SIAM
Society for Industrial and Applied Mathematics

20th Front Range Applied Mathematics Student Conference (FRAMSC)

UNIVERSITY OF COLORADO - DENVER

SATURDAY, MARCH 9TH, 2024

SPONSORS: THE SIAM STUDENT CHAPTERS AT
University of Colorado: Boulder, Colorado Springs and Denver campuses
Colorado State University, Colorado School of Mines, Metro State U. Denver, Colorado College, USAFA, U. Wyoming

The Front Range SIAM Student Chapters are organizing the 20th Anniversary Edition of the Annual Applied Mathematics Regional Student Conference. This event allows students from all universities along the Front Range to learn about new developments in Applied Mathematics and promotes interest in the field. The conference is open to _both_ undergraduate and graduate students.

Registration Information

This will be an in-person conference. There will be a $10 student registration fee for in-person participants, to defray the cost of the refreshments, and $20 for faculty. *All speakers and conference attendees should fill out a short registration form so we can keep you updated with any changes.* For more information and to register, please visit the website: http://framsc.org.

Call for Presentations

There will be 20-minute student presentations. An industry panel and a special MCM/ICM session will also be organized. Please send abstracts in LaTeX (.tex) or plain text (.txt) format to FRAMSC.abstracts@gmail.com. For more info, please check the conference website http://framsc.org or contact the organizers.

Abstract submission deadline is Friday, March 1st, 2024!

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Plenary Speaker

Dr. Daniel Larremore
Computer Science, CU Boulder

Countermeasures for Infectious Diseases

Abstract: For the applied mathematician, both vaccination and testing are fascinating infectious disease countermeasures. Why? First, their impact depends on how and when you use them, meaning that (i) their value is connected to a dynamics and (ii) there are associated optimization problems for their usage. Second, it's extremely difficult to directly estimate the effectiveness of either countermeasure at a population scale from empirical data, elevating the value of mathematical models that can predict impact from first principles. In this talk, I'll introduce and discuss such models for both vaccination and testing in the context of respiratory syncytial virus (RSV), influenza A, and SARS-CoV-2, alongside critical optimization problems: who should get the first doses of a scarce vaccine? And, how should we use the new wave of at-home rapid antigen tests for maximum impact? Finally, we'll reflect on how our understanding of the answers to these questions has changed since early 2020, and highlight a few other interesting open problems in the study of infectious disease countermeasures.

Bio: Dr. Daniel Larremore is an Associate Professor in the Department of Computer Science and the BioFrontiers Institute at the University of Colorado Boulder. He is also an affiliate of the Department of Applied Mathematics at the University of Colorado Boulder, and is a member of the external faculty at the Santa Fe Institute and in the Center for Communicable Disease Dynamics at the Harvard T. H. Chan School of Public Health. His research develops mathematical methods using novel combinations of networks, dynamical systems, and statistical inference to solve problems in two main areas: infectious disease epidemiology and computational social science. Prior to joining the University of Colorado faculty, he was an Omidyar Fellow at the Santa Fe Institute 2015-2017 and a post-doctoral fellow at the Harvard T.H. Chan School of Public Health 2012-2015. He obtained his Ph.D. in Applied Mathematics from the University of Colorado Boulder in 2012, and holds an undergraduate degree in Chemical Engineering from Washington University in St. Louis. He is the recipient of the Erdős–Rényi Prize from the Network Science Society and the Alan T. Waterman Award from the National Science Foundation.

For more information, visit the conference website:
http://framsc.org