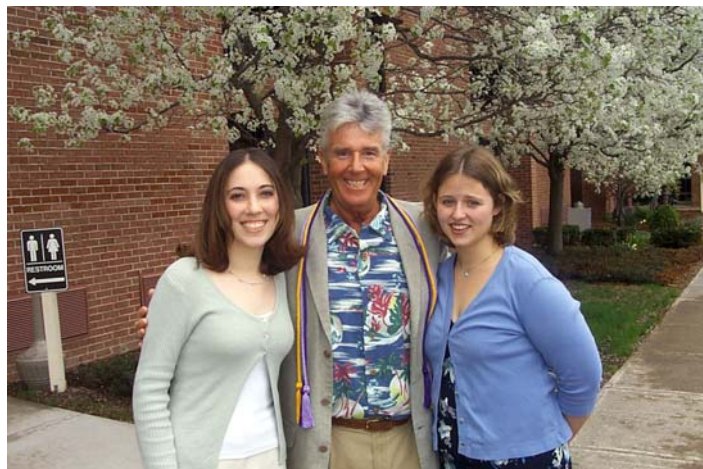
“I know we all miss Nelson terribly, but I can’t imagine how you all in the Math Department, his closest friends and colleagues, must feel. The Nazareth community just isn’t the same without him. He inspired extraordinary respect and affection and he changed

office. In my own work, I like using patterns, proportions and diagrams of harmonies found in nature and in music. Nelson was of course passionately interested in this from a theoretical, mathematical viewpoint. He sent me occasional emails and would turn me on to books, music software and other stuff that related to harmony in nature. I gave him a copy of “Power of Limits” by Gyorgy Doczi and a few other books that I don’t remember now. Nelson gave me a copy of some beta software in the early 90’s that produced beautiful and complex graphs based on musical input (quite ahead of its time).

“This print is not about any of those events in particular. It is more of a visual poem for Nelson. The image has traces of celestial imagery, eroded shards and wisps and shavings, and for me it expresses a certain sadness; I am remembering something good and beautiful that has passed, something that was too hard to keep.”

people’s lives. He was just an extraordinary person; charismatic, smart, witty and fun, and most especially he was kind.

“I had an office next to Nelson’s in the early 90’s and there were always these crazy Maple graphs taped to the walls, inside and outside of his



Nelson with seniors Franca Monachino and Carrie Loomis in May 2003

Math in the News: Fields Medal Declined

Grigori Perelman has declined to accept the 2006 Fields Medal for his (apparent) proof of the Poincaré conjecture, considered by many to be the most important outstanding problem in mathematics. The Poincaré conjecture is one of the seven “Millennium Prize Problems” for which the Clay Institute has offered \$1 million prizes. Dr. Perelman is also expected to decline his share of the reward if it is offered to him.

In November 2002, Perelman began posting to the Math arXiv his outline of a proof of the geometrization conjecture, a result that implies the Poincaré conjecture. Since 2003, mathematicians around the world have been working to check the validity of his ideas. Most now agree that Perelman has proven the conjecture, though there is still some controversy as to how much credit he should be given, since he did not fill in all the

details of his own proof.

The Fields Medal is a prize awarded to 2-4 mathematicians, not over 40 years of age, every 4 years at the International Congress of the IMU. It is named for Canadian mathematician John Charles Fields, and was first awarded in 1936. The Fields Medal – often called the “Nobel Prize of mathematics” – is considered to be the greatest honor a mathematician can receive.



Fields Medal

Taken from <http://www.mathunion.org/Prizes/Fields/index.html>

More Math in the News: Going to the Movies

Statisticians, masquerading as physicists, have developed a surprisingly accurate predictor of a movie's success. Their model ignores factors such as critical reviews and surveys, and instead focuses on how people react to a movie and word-of-mouth.

In an article in the New Journal of Physics (Vol. 8, No. 52),

the authors describe their model: People who like a movie are likely to tell others, leading more people to see the movie. Similarly, a negative opinion of a movie will cause others to avoid seeing it. The model was tested against the box-office data from the 44 biggest-budget movies of 2003, and the predictions were very close to the actual data.

