

# MSCS MESS

Department of Mathematics, Statistics, and Computer Science  
St. Olaf College, Northfield, MN 55057  
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## Welcome to MSCS: Getting Involved

A warm welcome to any new faces in the MSCS Department, and a happy welcome back to everyone else! We're excited to be back together on campus this fall. In order to help everyone, especially people who are on campus for the first time, to find a place in our community, this issue of the MSCS Mess highlights many student organizations that MSCS students might be interested in joining. You can also learn more about these groups at the campus-wide Co-Curricular Fair on Saturday, September 18 from 11am until 1pm!

### Math Club/Pi Mu Epsilon

Math Club and PME are dedicated to promoting the community of mathematics at St. Olaf, both for majors in MSCS and the broader campus community. Math Club hosts social events, such as game nights and movie viewings. PME is a chapter of the national Pi Mu Epsilon Honor Society and opens its applications each year for new math students to join. Keep your eyes peeled for events over the semester! (For more info, email [askega2@stolaf.edu](mailto:askega2@stolaf.edu).)

### Association for Women in Mathematics

We are the St. Olaf College Association for Women in Mathematics chapter. AWM was founded in 1971 and our campus adopted the organization in Fall 2019. Our goal is to establish a community on campus to support students in the mathematical sciences, regardless of gender and sexuality. Throughout the semester we plan to host events, provide resources, and generally foster community among math students! (For more info, email [bratla2@stolaf.edu](mailto:bratla2@stolaf.edu).)

### Actuarial Club

The actuarial profession is a career where you get to apply math, statistics and economics to the real world, most commonly in insurance. At St. Olaf, we do not have a typical actuarial major, so the Actuarial Club strives to introduce underclassmen to the career, provide contacts and advice for when applying to internships, and overall help students mingle and learn from each other. Feel free to reach out to [damman1@stolaf.edu](mailto:damman1@stolaf.edu) with any questions and stop by and chat with us at the extracurricular fair!

### Sports Analytics Club

Sports Analytics Club is at the crossroads of numbers and sports. Our club works closely with a number of varsity sports teams at St. Olaf to help provide statistical insights from their performance data. While that is our main function, we also participate in nationwide competitions and conferences relating to data in the sports world as well as discuss fantasy sports and share our takes on other

sports happenings. New members are always welcome and no prior statistics experience is required! (For more info, email hart4@stolaf.edu.)

## Algorithms Club

Algorithms Club is to assist St. Olaf MSCS students in their preparation for technical interviews - a style of interview that many students will be challenged with throughout their careers. The club strives to aid those who have and have not yet taken Algorithms and Data Structures. Those who have not yet taken Algorithms and Data Structures or are unfamiliar with these concepts can come and start their preparation for the circumstance that they may be asked questions in an interview before being exposed to them in an academic setting. Those who have experience, such as those who have completed Algorithms and Data Structures, can come and review the concepts they have learned through a variety of tools available. (For more info, email clay7@stolaf.edu.)

## Association for Computing Machinery

ACM is a social space for those interested in computer science to meet people and gossip! Our plans for this year involve game nights, learning about underrepresented groups in CS, and talking about how classes are going. Our meetings are bi-weekly and no commitment; all are welcome! Email acmboard@stolaf.edu with any questions or to be added to our email list. A survey about meeting times and activities will be coming out soon.

## Linux Ladies

Linux Ladies is a female-led organization for diversity in computing and technology-related fields. We host speakers, organize networking events, set up coding/professional development workshops, and act as resources for women and other groups underrepresented in the field of technology. (For more info, email zhou10@stolaf.edu.)

## Monday Colloquium

Title:	Data Science in Cancer Genomics: Filtering Artifactual Mutations in Clinical Archival Samples
Speaker:	Prof. Jaime Davila
Date:	Monday, September 20
Time:	3:30 PM
Location:	RNS 310

**About the talk:** Somatic mutations are changes in DNA that occur during the lifetime of a cell and can result in cancer. Tests to detect somatic mutations are commonplace in the clinical treatment of cancer patients. Most clinical tests use archival pathology slides, which are preserved by a process known as Formalin-Fixation Paraffin Embedding (FFPE). An unfortunate consequence of the FFPE process is the generation of C to T mutations which are not present in the original sample. By using machine learning techniques, we recently identified a unique mutational signature present in FFPE tissues. In this talk we will describe excerno, a novel method for filtering FFPE artifacts. Excerno leverages mutational signatures, linear matrix decompositions, and Bayes' theorem. We will describe each of these techniques and illustrate how to use them to solve this problem. Finally, we will show the strategy used for validating excerno and some of our findings.

## Join the Problem Solving Group!

The Problem Solving Group invites you to its Fall 2021 kick-off! Come solve some fun problems, meet other enthusiastic students, and learn about opportunities to participate in two local team contests and a famous international contest. Professors Berliner, Davila, and Schultze are excited to meet and work with you! Also, there will be FOOD! **Free food!** No long term commitment is needed, just come on out and see what we're all about.

**Details:** Our Big Fall Kick-Off Meeting will be on Thursday, September 23, from 11:30am till 12:30pm, in RNS 410. Mark your calendars!

# Faculty Fresh Faces

We have many new faculty, between those who are joining the department this year and faculty in their second year who off-campus students never had the chance to meet until now! Here are some brief introductions for those who recently joined our MSCS faculty. Stop by their offices and say hi!

## Prof. Tyler Billingsley

Prof. Billingsley joined the department in fall of 2020. This semester, he is teaching Calculus I and Linear Algebra. His primary research interest is diophantine geometry, a field characterized by using geometric tools to solve number-theoretic problems; more specifically, he studies the arithmetic of elliptic curves. Outside of class, his hobbies are cycling and playing video games!

## Prof. Laura Boehm Vock

Prof. Boehm Vock joined the department in fall of 2020. This semester, she is teaching Advanced Statistical Modeling. Her research interests include spatial and environmental statistics. Outside of class, her hobbies are reading and gardening!

## Prof. Ryan Coopergard

Prof. Coopergard joined the department in fall of 2021. This semester, he is teaching Calculus I. He is a St. Olaf graduate, and recently completed his PhD at the University of Minnesota!

## Prof. Jaime Davila

Prof. Davila joined the department in fall of 2020. This semester, he is teaching Statistics for the Sciences and a topics course, High Dimensional Data Analysis. His research interests are in applying machine learning and data science approaches to ge-

nomics and transcriptomics. Outside of class, his hobbies are reading and walking (but rarely the two at the same time).

## Prof. Alex Knutson

Prof. Knutson joined the department in spring of 2021. This semester, she is teaching Statistics for the Sciences. Her research interests include statistical neurogenetics, particularly in application to Alzheimer's Disease, and methods for analyzing trans-ancestral genomic data. Outside of class, her hobbies include skiing, singing in local choirs, and building furniture!

## Prof. Adam Schultze

Prof. Schultze joined the department in fall of 2021. This semester, he is teaching Calculus I and Calculus II. His research interests include algebraic combinatorics. He is originally from Michigan, and recently completed his PhD at University at Albany!

## Prof. Adam Wood

Prof. Wood joined the department in fall of 2020. This semester, he is teaching Calculus I and directing Independent Research. His research interests include representation theory of finite groups, particularly in positive characteristic, and some algebraic geometry. Outside of class, his hobbies are running and cycling!

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

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