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Carleton College

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Northfield, MN 55057

The newsletter for the Carleton mathematics and statistics community

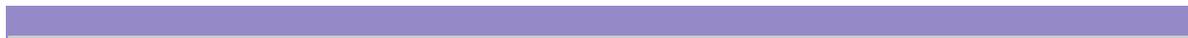
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Konhauser Memorial Problemfest

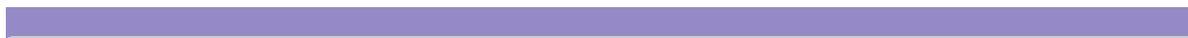
On Saturday, February 28, St. Olaf will host the 23rd annual Konhauser Memorial Problemfest, which is named after the late Macalester professor and legendary problem poser Joe Konhauser. In this contest, teams of up to three students get three hours (9 a.m. to noon) to work together on a set of ten challenging and intriguing math problems. The participants then have lunch together while the solutions are graded, and the results are announced right after lunch. The winning team gets to take the famous granite "pizza trophy" home to their college for the year. You can see the trophy on the table in the math department atrium -- last year's top Carleton team brought it home after a one-year absence. It would be great to have it stick around for another year! To sign up for this year's Konhauser, contact Rafe (rfjones). Three people can sign up as a team, but individuals are also welcome to express interest -- it should be possible to find you some teammates.

If you want to see what Konhauser problems are like and get some practice solving them, drop by the problem-solving group, which meets on Wednesdays 4:30 - 5:30 p.m. in CMC 328.



Budapest Reminder

If you are interested in attending either the Budapest Semesters in Mathematics this summer or next fall or the Budapest Semesters in Mathematics Education, your first step is to apply to the math department here at Carleton. The form for this can be found at the department's website under Resources > Off-Campus Opportunities. In order to receive full consideration, your application for the Budapest Semesters in Mathematics is due to the Carleton Math Department by February 14. All it takes is for you to complete an online form and submit your transcript. Don't miss out on an Hungarian adventure. Questions? Contact Gail Nelson (gnelson@carleton.edu).



My, How Times Have Changed

In 1915, the Mathematics Department at Carleton offered six semester classes of pre-calculus material, two years of differential and integral calculus, and six courses above calculus: Selected Subjects in Algebra and Trigonometry, Surveying, History of Mathematics, Teachers' Course, Theory of Equations, and Differential Equations.

Students arriving with a weak background in mathematics (because math was an elective subject in secondary schools at that time) could major in math by taking: Higher Algebra and Solid Geometry in their first year, College Algebra and Trigonometry in their second year, Analytic Geometry for their entire third year, and Differential and Integral Calculus in their senior year.

All Carleton students were required to take a year of mathematics during their freshman year. All students were required to have a major and two minors. The first minor for a mathematics major had to be one of: English, French, German, Greek, Hebrew, or Latin. The second minor for a mathematics major had to be one of: Bible, Economics, Education, History, Philosophy, Political Science, or Sociology. A minor was generally at least four classes in a single department.

Choose well because if you wanted to change your major after it was declared, that request had to come up for a vote by the entire faculty.

WhIMS

WhIMS (Women in Math and Science) is starting a mentoring program for women in math and science to help foster a network of like-minded women who can provide educational, career, and personal support. We are looking to pair up younger women (freshmen and sophomores) in STEM disciplines with older women (juniors and seniors) in their field. Mentor-mentee relationships will be mostly self-directed, but we are also planning social events for those interested in being involved. Please email Rachel Schuh (schuhr) if you are interested in being a mentor or a mentee!

Math at the Hideaway

Math at the Cow is now Math at the Hideaway! Hang out with math/stats majors at the Hideaway from 8:30 p.m. on every odd Thursday and every even Wednesday. You do not need to be 21 to attend.

