

UNDERGRADUATE MATHEMATICS SEMINAR

Welcome back! The next meeting of the seminar will be this coming **Monday, April 7th**, with refreshments beginning at **4:00** in the Math Common Room, **Bailey 204**, and the lecture following at **4:15** in **Bailey 207**.

In this seminar, Union College's **Professor Karl Zimmermann** will be presenting the talk below.

TITLE: Low An Intuitive Introduction to the p -adic Numbers

ABSTRACT: For each prime p , there is a number system called the p -adic numbers. These systems, first introduced by Kurt Hensel at the end of the 19th century, play a central role in various areas of number theory and arithmetic geometry. Like the real numbers, the p -adic numbers contain the rationals, and while there are many other similarities, much is different. In this talk, I'll give an intuitive introduction to the p -adic numbers, highlighting similarities with the reals, but focusing on some differences. For example, we'll begin by making sense of the equation

$$-1 = 1 + 2 + 2^2 + 2^3 + 2^4 \dots$$

which, in the p -adic numbers, really is an equation.

HRUMC XV - April 19, 2008: Sign-up Now!

The 15th annual Hudson River Undergraduate Mathematics Conference (HRUMC) will be held on Saturday, April 19, 2007 at St. Lawrence University in Canton, NY. As St. Lawrence is 4+ hours from here, we have rented two college vans and are planning on leaving on Friday afternoon and overnighing in a local hotel.

The HRUMC is a one-day mathematics conference held each spring, attended by students and faculty from colleges, universities throughout New York and New England. It was founded by four colleges, Siena, Skidmore, Union, and Williams, with the goal, as currently stated on the HRUMC's webpage (<http://www.skidmore.edu/academics/mcs/pages/hrumc.htm>), of "provid[ing] undergraduates with the experience of attending and/or presenting at a professional mathematics meeting designed primarily with the student in mind."

The conference features short, 10-minute talks **primarily by students**, and a keynote address by noted mathematician. Eleven Union College students will be speaking this year, and Jeff Weeks, a MacArthur Genius Award recipient, will be delivering the keynote address.

The HRUMC provides you with a great opportunity to meet math majors from other institutions, to discuss and share the math that you have been doing, to hear about work other students have been doing, and to get ideas for new projects – in fact, many senior theses at Union were inspired by talks from the HRUMC!

IN 2009, UNION COLLEGE WILL BE HOSTING THE HRUMC. We will need MANY student volunteers to pull this off! If this excites you, try to attend this year's conference to see what it is all about!!

The Math Department **strongly encourages** you to attend this **free** conference. Transportation, lodging, meals, etc. will be covered or provided.

Want to attend HRUMC? **Sign-up by Fri. April 11th** by submitting the form on the back of this newsletter to Linda Jorgensen in the Math Department office, or by sending an email to Professor Friedman at friedmap@union.edu that contains the info requested on the form.

"It Was Only a Sign Error"

On page 135 of this month's "The College Mathematics Journal," David Cox of Amherst College provided the following:

"According to an article titled "Corps of Engineers goof on anti-flood mapping" in the November 18, 2007, issue of the *Springfield Republican*, on June 20, 2007, the Army Corps of Engineers released flood-risk maps for part of New Orleans that claimed that the drainage canals would reduce flooding during a major storm by 5.5 feet. However, in a report dated November 7, the 5.5 feet estimate was changed to 6 inches: " 'We've made some corrections,' the engineer, Ed Link, told reporters on Friday. Link said mistakes were made in the calculations for two sub-basins that include Lakeview and nearby neighborhoods. **In one, a minus sign was used instead of a plus sign.** [Emphasis added.]"

"The article also mentions that this discrepancy was buried in the appendices to the November 7 report, and came to light only when a reporter for a local New Orleans television station asked the engineer about it.

"Cox adds, "There are two important points here. First, sign errors can have serious consequences; and second, quantitative literacy is important for everyone, including journalists."

Spring Term Calculus Help Center Hours

This term, the Calculus Help Center, housed in the **Sorum House Seminar room**, will be open for business on **Sunday, Tuesday, and Thursday** nights, from **7:30 – 10:00pm**.

Problem of the Newsletter: April 4, 2008

Here is this week's problem: Show that $\sqrt[3]{\sqrt{5} + 2} - \sqrt[3]{\sqrt{5} - 2} = 1$. Pretty cool, huh?

Professor Friedman will accept solutions to this problem until 12:00 noon Thursday, April 10th. 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.

Name: _____

Phone: _____ e-mail: _____

Check one:

_____ I need transportation.

_____ I have made arrangements for transportation.

_____ I will be driving and have room for _____ additional passengers.

Check one:

_____ I need lodging. (Roommate(s) request: _____)

_____ I have made arrangements for lodging or will arrive the day of the conference.

HRUMC Sign-up

**Submit this form to
Linda Jorgensen in
the Math Office by
Friday, April 11th.**