

MAST MESSENGER



Math and Stats Colloquium

Title: Type I Error Control and Interim Monitoring for Co-Primary Hypotheses Involving a Subgroup

Speaker: Lianne Siegel, Assistant Professor of Biostatistics and Health Data Science, University of Minnesota

Time: Tuesday, Jan 23rd, 4:00-5:00 pm

Location: CMC 206

Abstract: The recent growth of immunoglobulin-based therapies has motivated clinical trials testing primary endpoints both in the overall cohort and in subgroups of patients, such as in patients without specific antibodies at baseline. Existing multiple correction methods in clinical trials often ignore the natural correlation between test statistics in such contexts, resulting in overly conservative type I error control. Motivated by OTAC, an ongoing Phase III trial evaluating the effect of a single infusion of anti-COVID-19 hyperimmune intravenous immunoglobulin (hIVIG), in outpatient adults with recently diagnosed SARS-CoV-2 infection, in both the overall cohort and in the subgroup of participants who had not received monoclonal antibodies or antiviral treatments, we propose a method to control the type I error at a predetermined rate while taking the estimated correlation into account, thus increasing efficiency. Extensive simulation studies indicate that the proposed method controls the type I error at the desired rate, improves power, and reduces the expected sample size compared to a Bonferroni correction.

IN THIS ISSUE

**MATH & STATS
COLLOQUIUM**

**KONHAUSER
PROBLEMEST 2024**

**SUMMER RESEARCH AT U
OF MINNESOTA**

**PROSPECTIVE MAJOR AND
MINOR MEETING**

**STUDY MATHEMATICS OR
MATH EDUCATION IN
BUDAPEST**

UPCOMING EVENTS



About the speaker:

Pronouns are she/her. Degrees: BA in Mathematics/Statistics in 2017 from Carleton College, PhD in Biostatistics in 2021 from the University of Minnesota (supervised by Haitao Chu). Areas of research: My methodological research interests include statistical methods for meta-analysis and the design and analysis of clinical trials. I am currently supporting clinical trials of COVID-19 therapeutics conducted by the Coordinating Centers for Biometric Research (CCBR) and am particularly interested in applications in critical care medicine. I also work with investigators within the Minnesota EHR Consortium on analyses synthesizing data from electronic health records across multiple Minnesota health systems.

Konhauser Problemfest 2024

Do you enjoy solving (and attempting) challenging but very fun math problems with a group of friends? If so, you might want to sign up for this year's edition of the [Konhauser Problemfest](#).

The contest, which is named after the late Macalester professor and legendary problem poser Joe Konhauser, is a premier local problem-solving event. Teams of up to three students get three hours to work together on a set of ten challenging and intriguing math problems. The winning team gets to take the famous granite "pizza trophy" home to their college for the year. We have been hosting the trophy for the past three years, and it would be great to keep it here fourth year running!

This year's Konhauser Problemfest will be held on **February 24** at **Macalester College**. If you're interested in participating, please let me know (sshrestha@carleton.edu). Three people can sign up as a team, but individuals are also welcome to express interest -- it should be possible to find some teammates for you.

Additionally, if you are interested in problem solving in general, we have a group that meets every week to work on some cool problems. Let me know if you want to be added to the problem solving email list to find out more.

Summer Research at University of Minnesota (Data Science/Bias in Data)

The University of Minnesota Division of Biostatistics & Health Data Science and the Masonic Institute for the Developing Brain invite undergraduate students to apply for the [Equitable Data Science](#) in **Adolescent Development Summer Research Program for Undergraduates**.

This will be an experience where you will have the opportunity to:

- Investigate sources of bias in data
- Evaluate fairness in statistical models
- Tweaking existing model to make them more fair
- Compare performance of statistical model across various populations

Important info!

- Dates: **June 3, 2024 – August 9, 2024 (10 weeks)**
- Expected time commitment: full day, with occasional field trips
- **\$6000 stipend**
- U of M Twin Cities-campus dormitory housing and meals provided
- Travel reimbursement up to \$740

The deadline to apply is January 31, 2024 at 11:59 p.m! (contact professors early to ask for a letter!)

Go [here](#) for more info and click [here](#) to apply!

Prospective Major and Minor Meeting

Are you considering majoring or minoring in mathematics or statistics? Stop by CMC 206 on Tuesday, January 30 from 4-5pm! You'll get a chance to learn about the department, hear about the **new Stats-Data Science minor**, meet some faculty and students, and enjoy some free snacks. All are welcome to attend.

Study Mathematics or Math Education in Budapest



If you are interested in studying abroad in mathematics, the Budapest Semesters in Mathematics program and its sister program BSME in math education are two you should consider.

BSM can be done in the fall semester, spring semester, or over the summer, though Carleton students tend to go in the fall or summer (since to do the spring semester you'd need to miss both winter and spring terms at Carleton). BSME is a summer program for those interested in math education.

Because Carleton sends so many students to these programs (Carleton sends more students to these programs than any other college or university!), we have a special arrangement with the directors. Students interested in applying to either of these programs apply to our department first, and we send on to the directors our recommendations for students all at the same time. That is, you do need to apply to our department, but then you do not need to ask faculty to write individual recommendations for you.

Would you like to learn more about the programs and see how to apply at Carleton? Here's the [link](#). **Applications to our department are due Friday January 26, 8am.** This is much before the actual deadline of the program because BSM accepts students on a rolling basis, and we encourage you to get your applications in early.

If you have questions about this process, please contact Deanna (dhaunspe).

Upcoming Events

1/30/24	Prospective Major and Minor Meeting, 4-5 pm in CMC 206
2/6/24	Math/Stats Colloquium, Marissa Loving, 4-5 pm in CMC 206
2/13/24	Math/Stats Group Comps Presentations, 3-6 pm in Olin 141
2/14/24	Math/Stats Group Comps Presentation, 5-6 pm in Olin 141
2/20/24	Math/Stats Independent Comps Presentations, 3-5:30 pm in CMC 206/209
2/22/24	Math/Stats Independent Comps Presentations, 3-5 pm in CMC 206

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