There is one catch, however, in that the model takes as input the box-office data from a movie's first weekend. An accurate prescreening forecast seems to be a long way off yet.

See <http://physicsweb.org/articles/news/10/4/5/1> for more information.

“We used to think that if we knew one, we knew two, because one and one are two. We are finding that we must learn a great deal more about ‘and’.”

–Sir Arthur Eddington, in *Mathematical Maxims and Minims* by N. Rose

Hey! Even More Math in the News: Faster Boarding

What is the best way for passengers to board a plane? Traditionally, many airlines have used a back-to-front approach, but research shows that this may not be a very efficient method. Indeed, it turns out that in real life, it is faster to let passengers board themselves at random, without

restrictions on order. Some airlines have tried new systems in which passengers with window seats get on before those with middle or aisle seats. These systems were developed with the help of mathematics.

What mathematics do you need? Lorentzian geometry,

mathematics developed for special relativity, comes in handy. So does random matrix theory. And the mathematical theory that helps find the ideal boarding pattern also has applications to disk scheduling (managing a disk drive's input and output requests). Who knew?



It's True! Heather flew on an airplane over Labor Day Weekend, and lo and behold they used open boarding instead of the back-to-front boarding that she'd experienced with that airline before!

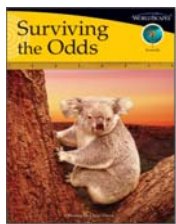
AMS Mathematical Moments poster available at <http://www.ams.org/ams/mm50-boarding.pdf>. Other good sites discussing the mathematics of boarding are the May “Devlin's Angle” column at http://www.maa.org/devlin/devlin_05_06.html, and the home page of Dr. Eitan Bachmat (one of the researchers) at <http://www.cs.bgu.ac.il/~ebachmat/>.

Australia

(Continued from page 1)



While looking up Australia&Math on the internet, we found the WorldScapes® Series by ETA/Cuisenaire for Grades 3-6. There are five books for each country: one each for Social Studies, Language Arts, History, Math, and Science. We haven't seen the books, but are intrigued.



See http://www.etaquisenaire.com/worldscapes/books_gr3.jsp for the Grade 3 books (including Australia) and more information.

countries speak English, I did not expect to struggle with the language, but I did. It was like they had a different vocabulary. Over the course of the camp, I learned that “snags” are sausages, but these are like American hotdogs, “tomato sauce” is ketchup, “jumper” is a sweatshirt, “ta” means thanks, and “runners” are sneakers. I met a lot of people and learned a lot at camp, but by the end, I was ready to see my accommodation.

I rode back to ACU with the Australians. Desma was waiting for us at the university, or “uni,” and she drove Liz and me to our accommodation. She said we could stay there for as long as we wanted, and we were more than welcome to move, but we would have to find another place on our own. The place that she arranged for us was an old convent. It was very spacious, but

it was completely dirty. I knew I could not live in the old convent for five months, but it was now the weekend, so I had to wait till Monday to start searching for places to live.

Orientation, which was a week long, began on Monday, and classes would begin the following week. During orientation, I met other exchange students who were staying at Cambridge Court Student Apartments. This was only a five minute walk to the uni, and a ten minute walk into the city. Luckily, I got the last apartment available at Cambridge Court. There were other ACU exchange students living around me: Robyn, from Canada, Tessa and Anne, both from Finland, and Iris, from Germany. We shared a bond; we all had the scary departure of leaving our homes, we had to adjust to living in another country, and we all had days when we just wanted to be home. We stuck together through everything, and had an experience of a lifetime.

