

ΓΟΟΔΣΕΛΛ ΓΑΖΕΤΤΕ

Carleton College

Northfield, MN 55057

The newsletter for the Carleton mathematics and statistics community

19 April 2019

Vol. 37, No. 14



New Math & Stats Major Celebration Event

Newly-declared Math or Stats majors are invited to a reception in CMC 206 from 4:00 to 5:00 pm on Tuesday, April 23. Come and meet fellow majors, both old and new, and get to know professors you might not have met yet. There will be cake!



Math Across the Cannon Speaker Series:

Every year, the Carleton Department of Mathematics and Statistics and St Olaf Department of Mathematics, Statistics, and Computer Science jointly host the Math Across the Cannon speaker series. Our goal is for the faculty and students on the two sides of the river to get together and to get to know one another better. This year, the speaker is Robert Ghrist, who is a Professor of Math and Electrical/Systems Engineering at the University of Pennsylvania. Robert is a leader in the mathematics community and has made important contributions to the field of topology and mathematics education. He will give two talks:

Math and Stats Student Lecture: Topological Methods for Data

Time: Thursday, May 2, 3:30 - 4:30 pm

Location: Olin 141, Carleton College (Reception 3:00 - 3:30 pm)

Abstract: Mathematics implicates motions and machines; computations and colorings; the strings and arrows of life. Perhaps the grandest expression of the beauty and power of Mathematics is revealed in the quantification and qualification of that which is not there: holes. Topology - the mathematics of holes - will be surveyed with a fresh look at the many ways in which topology is used in data, networks, neuroscience, and optimization.

Public Lecture: A Vision of Multivariable Calculus

Time: Thursday, May 2, 7:00-8:00 pm

Location: Viking Theater, St. Olaf College (Reception 8:00 - 8:30 pm)

Abstract: This talk will address certain challenges in teaching multivariable calculus. Classical texts emphasize calculus in dimensions two or three, based on 19th and 20th century application to physics. At

present, many of our students are more motivated by data and systems in higher dimensions. How can a calculus course best adapt to these needs, without overwhelming students (or professors)? This talk will outline a plan for increasing both the dimension and sophistication of multivariable calculus instruction with the use of video. Topics covered will include the use of visualization, matrix algebra, and differential forms.

Work in the Math and Stats Department Next Year!

Are you interested in getting involved in the Mathematics and Statistics Department next year and need to fill your work-study hours? We are looking for course graders and lab assistants, as well as tutors for the Math Skills Center. Applications are due by 5pm on April 21. For more information and to apply, visit: <https://apps.carleton.edu/curricular/math/resources/>.

Upcoming Events

Week 4, Tuesday, April 23, 4:00 pm
New Majors Event - CMC 206

Week 5, Thursday, May 2, 3:30 pm
Math Across the Cannon - Olin 141

Week 6, Tuesday, May 7, 4:00 pm
Math & Stats Comps Announcement Meeting - CMC 206

Job & Internship Opportunities

Xometry, Summer Internship

If you are a college student who is ready to gain real-world experience at one of the fastest-growing technology startups in the Washington, D.C. and Lexington, KY areas, the Xometry Summer Internship Program is definitely for you! The internship program is designed to teach the future leaders of our industry the technical, business and communication skills necessary for success. The application deadline is today! For more information and to apply, visit: [The Tunnel](#).

Consulting 101 Workshop

Have you heard about consulting, but you're not really sure what it means? The Career Center will be hosting an interactive workshop to learn about the field of consulting on Tuesday, April 23. For more information and to RSVP, visit: [The Tunnel](#).

Netlify, Business Development Representative

Netlify is building a platform to empower web developers and businesses to build better, faster, and more secure web applications than ever before. They are looking for Business Development Representatives who are excited about engaging prospects and starting a consultative sales process with a passionate and technically savvy prospective client base. As a BDR you'll be developing your core sales skills while working cross-functionally on projects that will contribute to the long-term success of the team. This is a phenomenal opportunity to gain exposure within a fast-growing business as you jumpstart your career. For more information and to apply, visit: [The Tunnel](#).

Kepler Group, Marketing Analytics Analyst

At Kepler Group, interns will be front and center in the data-driven, digital marketing revolution. The Kepler Group has grown to service over 15 of the world's leading brands as they harness data and technology to create truly breakthrough and dynamic marketing programs that scientifically evaluate, target, and optimize every consumer touchpoint. The Marketing Analytics Analyst plays a critical role in ensuring client and company success, measuring digital campaign performance, developing deep insights to drive performance, and designing sophisticated testing plans. This is exciting, entry-level position requires strong quantitative skills, a technical mindset, and a desire to be part of a tightly-knit team that's out to change the industry. Expect to learn A LOT about cool technologies, digital media, and marketing strategy quickly. The application deadline is April 30. For more information and to apply, visit: [The Tunnel](#).

Problems of the Fortnight

To be acknowledged in the next *Gazette*, solutions to these problems should reach me by noon on Tuesday, April 30.

1. In the addition

$$\begin{array}{r} \text{R A I N} \\ \text{R A I N} \\ \text{Y E T} + \\ \hline \text{A G A I N} \end{array}$$

each different letter represents a different digit (the possible digits are $0, 1, \dots, 9$), and the “leading” digits corresponding to R, Y, and A are not zero. What is the uncertainty in RAIN? That is, what is the difference between the largest possible and the smallest possible RAIN?

2. Let

$$x = 1 + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} + \dots + \frac{1}{\sqrt{2019}}.$$

Without using technology (and without much computation by hand), find the integer n such that $n \leq x < n + 1$. (That is, find the “floor” $\lfloor x \rfloor$ of x , or using an older tradition of notation and terminology, the “greatest integer function” $[x]$ of the real number x .)

Aaron Li solved the first problem posed April 5, and should stop by CMC 217 some time to pick up a B.B.O.P. item. John Snyder in Oconomowoc solved both problems, and “Auplume” solved the first problem. Will the local flooding we’re experiencing after Wednesday’s downpours extend to a flood of solutions to the new problems? Here’s hoping so . . .

- Mark Krusemeyer

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



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