Budapest Semesters Information Meeting

Interested in going to the Budapest Semesters in Mathematics? You are invited to hear more about this program and the new application procedures. The director, Professor Tina Garrett, will be here to talk about the program. Also on hand will be past participants to give their perspectives. The new application process will be described. Also new this year is a summer option. To get the details on this amazing mathematical experience, come to this meeting at 4:00 on Thursday, January 24, in CMC 206. There will also be an informational meeting about other possible summer math opportunities known as REUs (Research Experiences for Undergraduates). Look in next week’s Gazette for details.

Some Culture In The Tour?

In this week’s Tour of Mathematics talk (Friday, January 18, 3:30 PM, CMC 209), Eric Egge will speak on “The Museum of Mathematical Constants”. As always, all are welcome!

Kolenkow-Reitz Fund for Undergraduate Research

Students interested in doing summer break scientific research at other institutions should be aware of Carleton’s Robert J. Kolenkow and Robert A. Reitz Fund for Undergraduate Research. Created by a donor, and honoring former Carleton professors Kolenkow and Reitz, the fund supports student research. Up to ten students in the natural sciences and mathematics will be supported summer break 2013, with each student receiving funds not to exceed $4200.

Funding is available to Carleton international students. Support could take the form of a stipend, travel funds, housing, etc., and it could be used to supplement financial support offered by a sponsor at another institution if the student demonstrates that the sponsor’s contribution is insufficient. If interested, submit an application by February 5 identifying a sponsor at another institution, a brief description of research plans with your specific role, and a budget paragraph justifying requested funds. Decisions about funding will be made before Spring break. More information about the Robert J. Kolenkow and Robert A. Reitz Fund and the online application form can be found at: http://serc.carleton.edu/cismi/students/KolenkowReitz.html.

Career and Summer Opportunities

The Boston Fed: The Federal Reserve Bank of Boston is seeking Research Analysts. Qualified applicants have an undergraduate degree in economics or a concentration in mathematics, statistics, or computer science. Applications are accepted through January 31. To apply, visit: www.bos.frb.org/economic/recruit.

The U.S. Census Bureau: The U.S. Census Bureau has several employment opportunities in Washington, DC for candidates with mathematics and statistics courses. Opportunities include: Internship Program, Recent Graduates Program, and the Mathematical Statistician position. For more information, visit: census.gov/hrd/www/.

Green Corps: In Green Corps’ year-long paid program, you’ll get intensive training in the skills you’ll need to make a difference in the world. You’ll get hands-on experience fighting to solve urgent environmental problems - global
warming, deforestation, water pollution, factory farming and many others - with groups such as Sierra Club and Food and Water Watch. And, when you graduate from Green Corps, we’ll help you find a career with one of the nation’s leading environmental and social change groups. Applications are due January 22. To learn more, visit: http://www.greencorps.org/findout more.

Algorithmic Combinatorics on Words REU at The University of North Carolina Greensboro: Students will approach algorithmic combinatorial problems on partial words, which are sequences of symbols over a finite alphabet that may have some ‘do not know’ symbols, through computer or combinatorics related research. Participants are paid a $5000 stipend, a travel allowance, and on-campus housing is provided. Applications are due on February 18. For more information visit: www.uncg.edu/cmp/reu.

Arizona State University MTBI Summer Program: The mathematical and theoretical biology institute at Arizona State University is now accepting applications to their eight-week summer program specializing in applied mathematics. Participants are paid a $3000 stipend, a travel allowance, and on-campus housing is provided. Applications are due on March 1. For more information, visit: mtbi.asu.edu/summer-program.

Park City Mathematics Institute Summer Program: The 2013 Park City Mathematics Institute Summer Program is a 3-week program from June 30 to July 20, 2013 in Park City, Utah. The topic is Geometric Analysis. PCMI consists of integrated programs for researchers, graduate students, undergraduates, and faculty. Applications are accepted on line at http://pcmi.ias.edu through January 31.

Amgen Scholars Program at Caltech: Caltech’s Amgen Scholars Program is geared towards students in biology, chemistry, and biotechnology fields. Some of these fields include biology, biochemistry, bioengineering, chemical and bimolecular engineering, and chemistry. Amgen Scholars will receive a $5500 award, round-trip air transportation, a generous housing allowance, and a food allowance. Applications are due on February 15. For more information, visit: www.amgenscholars.caltech.edu.

**PROBLEMS OF THE WEEK**

1. Is it possible to arrange the numbers 0, 1, 2, …, 15 in a square pattern so that the sum of the four numbers in any 2 × 2 square within the pattern is the same? (For example, if you start the pattern as follows:)

   3  7  2  9
   5  8  a  ?
   4  b  ?  ?
   ?  ?  ?  ?

   you will find it impossible to finish: The four numbers in the upper left-hand corner add to 23, so you would need 7 + 2 + 8 + a = 23 and 5 + 8 + 4 + b = 23, which yields a = b = 6. This cannot be, because the number 6 can only occur once.) If it is possible, find a solution for which the smallest number adjacent (horizontally) to 0 is as small as possible. If it is not possible, show why not.

2. Does there exist a differentiable function \( f \), defined on the positive real numbers and with positive real values, which is one-to-one (and thus has an inverse function) and which is such that the inverse function of \( f \) equals the derivative of \( f \)? If so, give an example of such a function; if not, show why no such function exists.

Solutions to last week’s problems have started to arrive. However, due to a glitch in the smoothly oiled machine of Gazette production, this week’s copy had to be submitted a day earlier than usual. As a result, I’m postponing, with apologies, the acknowledgement of solutions until next week (when I’ll also report on the new problems). Stay warm, and good luck!

-Mark Krusemeyer

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