

# MSCS MESS

Department of Mathematics, Statistics, and Computer Science  
St. Olaf College, Northfield, MN 55057  
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## Masks Required at MSCS Events

Please note that the MSCS department will continue to require masks at all indoor public events, including colloquia and seminars. If you plan to attend any of the department-sponsored events listed in this issue, come prepared with a mask!

### Today's Research Seminar

Title: Clamped Subcategories in Auslander-Reiten Theory (Pt. 2)  
Speaker: Prof. Ryan Coopergard  
Date: **Friday, October 1**  
Time: 3:30 PM  
Location: RNS 204

**About the talk:** In this continuation of last week's research seminar, we will talk about transporter categories, which combine the information of a poset and a group acting on the poset. We will identify a special subcategory called a clamped subcategory, whose Auslander-Reiten quiver relates nicely to the Auslander-Reiten quiver of the larger transporter category.

**About the speaker:** Prof. Ryan Coopergard is a St. Olaf grad and a recent University of Minnesota grad.

## MSCS Wall of Fame

The time has come to update the MSCS Wall of Fame board, located in the link between Tomson and RNS! If you're a major or a concentrator, feel free to email Ellen Haberoth (habero1@stolaf.edu)

a picture of yourself (suitable to send to grandparents). If you already have a picture up and would like it to stay, then there's nothing you need to do, and it's also okay to not have a photo on the board.

### Monday's Colloquium

Title: A Statistical Approach to Glacier Measurement Uncertainty  
Speaker: Prof. Laura Boehm Vock  
Date: **Monday, October 4**  
Time: 3:30 PM  
Location: RNS 310

**About the talk:** Quantification of glacial retreat is important for understanding the scope of climate change and its impacts. New technologies, including satellite imagery, allow researchers to create high resolution Digital Elevation Models (DEMs) of a glacier surface which can be compared over time. A proper measurement of the uncertainty (or standard error) of the mean elevation loss must account for correlation: elevation values recorded near each other are naturally more similar than ones far apart. Standard statistical methods for spatial correlation become computationally intractable for these large, high resolution datasets. CURI student researchers Kaya Gendreau '23, Oyo Lhamo '22, and Nate Trasowech '22 examined the accuracy of one standard error approximation developed by Rolstad et al. (2009) for different sizes, shapes, and types of glaciers. We will demonstrate this method on two very different glaciers: a small, debris-covered glacier in the Andes Mountains, and a large, relatively flat glacier in Iceland.

**About the speaker:** Laura Boehm Vock is an Ole grad, CIR alum, and Stats concentrator! She

completed her PhD in Statistics at North Carolina State University, exploring spatial variable selection methods with application in identifying types of air pollution that may be most harmful to human health. She has been back in Minnesota since 2013, teaching at both St. Olaf and Gustavus Adolphus College. She is happy to be starting her second year here at St. Olaf.

## Join the NEW Stats and Data Science Club!

Are you interested in Statistics and Data Science? Want to get to know other SDS concentrators, learning about SDS careers and opportunities? Join the **new** SDS Club! This will be a student-run club, so it will do whatever **you** want it to do. This could include choosing a colloquium speaker, making SDS t-shirts, coordinating a peer mentoring program, and plenty more. Email Prof. Boehm Vock (boehm@stolaf.edu) if you want to join or lead an Ole SDS Club! There is no commitment required, but we hope you'll join us in planning the club's planning and events!

### Next Week's Research Seminar

Title: Local Data of Elliptic Curves and Applications

Speaker: Alex Barrios

Date: **Friday, October 8**

Time: 3:40pm

Location: RNS 204

**About the talk:** Elliptic curves have provided the mathematical bridge for solving intractable problems in number theory such as Fermat's Last Theorem and possibly the *abc* Conjecture. Fermat's Last Theorem, first conjectured by Fermat in 1637, states that the only integer solutions to the equation  $x^n + y^n = z^n$  for  $n \geq 3$

satisfy  $xyz = 0$ . This is a stark contrast to the  $n = 2$  case, which has infinitely many integer solutions! In this talk, we introduce the *abc* Conjecture and show that Fermat's Last Theorem easily follows from the explicit form of the *abc* Conjecture! We then transition to defining elliptic curves and discuss the Modified Szpiro Conjecture (MSC), which is equivalent to the *abc* Conjecture. To better understand the MSC, we discuss the local data of an elliptic curve and show how recent work in this direction leads to a better understanding of the behavior of the MSC.

**About the speaker:** Alex Barrios is a visiting assistant professor of mathematics at Carleton College. He received his Ph.D. in mathematics from Purdue University. His research area is in arithmetic geometry, a branch of mathematics whose focus is on solving number-theoretic questions through techniques in algebra and geometry.

## ACM Game Night Next Week

The Association for Computing Machinery (ACM) is holding a game night on **Wednesday, October 6** starting at **7pm!** Head to the 6th floor lounge of RMS for pizza, games, and a chance to chat with fellow CS students.

## Actuarial Internship Opportunity

From an Ole alum: There is an actuarial internship opportunity with Blue Cross Blue Shield for next summer. The internship will be in-person, either in Minneapolis or in Fort Wayne, IN. Check out **this job posting** to learn more. If you have any questions about the actuarial internship application process in general, feel free to email any of the Actuarial Club's officers: Emily Noye (noye1@stolaf.edu), Carly Dammann (damman1@stolaf.edu), or Josh Kugel (kugel2@stolaf.edu).

*To submit an article, event, or anything else for publication in the Mess, email mcgowa2@stolaf.edu; to receive the Mess digitally each Friday, email habero1@stolaf.edu; visit <http://wp.stolaf.edu/mscs/mscs-mess/> for a digital archive of previous MSCS Mess issues.*

David McGowan, Editor  
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