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Welcome to Spring Term in the Math & Stats Department!

Winter is gone and spring is in the air; we in the Math & Stats Department are just as excited about the next ten weeks in the department as we are about the change in seasons!

Not only are students taking a whole slew of exciting classes (such as Stochastic Processes, Combinatoral Theory, and Topics in Theory of Elliptic Curves), soon we will be welcoming newly-declared sophomore majors into the department! Other things to look forward to include comps talks, speakers, and the department picnic. Get ready; this spring term is sure to be tons of fun!

Hail to the Chief!

On February 1 our own Deanna Haunsperger became the President of the Mathematical Association of America. The Goodsell Gazette caught up with Professor Haunsperger to ask her about this honor.

GG: What is the Mathematical Association of America?

DH: The Mathematical Association of America (MAA) is the world's largest organization of mathematicians, students, and enthusiasts; we are interested in mathematics and its teaching and learning, primarily at the undergraduate level. Carleton is an institutional member of the MAA, and as such our majors are invited to become members at no cost to the students. We organize two national meetings each year, along with regional meetings in each of our 29 geographic sections. We publish beautiful mathematical exposition in our journals (which include Math Horizons), and we publish a robust collection of well-written mathematics books. The MAA is also the organization which runs the American Mathematics Competitions which you may have experienced in secondary school as well as the Putnam exam which many people took in December.

GG: How did you become President?

DH: I was elected to be MAA President in 2015 by the membership of the association, and I spent 2016 in training, stepping into the presidency officially on February 1, 2017.

GG: What does the MAA President do?

DH: I will be president for two years, during which time I will preside over the Board of Directors which makes decisions regarding the future of the organization, I will be an invited speaker at several section meetings each year, I will represent collegiate mathematics on several boards of national and international mathematics organizations, and I will be a public face of the association at our national meetings. I'm honored to be the MAA president. The Association has asked me to represent the MAA on Twitter; you can follow me at @DeannaHMath.

Hidden Figures Viewing and Discussion

The movie *Hidden Figures* brings many aspects to light of what it's like to be a woman, and more importantly a woman of color, in STEM. These issues are sadly still relevant today. We invite everyone on campus (students, professors, all genders and allies) to join us for a special viewing of *Hidden Figures* (first Sunday, spring term) hosted by SUMO and the Department of Physics and Astronomy. The movie will be followed by a discussion addressing the issues women, POC, and other underrepresented groups face in STEM. This event is an all inclusive event aimed at starting a dialogue. The discussion is hosted by Women in Physics (WiPs), Women in Math and Science (Whims), LoveLace, and Diversity and Inclusivity in Physics.

When: Sunday, April 2nd.1-3pm (movie), 3-4pm (discussion).
Where: Weitz Cinema (movie), Weitz 236 (discussion).

Questions? Email khanz.

Job & Internship Opportunities

Penn State University: SCRiM Summer Scholars 2016 REU
The Network for Sustainable Climate Risk Management (SCRiM) links a transdisciplinary team of climate scientists, economists, philosophers, statisticians, engineers, and policy analysts to answer the question "what are sustainable, scientifically sound, technologically feasible, economically efficient, and ethically defensible strategies for managing the risks associated with climate change?" Starting May 25, 2016, The SCRiM Summer Scholars program will run for 9 weeks. Students interested in SCRiM themes will be able to pursue self-directed research projects (e.g., modeling experiments using a simple Earth system or analyzing geophysical datasets).

Housing, travel support, and a stipend of $4500 are provided for all participants. Applicants must be undergraduate students or recent college graduates with background in a SCRiM-relevant discipline (including applied mathematics!); international students are welcome to apply. But hurry up te deadline for applications (accepted at scrimhub.org/summer-scholars) is April 10th!

Transportation Department Project Delivery: Assistant Design Engineering Technician

The Design Division of the Hennepin County Transportation Department is seeking a full time Assistant Engineering Technician to support the division in the preparation of design plans and proposals used in the department's competitive bidding process for road and bridge construction projects.

This position functions as a technician in training and works with experienced technicians. The selected individual will be provided both formal and informal training, and the opportunity for advancement as knowledge and skill is developed.

Duties include assisting in the preparation of design details, alignments, profile grades, layouts, plan sheets, as-built plans, drawings and maps; plotting topographic data, contour maps, underground details, grading template sections, and soils data for the department's road and bridge construction projects.

Interested candidates should apply via the Tunnel by April 13.

How I Became a Quant Panel
The University of Minnesota's Master in Financial Mathematics and the International Association of Quantitative Finance invite quantitative students to this panel. A variety of "quants" will talk about the work they do and how they moved into this career path. Students will learn about:

- The field of financial mathematics/quantitative finance, risk modeling, model validation, investment analytics, trading and hedging
- What MFM alumni/quants do in their daily jobs
- Preparing for the great and plentiful jobs in quant finance

When: Friday, April 7. 5:30-6:45 pm (panel), 7-8:30 pm (reception).
Where: Vincent Hall 16 Lower Level (panel), Vincent Hall 120 First Floor (reception).

Students and faculty or staff who wish to attend can register at the following links:

Students, Faculty/Staff

Problems of the Fortnight

Having trouble seeing the problem of the fortnight? Try enabling images for the message.

To be acknowledged in the next *Gazette*, solutions to the problems below should reach me by noon on Tuesday, April 11.

1. Consider the parabola $y = x^2$. Define a sequence of circles "inside" the parabola as follows: C_0 is the largest circle which is tangent to the parabola at the origin and lies above the parabola everywhere else. For $i > 0$, C_{i+1} is tangent to C_i and is also tangent on both sides to the parabola. Find the center and radius of C_{1000}.

2. Given that the system of four nonlinear equations in four unknowns

$$a^3 + 2abc + bcd = -19,$$
$$a^2b + b^2c + abd + bd^2 = 18,$$
$$a^2c + acd + bc^2 + cd^2 = -27,$$
$$abc + 2bcd + d^3 = 26$$

has a unique solution in integers a, b, c, d, find that solution, without using technology. (Although a modest amount of calculation will be needed, cleverness will be much more effective than "brute force" for this problem.)

Nothing in the way of solutions has arrived recently, but a few weeks ago solutions to the problems posed March 10 arrived from "Auplume" and from John Snyder in Oconomowoc. Also, Oscar Smith gave a correct (if slightly terse) partial solution for the second problem. We're supposed to be heading for some warmer and sunnier weather; if you head outdoors to relax in fresh air and sunshine, why not take along a problem?

- Mark Krusemeyer

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