Life in Australia was very different. People heavily used the transportation system and walked a lot, instead of driving. It was nice being able to walk everywhere, but I always had to remember to look right, instead of left, when crossing the street and there were a couple hundred times when this slipped my mind. Luckily, I made it home without getting hit by a car. I will admit that I missed my car, especially when I had to get groceries. It sure was a pain to have to carry any food that I bought. The

food was also different, but, of course, they had McDonald's, and Hungry Jack's, which is the same as our Burger King; however, if you ordered a hamburger anywhere in Australia, it would not taste the same as it does in America. The beef had a very different taste in Australia. While I was there, I did try kangaroo, which is sold very cheap in the grocery stores, but that was definitely a one time thing because it tasted horrible. It did not even compare to the taste of steak. I did become fond of Thai food while I was there, and I loved kehabs, which are bread with feta cheese and spinach. Of course, I did miss the American brands and the taste of American food.

Overall, the daily lifestyle was more relaxed, and the common Australian phrases were “no worries,” “you're arite,” and “cheers.” A professor would say, “Your final exam, which is worth sixty percent of your grade, is next week, but no worries mates,” and at the end of a conversation, professors often say, “Cheers, mate!” Having a casual drink at uni was common among the Australians, and with the drinking age being eighteen, the Australians sure do party. People often referred to me as the “baby” because I can not even drink legally in my own country, which they found ridiculous.

One big difference is that the Australians hang out more with their high school friends

(Continued on page 5)

Australia

(Continued from page 4)

than with their uni friends because they all commute to uni. So when they finish classes for the day, they go home, which is where all their high school friends live. Most Australians only go to uni three days a week, but when I was there, I had uni four days a week. This is because a full schedule in Australia is considered three classes, but I took four. Two of my classes had two hundred students, which was a lot different from the classes at Nazareth. Also, you would only have the class once a week, for two hours, and then you also had to go to tutorial once a week for every class. "Tuts" were not as large, and lasted for an hour. So it was three hours of class time for every class you were taking, and learning was very independent. For most classes, you would only have an essay and a final exam. Of course for my "Maths" class, and yes they say math with an s, I had four tests. Also, it is not x, y, and z, but it is x, y, and zed. In between classes and study time, I tried to see as many places as I could.

Living ten minutes from the city of Melbourne, there was always something to do. There were tons of shops, including the Queen Victoria Market, which had cheap food and merchandise, and we occasionally went to the movies, since our "telly" only had five stations. The movie theaters were huge and seats were assigned. We were lucky enough to be there when we were be-

cause Melbourne hosted the Commonwealth Games this year. These games are similar to the Olympics, and there were 71 nations competing in the games. Also we visited gardens and beaches, went through the Parliament building and the Old Melbourne Gaol, which is a preserved jail where people were hung and executed. Tessa and I went on a day trip outside of Melbourne, and traveled to Sydney over Easter Break. The last week I was in Melbourne, I decided to go to a zoo, where people can feed kangaroos. This was two hours away, and I had to take the train and the bus to get there. Well, the bus did not stop exactly at the zoo, and I was dropped off in the middle of nowhere. The town I was in only had a gas station and zoo. So I walked along a highway for 10 minutes to get back to the zoo. Since I was in the middle of nowhere, I had four people stop and ask if I wanted a ride. Even though all the Australians are so friendly, I decided to just walk. I made it to the zoo, and I was the only one there. It ended up being fun, though, because even though the kangaroos almost attacked me, I did get to feed them, and I also got to hold a koala. Oh and to top everything off, the ranger ended up giving me a ride back into the city because he just happened to be going there. I had so many adventures that I will never forget!

When it came time to leave, it was hard. After times of being homesick and counting down the days till I finally would be

home, the day I would leave had finally come, and I no longer wanted to go. I had met so many nice people from around the world, and we had to say goodbye, not knowing if we would ever see each other again. I had finally adjusted to the lifestyle in Australia, and loved it, but I would soon have to change my way of living again. I remember when I was finally back in the US, I thought it was so strange that the toilets only had one handle to flush, and there was no longer a different flush button for when you went number one and number two. The exit signs were now red instead of green, the money seemed so weird, and I was so sure that the cars were driving on the wrong side of the road. It was as if I was going through culture shock in my own country. I was not use to using my cell phone or driving, and I missed the city life and being able to walk everywhere. It took me a while to get adjusted to life back in NY, but with the help of my family and friends, I finally began to feel at home. I will always remember my trip to Australia and how scared I was to go alone, but I am so glad that I took the chance because I grew as an individual and became more independent, saw amazing places, and made lifelong friends; it truly was an experience of a lifetime, and the experience will always be a part of me.