Horatio Alger Association Honeywell Scholarship

The Horatio Alger Association is offering the Honeywell scholarship program for students studying in the fields of STEM. They will be awarding 10 scholarships of \$10,000 each to students pursuing STEM degrees who will be sophomores for the 2015-2016 academic year and have critical financial need. Applications are due by March 20. For more information, visit: www.horatioalger.org/honeywell/.

Pi Mu Epsilon Conference

The 36th Pi Mu Epsilon Conference will be held on April 10 - 11 at Saint John's University. The invited speaker is Dr. Ami Radunskaya from Pomona College. Ami will be giving two talks - one titled "DDEs, DCs and Doses: Mathematical Approaches to designing cancer vaccines" and the other titled "Chaos and Noise: a look at Stochastic Difference Equations." For more information, visit: www.csbsju.edu/Mathematics/Pi-Conference.htm.

Job & Summer Opportunities

A List of Summer Math Programs & Opportunities

Want something different from scanning canned goods at the supermarket or waiting tables at the local diner? There are quite a few summer opportunities that not only give you challenging mathematics or statistics to work on during the summer, but also offer you a stipend to do it. Check out: sites.google.com/site/mathreuprograms/ where you can find a list (compiled by Steve Butler at Iowa State) of summer opportunities including Research Experiences for Undergraduates and some summer programs at national institutes. Take note that the deadline for many of these programs is fast approaching. Funding for the REUs does not allow for stipends to be paid to international students, but some of these programs will accept international students without offering them a stipend. PCMI and IAS also accept new graduates to their summer programs. Acceptance into these programs is competitive; take the time to write a good essay, and if you are going to ask a faculty member for a letter of recommendation, do that as early as possible.

Johns Hopkins Center for Talented Youth (CTY) Instructor and Teaching Assistant

CTY offers challenging academic programs for highly talented elementary, middle, and high school students from across the country and around the world. They are currently seeking highly motivated and qualified candidates to work in their summer programs. They are seeking individuals with expertise in the following mathematics courses: Game Theory, Mathematics and Money, Paradoxes and Infinities, Cryptology, Mathematical Logic, Data and Chance, Geometry through Art. For more information, visit: cty.jhu.edu/jobs/summer.

University of Connecticut REU

Get involved in cutting edge mathematics research in a 10-week summer program at the University of Connecticut. This year's program will involve: Analysis on Fractals, Math Education, Representation Theory, and Stochastic Stabilization of Planar Flows. Participants are provided with housing, a \$4,000 stipend, and a small meal or travel allowance. For more information, visit: www.mathprograms.org/db/programs/341.

Willamette Mathematics Consortium REU

The Willamette Mathematics Consortium REU is an intensive eight-week summer research program which immerses undergraduate students in a challenging, transformative, authentic research experience. Three teams, each consisting of three undergraduates and one faculty mentor, will solve research problems in Algebraic Voting Theory, Algorithms over Polynomial Rings, or Unipancyclic Matroids. For more information, check out: www.willamette.edu/cla/math/reu/.

Seattle Milliman Healthcare Actuarial Consulting

The Seattle Milliman Healthcare Actuarial Consulting practice is interested in hiring math or statistics graduates who are interested in an actuarial career. They have about 100 actuaries, and looking to grow. The job posting can be found here: careers.milliman.com/job_posting.php?pbid=693752147f000001017ac43df28180ce. Interested candidates should send a resume to Karen Peterson at karen.peterson@milliman.com. They hire throughout the year, so graduation timing is not an issue for them.

Problems of the Fortnight

Problem 5:

For what positive integers n can the product of some of $n, n + 1, n + 2, n + 3, n + 4,$ and $n + 5$ be equal to the product of the others?

Problem 6:

Write either a $+1$ or a -1 on each square of a 13×13 chessboard. Let a_1, \dots, a_{13} denote the products of the entries in each row of the chessboard, and b_1, \dots, b_{13} denote the products of the entries in each column. Is it possible that $a_1 + \dots + a_{13} + b_1 + \dots + b_{13}$ is equal to 0?



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