

UNDERGRADUATE MATHEMATICS SEMINAR

The next meeting of the seminar will NOT be at the usual time or place!! Rather, it is this coming **Thursday, November 2**, in **N304 S&E** beginning at 12:45 pm. (Pizza and beverages at 12:30.) This special seminar will be co-hosted by the college's Department of Physics & Astronomy and the Department of Mathematics.

The speaker this week will be Professor Alan Sokal from the Physics Department at New York University (NYU).

TITLE: Potts Models, Chromatic Polynomials, the Four-Color Problem, ... and All That

Abstract: The chromatic polynomial was introduced by Birkhoff in 1912 in connection with the famous Four-Color Conjecture. The same polynomial arises in statistical mechanics in connection with the Potts model, and it has been of great interest to both physicists and mathematicians for many years. Indeed, as Yang and Lee showed in 1952, phase transitions in the physical Potts model correspond to the zeros of the chromatic polynomial.

I will begin by giving an introduction to these problems and then sketch some recent results and open problems.

This talk is intended to be understandable to both physics and mathematics students; no prior knowledge of either graph theory or statistical mechanics is required.

Where are they now? Vincent Taurassi '04

Vincent Taurassi '04, a math major with a minor in Spanish, has just entered his third and final year of law school at NYU Law. He worked as a summer associate at Kirkland and Ellis LLP this past summer and has already accepted a permanent position there for next fall as a corporate attorney specializing in private equity.

Vincent was very surprised at how helpful his math degree has been to his success in law school. The underlying logic of the law is very similar to the analytical and logical nature of math and the skills it takes to write a mathematical proof are especially helpful in persuasive legal writing. He is even taking a

corporate finance class this semester where he gets to use a calculator and work only with numbers! He wasn't sure how his undergraduate degree in math would translate to success in law school, so at this point, he could not be happier.

Vincent reports that he loves living in New York City and just moved into a new apartment on September 1. After graduation, he will be studying for the Bar Exam, which he will take at the end of July. He then has six weeks off until starting work at Kirkland. He says "hi" to all his former professors.



Resources for Students

- What's Upstairs? Now that many of you have located the Math Department Office on the second floor of Bailey Hall to accept your petition for a winter math course, take a look around on the second floor.
 - In the Math Department Common Room are some comfortable chairs, a large worktable, a large blackboard, and some recently published math journals. Stop by, relax, do your homework, read some articles!
 - Interesting Articles in MAA's "Mathematics Magazine" The current issue of "Mathematics Magazine" is available for you to leaf through or read in the Math Department Common Room on the second floor of Bailey Hall.
 - Do you Juggle? The lead article is about juggling hammers! It discusses some of the mathematics and physics governing the motion of rotating hammers. Check it out.
 - Do you like Origami? Another interesting article asks and answers the following two questions: (1) "What is the largest regular n-gon that fits in a unit square?" (2) "Can it be folded from a square piece of paper using standard moves from origami?"
 - Looking for Problems? "Mathematics Magazine" also contains a nice "Problems" section. This section contains two types of problems, proposals and quickies. Readers can submit their solutions to proposals for publication, whereas the answers to the quickies are published in the same issue in which they are posed. Solutions to October's proposals are due by March 1, 2007.
 - Upon one bulletin board on the second floor is a collection of "The Math Behind ..." series of posters published by The Society for Applied and Industrial Mathematics. Read these for a quick introduction to the math behind "CDs and Anti-skip Technology," or "DNA Analysis."

Do you have any ideas for future newsletters?

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We're on the Web!

See us at:
<http://www.math.union.edu>

under "Department Activities"

Problem of the Newsletter: October 27, 2006

Congratulations to **Susan Beckhardt** and **Schuyler Smith**, who each submitted a partially correct answer to last week's Problem of the Newsletter contest. A complete solution to the problem containing both the answer and a full justification has been posted on the first floor bulletin board in Bailey Hall.

Here is this week's problem: Find (with full justification) $\cos(72^\circ)$. Express your answer as a real number, not as a decimal approximation or as a series expansion.

Professor Friedman will accept solutions to this problem until 12:00 noon Thursday, October 26. Please put your solution in his mailbox in the Math Department's office on the second floor of Bailey Hall. Be sure to include your email address with your submission. The student who solves (correctly!) the most PONs will receive a one-year student membership into the Mathematical Association of America, courtesy of the Math Department!