

MSCS MESS

Department of Mathematics, Statistics, and Computer Science
St. Olaf College, Northfield, MN 55057
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Wednesday's Candidate Colloquium

Title: A Universal Taylor Series
Speaker: David Walmsley
Time: Wednesday, April 12, 3:30pm
Place: RNS 310

About the talk: You perhaps learned in Calc II that the Taylor polynomials of a function can do a very good job of approximating the original function. For example, the Taylor polynomials of $y = \sin x$ are quite well-behaved. In this talk, we will discuss the existence of a function whose Taylor polynomials behave in the worst possible way - its Taylor polynomials can approximate any continuous function whose graph passes through the origin! In other words, the Taylor series of such a function is as divergent as imaginable; its partial sums travel everywhere. Such a badly behaved Taylor series is called a universal Taylor series. Time permitting, we will also discuss a function whose successive derivatives behave just as wildly, some new research on what such a function can look like, and how you can get involved in this research.

About the speaker: David Walmsley is a graduate teaching associate at Bowling Green State University and is a candidate to join the faculty at Olaf next year.

Note that there will be a candidate colloquium on Wednesday, April 19th as well at 3:30pm in RNS 410 (not 310)—so save the date!

Monday's Colloquium

Title: Writing Numbers as the Sum of Factorials
Speaker: Suzanne Dorée
Time: Monday, April 10, 3:30pm
Place: RNS 310

About the talk: In standard decimal notation, we write each integer as the linear combination of powers of 10. In binary, we use powers of 2. What if we used factorials instead of exponentials? How can we express each integer as the sum of factorials in a minimal way? This talk will explore the factorial representation of integers, including historical connections to permutations, a fast algorithm for conversion, and the secret of the “third proof by mathematical induction.” Next we'll extend this representation to rational and then real numbers, ending with some remaining open questions.

About the speaker: Dr. Suzanne Dorée is a professor of mathematics at Augsburg College who claims an especial interest in teaching. Through one-on-one undergraduate research projects, Dorée shares her passion for combinatorics with math majors at Augsburg; to teach math to non-majors, even those with math anxiety, Dorée works to make math relevant with the assumption “that everyone can learn mathematics.”

MSCS Trivia Night

Honor. Glory. Fun. All of these things could be yours and more if you decide to attend the MSCS Trivia Night. We invite both

students and faculty to join us on Wednesday, April 19th from 7-8:30pm in the RMS 6th floor lounge for a fun night of trivia! Snacks will be provided and the winners of the trivia night will be honored with a MSCS Trivia Night trophy. We hope to see you there!

MSCS Recital

This year's MSCS Recital is scheduled for 7:00pm on Wednesday, April 26th in Ytterboe Lounge, and we are looking for students and faculty to contribute acts. Contact Ellen Haberoth (habero1@stolaf.edu) if you are interested. Spectators are more than welcome, too!

National Poetry Month

April is National Poetry Month, and while poetry and MSCS may seem intellectually antithetical, the two fields share points of conflict and tension, each having influenced and informed the other. For example, amazement over the structure of the sestina (a type of poem in which each line ends in one of six given

words and in each sextet every line ending is distinct from the other five) sparked early explorations into permutation groups, and the resulting math informed new poetic forms in turn.

Indeed, in her 2012 essay "Science v. Poetry,"¹ Priscilla Long contends that science and math "are old enemies, or else they are old lovers. The poet Albert Goldbarth writes, 'Perhaps the arts and the sciences have never slept together without one eye kept warily open.' However warily, though, they have slept together. There are points of connection, even intimacy."

So, to celebrate National Poetry Month, we would like to share poems that bring poetry and MSCS together and/or reveal feuds between the two. If you would like to submit your own poem or another poet's work, send us an email at brooke@stolaf.edu! We look forward to hearing from you.

¹ Long's full essay is available at theamericanscholar.org/science-v-poetry/#

To submit an article or event for publication in the Mess, email brooke@stolaf.edu; to receive the Mess digitally each Friday, email freking@stolaf.edu; visit <http://wp.stolaf.edu/mscs/mscs-mess/> for a digital archive of previous MSCS Mess issues.

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