Australia photos provided by Jenny Buttaccio.



"I will always remember my trip to Australia and how scared I was to go alone, but I am so glad that I took the chance."

Alumni News

Amy Gennosa ('01) writes: "Well, I never thought I would be teaching, but I am – Geometry and Calculus (I & II) through the ACE program out of Corning Community College. I'm seconds away from being tenured and can't wait until all of this 'paperwork' is out of the way. I spend every second of my free time at school (sports, concerts, tutoring) or at church. I've been helping out with the youth group and I'm the worship team leader for our young adult ministry at church. I'm singing all the time – whether for church, weddings, or school. I haven't ruled out going back to school for music, and I've been looking into schools in Nashville. I'm just waiting to see what's going to come next."

Thomas Burgie, a teacher at Pittsford Mendon High School, was recognized by the Honor an Educator Program. Tom completed the Post-Baccalaureate Certification program at Nazareth College in December 2004.

More Awards

The Spring issue of Our Newsletter listed several awards that our seniors had earned. After that issue went to press, we learned of a few more:

The School of Education: Excellence in Student Teaching Award for the Undergraduate Quad Inclusive Elementary Education Program gave out four awards to seniors: two of those awards went to math majors! Congratulations to **Jillian Schneider** ('06) and **Kristen Genello** ('06).

Kevin Laley ('06) received the Vice President's Award for Achievement in Scholarship and Learning, which is given to only two students each year. Kevin was also selected to be the student commencement speaker at graduation. Congratulations, Kevin!



Department Addition

This past May, the math department welcomed its newest member. Matt Koetz, the "baby" of the department, and his wife, Shawna, became first-time parents when Julia Nicole was born on May 12 at 1:32 pm. The arrival coincided with the Senior Brunch that day, and Matt had to rush to the hospital immediately after taking the department photo that morning. The summer was an adventure for Julia and her parents, and the department is happy to have another future mathematician joining its ranks!



Julia Koetz at 3 months old

Problems 1.1

**Nazareth College
Art & Crafts Exhibit**

May 22 - June 2

**Lorette Wilmot
Library and
Media Center
Browsing Lounge**



For Elizabeth and Emily

**Afghan by
Heather Ames Lewis,
Associate Professor,
Mathematics**

Solutions to Problems 0.0:

- 0.0.0: 2499 zeros; 8
- 0.0.1: 60 degrees
- 0.0.2: 1806 (43 years in 1849)
- 0.0.3: 84 years

Problem 1.1.1: Heather spent the spring knitting madly in an effort to finish an afghan for the first-ever Nazareth College Art & Crafts Exhibit (featuring work by the non-studio-art faculty and staff). The afghan was made of 49 squares: 9 yellow, 8 blue, 8 green, 7 yellow & blue, 7 yellow & green, 7 blue & green, and 3 that were yellow, blue, & green. When it came time to put the squares together into a full blanket (7 squares by 7 squares), she was faced with the problem of how to do it in a way

that seemed to balance the colors. Her only (self-imposed) restrictions were that the very center square was yellow, and that the squares alternated between solid-color and mixed-color. How could she do this? [Extra credit will be given if you provide multiple answers.]

Problem 1.1.2: Suppose that for every 4 cows a farmer has, he should plow 1 acre of land, and allow 1 acre of pasture for every 3 cows; how many cows could he keep on 140 acres? [From Convergence: <http://convergence.mathdl.org/>]

Send solutions to Heather (hlewis5@naz.edu) or Matt (mkoetz1@naz.edu) for acknowledgement and praise in the next issue.