Goodsell Gazette

Carleton College *October 16, 2020*

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Get to Know the Math/Stats Department!

How much do you know about the members of the math/stats department? The Goodsell Gazette asked the faculty and staff to name their top 5 favorite books. How many of these have you read?

Andy:
Middlemarch (George Eliot); Molloy (Samuel Beckett); Woodcutters (Thomas Bernhard); Bluets (Maggie Nelson): 10:04 (Ben Lerner).

Deanna:
Educated (Tara Westover); Mathematics for Human Flourishing (Francis Su with Christopher Jackson); The Body Keeps the Score (Bessel van der Kolk); Prisoners of Geography: Ten Maps that Explain Everything about the World (Tim Marshall); Living Proof: Stories of Resilience Along the Mathematical Journey (Allison K. Henrich, Emille D. Lawrence, Matthew A. Pons, and David G. Taylor, Editors).

Laura:
Les Miserables (Victor Hugo); The Glass Bead Game (Herman Hesse);
The Sparrow (Mary Doria Russell); Great Expectations (Charles Dickens);
Childhood's End (Arthur C Clark).

Kate M (some books I've read recently)**:**
A Good Time for the Truth: Race in Minnesota (Sun Yung Shin, editor);
Mathematics for Human Flourishing (Francis Su).

Katie (here are some of my fave from the past year)**:**
I'll Be Gone in the Dark (Michelle McNamara); How to be an Antiracist (Ibram X. Kendi); The Night Watchman (Louise Erdrich).

Caroline:
Pride and Prejudice (Jane Austen)

Rafe:
Middlemarch (George Eliot); O Pioneers (Willa Cather); Angle of Repose (Wallace Stegner); The Phantom Tollbooth (Norton Juster); Any collection of Calvin and Hobbes (Bill Watterson).

Rob:
The Einstein Intersection (Samuel R. Delany); Many Moons (James Thurber); The Song of Achilles (Madeline Miller); Riddley Walker (Russell Hoban); Remembrance of Earth's Past Trilogy (Liu Cixin); Numerical Linear Algebra (Lloyd N. Trefethen and David Bau III).

Mark (had a hard time narrowing it down to 5)**:**
Fiction: Pied Piper (Nevil Shute); Cry, the Beloved Country(Alan Paton); The Battle of Villa Fiorita (Rumer Godden); Fair Stood the Wind for France (H. E. Bates); The Lord of the Rings (J.R. Tolkien).
Non-fiction: The Summer Game (Roger Angell); The Pine Barrens (John McPhee); Scrambles in the Canadian Rockies (Alan Kane); On Playing the Flue (Johann Joachim Quantz); Better Bridge for the Advancing Player (Frank Stewart).

MurphyKate:
Anathem (Neal Stephenson); How Not to be Wrong (Jordan Ellenberg); Uprooted (Naomi Novik); Measurement (Paul Lockhart); Good and Mad (Rebecca Traister).

Adam:
The Pillars of the Earth (Ken Follett); Twelve Chairs (Ilf and Petrov); The Stormlight Archive (Brandon Sanderson); The Expanse series (James Corey); How to Brew (John Palmer).

Al G:
Neuromancer (William Gibson); 1984 (George Orwell); Elements of the Representation of Associative Algebras 1 (Assem Simson, Skowronski); A History of the World in 10 1/2 Chapters (Julian Barnes); Oh, the Places You'll Go (Dr. Seuss).

Steve S:
Draft Animals (Phil Gaimon); 1984 (George Orwell); Slaugtherhouse-Five (Kurt Vonnegut); Algebraic Topology (Allen Hatch); Flour Water Salt Yeast (Ken Forkish).

Stayed tuned for future issues when we reveal other fun facts about the profs and staff in the math/stats department!

Math/Stats Colloquium Series

The Math/Stats Colloquium Series will be held virtually Tuesday, October 20 from 4:00 pm - 5:00 pm, with an informal "tea" held before the talk at 3:30 pm where you can drop by and connect with others in the Math/Stats Department.

