

Goodσελλ Gazette

Carleton College
Northfield MN 55057

The newsletter for the Carleton mathematics and statistics community

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Honoraria

Every year, the Carleton mathematics faculty honors several mathematics majors who have demonstrated notable ability and interest in mathematics and show potential for a career in the field.

Seniors Rebecca Ferrell, Miranda Fix, Jonah Ostroff, and Nathan Williams have been nominated for membership to The American Mathematical Society (AMS), a professional association of research mathematicians.

Juniors Hannah Breckbill, Elissa Brown, Christine Donovan, Christina Knudson, Samantha Morin, and Emma Turetsky have been nominated for membership in The Association for Women in Mathematics, an organization devoted to promoting and encouraging women and girls in the mathematical sciences.

We heartily congratulate all these excellent mathematics majors and look forward to following their careers in the mathematical sciences.

Mad Math Money!

Grants

The math department invites proposals from students wishing to present a talk or poster at the annual Joint Meeting of the American Mathematical Society and the Mathematical Association of America. The department has a modest amount of money available to subsidize expenses for travel and housing at this conference (the largest annual gathering of mathematicians in the US, held this year in San Diego during the first week of January).

Students interested in applying for funding should contact Steve Kennedy (*skennedy*) and provide him with a description of the research they intend to present at the conference.

An uncountable set of opportunities for study and research await you! Find them in this month's *Notices of the AMS*, or at: www.ams.org/notices/200708/tx070801024p.pdf

Find more research opportunities at the Carleton Interdisciplinary Science & Math Initiative (CISMI):

<http://serc.carleton.edu/cismi/researchopps.html>

Mathematician awarded National Medal of Science

Since 1962, the President of the United States has awarded about 12-15 distinguished individuals per year (with some exceptions—Wikipedia's article offers details) with shiny, golden pieces of recognition for their work. Over the summer of 2007, one mathematician was so honored: Hyman Bass, former president of the American Mathematical Society and current professor at the University of Michigan. He received the award for "his fundamental contributions to pure mathematics, especially in the creation of algebraic K-theory, his profound influence on mathematics education, and his service to the mathematics research and education communities."



The Game Theory of Love

The Mathematical Association of America has been keeping tabs on the most-accessed articles in JSTOR's archive of its prestigious journal, *The American Mathematical Monthly*. Dubbed the "JSTOR All-Stars," this compilation offers some of the most salient pieces in the history of the *Monthly*, which has printed more than 37,000 articles since its 1894 debut.

The #1 most-accessed article offers a little of everything: rigor, relevance, and a touch of raciness. It's entitled "College Admissions and the Stability of Marriage," written in 1962 by David Gale (then of Brown and now at UC-Berkeley) and L.S. Shapley (then at the RAND Corporation and now at UCLA; according to a triple-citation-backed statement in his Wikipedia entry, he is "regarded by many experts as the very personification of game theory").

The article's title is somewhat misleading: It is not a statistical analysis of post-collegiate pairings. Rather, it proposes a new algorithm—the now-famous Gale-Shapley algorithm—to optimally match college applicants to potential *alma maters*. The authors go on to describe how this same algorithm could be used to produce mutually acceptable marriages, given only a list of ranked preferences from each, er, applicant.

One (arguable) caveat: The pairings produced are "optimal" to one sex and "pessimal" to the other. In their example (though one could easily reverse this), each male is paired with his *highest*-ranked female partner and each female is paired with her *lowest*-ranked male partner. C'est la vie.

Find the full article at www.jstor.org.

Computer Scientists Need News, Too

Prefer your math in binary form? Then you'll love our sister application, the *Carleton Sentinel*, official e-newsletter of the Computer Science department: <http://apps.carleton.edu/curricular/cs/news/>

Problems of the Week

For those new to the Gazette, ground rules may be found in last week's issue.

1. Consider the set $\{1, 2, \dots, n\}$ of positive integers up to n . For what values of n is it possible to split up this set into three subsets so that the sum of the integers in each of the subsets is the same? ("Splitting up" implies that no two of the subsets have any integer in common. The subsets don't have to have the same numbers of integers in them.) Of course, for your solution to be complete, it should show why your answer is correct.
2. Suppose you pick the million entries of a 1000×1000 matrix independently and at random from the set of all ten digits (that is, each entry is one of $0, 1, 2, \dots, 9$). Is the determinant of the matrix you get more likely to be even or odd? Why?

Last week's first problem was solved by Larry Rolen; he should stop by CMC 218 to collect a "C" block or other prize item. As of press time, no solutions to the second problem have come in. Solutions are still welcome until my own solutions get posted (which might be in another week or so). Good luck on this week's problems!

—Mark Krusemeyer

Get Your Fix

Want more problems? More tidbits? More history?
More *esoterica Carletonia*?

Sounds like you're craving the *Gazette* archive!
Issues dating back to 1994, presented in pleasantly
printable PDF permutations, at:

<http://apps.carleton.edu/curricular/math/ggnews/>

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