

UNDERGRADUATE MATHEMATICS SEMINAR

The next seminar of the winter term will be:

DATE: **MONDAY, February 9th**

Time & **4:15pm** – Refreshments in the Math Common Room, **Bailey 204**

Location: **4:30pm** – Seminar in **Bailey 207**

In this seminar, Union's very own **Professor Julius Barbanel** will deliver the following talk:

TITLE: Archimedes' Law of the Lever

ABSTRACT: Anyone who has ever played on a seesaw knows something about the Law of the Lever: Objects balance at distances that are inversely proportional to their weights. So, for example, if you and I are on a seesaw and I weigh twice as much as you, you will have to be twice the distance from the fulcrum as I am if we are to balance. About 2250 years ago, Archimedes began with a few obvious assumptions (such as: If two objects balance and you add additional weight to one object, then the objects no longer balance and the object to which you added weight will go down) and proved the Law of the Lever. It is possibly the earliest use of mathematics to develop a physical theory. We shall present this proof.

For a preview of upcoming seminars and a list of past seminars, visit <http://www.math.union.edu/~wangj/seminar09w.htm>

Where Are They Now? Tom Reilly, '06

After graduating from Union, I spent a while figuring out what type of career I would like to pursue. The summer before, I had attended an REU program at SUNY Potsdam. These programs are a great way to get a taste of what graduate school and professorship (in terms of research) will be like. It was an amazing experience, but it made me realize that it wasn't the path for me.

So upon graduation, I was unsure of what to do. I went home to Connecticut, and I started working as a substitute teacher in my hometown. I started to look into many different job fields, including marketing, finance, and media. I ultimately decided that I wanted to do something in media, since I had really enjoyed working at WRUC at Union. I learned about the NBC Page Program through a friend of mine, and I began to apply. It is a very competitive program, and so I spent over a year applying, submitting my resume every week.

I continued to work as a substitute teacher, and

also started working as an after school program coordinator and a basketball coach. By the fall of 2007 I had finally gotten an interview and been accepted into the NBC Page Program. Then the writer's strike hit. So I had to wait out the next few months until I could start. You can imagine how excited I was when I finally started at NBC in April and moved to New York City.

The NBC Page Program has really been the most amazing time of my life. The program is designed to help you network with people in the company and expose you to all areas of the company through assignments in many different departments. We all give tours of the studios for the Guest Relations department and manage the audience for tapings of *Late Night with Conan O'Brien* and *Saturday Night Live*. The additional assignments that I have done include working with the NBC Sports Production group and being an assistant to the SNL audience coordinator. The perks, such as helping to work on pre-production of the Beijing Olympics, seeing SNL live, and attending the exclusive SNL after-parties, have been amazing.

I am finishing up my last few months in this yearlong program, currently on assignment as a production assistant for The NBC Agency. I help create promos and commercials that I later see aired on TV, which is pretty cool. I've begun to use some of my contacts to find a permanent job at NBC, and I've even started to interview for a few positions.

Although I am not using my mathematics degree specifically, I can honestly say that I wouldn't be where I am without it. Having a math background made me valuable as a substitute teacher, since so many up-and-coming teachers want to teach history or English. The schools were consistently desperate to have me come in and teach a math class. This gave me a chance to work steadily, yet flexibly, while I decided on a career path. And while interviewing at NBC, having a background in math set me apart from the myriad of applicants who had majored in communications or journalism. And most importantly, I believe that being a math major helped me to develop the skills of problem solving, whether it was by looking at a problem in a different way, discussing the problem with others to get a fresh perspective, or recognizing when an approach isn't going to pan out and should be reassessed. These skills have helped me excel at NBC, and I'm sure they will continue to be an invaluable asset throughout my career.

Back Issues of the Math Newsletter Are Available Online Through the Math Department's Website:

www.math.union.edu

FREE CALCULUS TUTORING is available at the Calculus Help Center in Sorum House Sun-Thurs 7:30-10:00pm

HRUMC XVI
Saturday, April 18th

Want to help stage the largest(?) regional undergraduate math conference?

Contact Ben Miles, milesb@union.edu, or Sarah Britton, brittons@union.edu

Infinitely Many Proofs of the Infinitude of Primes

You have likely seen Euclid's proof that there are infinitely many primes (Sketch: Suppose not, list all primes as p_1, \dots, p_n , then consider $N = p_1 \dots p_n + 1$. Then N is divisible by some prime, p_i . But p_i also divides $p_1 \dots p_n$. Hence p_i divides the difference of N and this product, namely 1, a contradiction.) Since Euclid's proof, many others have been offered. In fact, the most recent issue (Feb. 2009) of The American Mathematical Monthly published a new one.

The MAA has a lecture posted by Andrew Granville in which he gives infinitely many proofs of the infinitude of primes. Granville uses this as a springboard into the remainder of his lecture about interesting patterns in primes. Check it out at

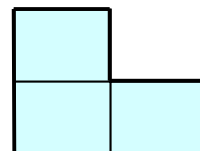
<http://www.maa.org/news/121508granville.html>

Problem of the Newsletter: February 6th, 2009

Though no fully correct solutions to last week's problem were submitted, we issue an Honorable Mention to **William Manko, '10** for his effort. A solution to last week's Problem of the Newsletter has been posted on the bulletin boards in Bailey Hall.

Here is this week's problem: Here is a playful one that involves only cleverness – and a time restriction: try to solve this within 7 minutes.

The L-shaped figure to the right is formed using three 1x1 blocks. What is the least possible perimeter of a figure formed by five of these L-shaped pieces?



Professor Friedman will accept solutions to this problem until 12:00 noon Thursday, February 12th. Email your solution to him (friedmap@union.edu) or put it in his mailbox in the Math Department's office on the second floor of Bailey Hall.