We are pleased to welcome James Sellers, Secretary of the Mathematical Association of America and Professor and Head of the Department of Mathematics and Statistics at the University of Minnesota Duluth. The Zoom details will be sent out via the mast-interest mailing list, so be sure to sign up!

Title: On Euler's Partition Theorem Relating Odd-Part Partitions and Distinct-Part Partitions

Abstract: In the mid-18th century, Leonhard Euler single-handedly began the serious study of integer partitions and made fundamental contributions to the area for the next few decades. In particular, he

proved a remarkable result which says that the number of partitions of the integer n into distinct parts equals the number of partitions of n into odd parts. My goal in this talk is to discuss Euler's impressive work on partitions, including snapshots of historical (original) publications of Euler, and then to describe numerous 20th and 21st century results which spring from Euler's original result. The talk will be self-contained and geared for both students and faculty alike.

Upcoming Events

Week 6

Tuesday, October 20, Math/Stats Colloquium: James Sellers

Week 10

Tuesday, November 17, Math/Stats Colloquium: Jessica Chapman

Job & Internship Opportunities

Undergraduate Research and Internship Symposium
Carleton's 2020 virtual Undergraduate Research and Internship Symposium is from 4:00 - 6:00 p.m. on October 16, 2020. We invite the student community to celebrate over 150 Carleton students who participated in research, internships, and fellowships. Students will share their experiences through posters, short videos, and chats with participants. This is an opportunity to find out what current students did and hear their advice for finding a great experience, especially learning about connections with faculty, staff, and community members who supported these experiences.

For more information, check out the website here.

Student Research at Another Institution (Kolenkow-Reitz Fellowship)

The Kolenkow-Reitz fellowship provides research support for Carleton students working with non-Carleton science and math faculty at another institution during the winter break. These research opportunities are intended to encourage Carleton students' development as scientists and their exploration of mathematics and the sciences as a possible career. Awards fund student stipends ($480/week for full time work) for up to 3 weeks during winter break. Additional expenses up to $150 can be requested to help defray travel or research supply expenses. Note that students must work full time in order to qualify. Before applying, students should have already contacted and discussed the nature and timing of their project with the person they are planning to work with as well as a faculty member at Carleton who can vouch for the project and its alignment with their professional development goals. Because the intent of the fellowship is exploration in STEM fields, priority is given to students who have completed coursework related to the proposed research, but who have not yet had a significant funded research experience (7 or more weeks). The application deadline is Friday, October 23, 2020 at 5:00 PM.

For more details and the application form, click here.

Problems of the Fortnight

PROBLEMS OF THE FORTNIGHT

To be acknowledged in the next *Gazette*, solutions to the problems below should reach me (by e-mail to mkruseme@carleton.edu) by noon on Tuesday, October 27.

1. Define a sequence (a_n) by

$$a_0 = 1,\ a_1 = 3,\ \text{ and for } n \geq 1,\ \ a_{n+1} = \frac{n+3}{n+1}\, a_n - \frac{2}{n+1}\, a_{n-1}\ .$$

The first few terms are $1, 3, 5, \frac{19}{3}, 7, \ldots$. Find the limit of the sequence, or show that the limit doesn't exist.

2. A bishop moves diagonally (as usual) on the white squares of a rectangular "chessboard", starting in one corner. When the bishop reaches a square along any of the edges of the board, it makes the only possible right-angle turn and continues moving diagonally. When the bishop reaches a corner (where no turn is possible) it simply reverses direction. Depending on the dimensions of the "chessboard", the bishop may or may not visit all the white squares; for example, on a square board the bishop will never get off its original diagonal, but on a 7×8 board the bishop will visit all the white squares. Find a necessary and sufficient condition on m and n for the bishop to visit all the white squares on an $m \times n$ board.

As of this writing, solutions to the problems posed October 2 arrived from "Auplume". (Technically, this is being written slightly before the deadline, because I am leaving town for the day. In any case, I'm still hoping for student solutions to those problems - which can be acknowledged in the next *Gazette*, and which are also still eligible for B.B.O.P. prizes.) Have a good midterm break, and good luck on the new problems!

- Mark Krusemeyer

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