The Colorado State Torus

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We're All Like a Family Here

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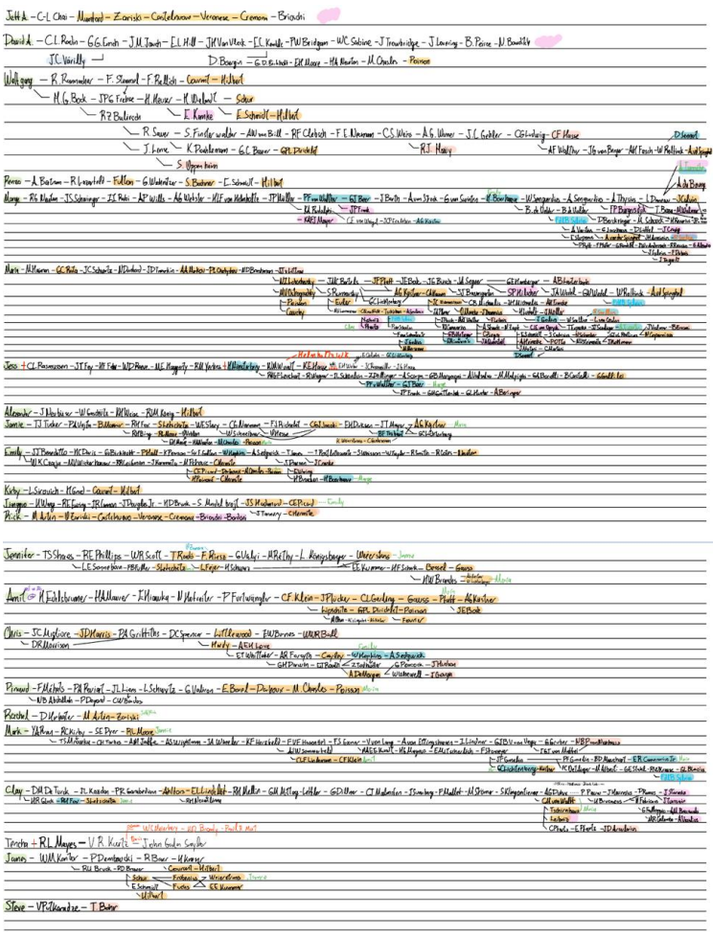
Around May just before summer started, I was thinking about the question

What if you and I are mathematical cousins?

Really quickly, the answer surprisingly is that we're not necessarily cousins. The way this search was conducted was through `mathgenealogy.org`, `wikipedia` and some more refined searches when information couldn't be found on either of those sites. I should also be specific on who I looked for: it was genealogies of professors who, to my knowledge, had students whom I have met. This rough draft was what I came up with at the time:



Refining it a bit more, looking for the most recent common ancestor, the tree was distilled into 5 most-recent common ancestors: Nathaniel Bowdich, Marin Mersenne, John Galen Saylor, Jakob Thomasius, and Oscar Zariski.

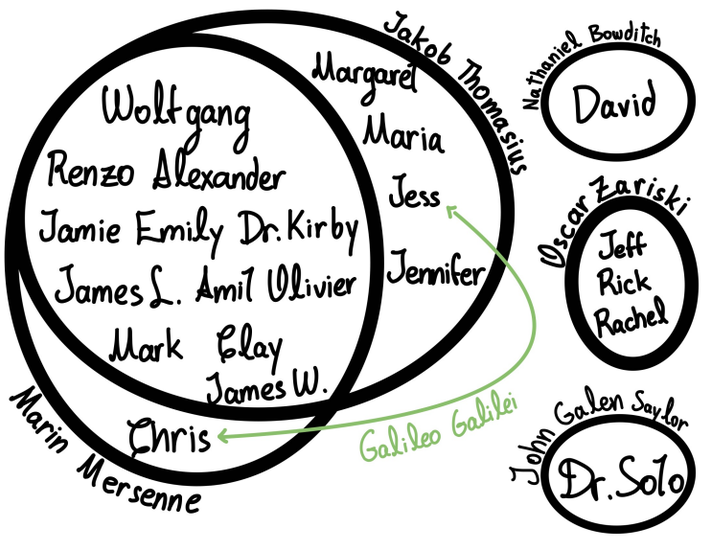
You may know about Mersenne and Zariski, from the acclaimed Mersenne primes or Zariski topology. But you may have never heard of the other three. Bowditch was a maritime navigator and mathematician who lived between the 18^{th} and 19^{th} centuries. Around age 18, he learned French and Latin in order to read works from Newton for example. Later, more books were made available as a privateer from Salem caught a ship carrying the collection of the British chemist Richard Kirwan and took it back. Bowditch was the advisor of Benjamin Peirce, from who our own David Aristoff descends from. The *American Practical Navigator* is Bowditch's most important work and can be found freely available in the most recent 2024 edition online. More can be read about Bowditch on the book *Yankee Stargazer* by Robert Elton Berry.

On the more recent side, John Galen Saylor was an American educator. Along William Alexander, he created a new curriculum model to be used in secondary schools. Based in UNL, he is the academic ancestor of our own Dr. Soto. Tracing this lineage was a tad bit harder as Saylor only appears credited in V.R. Kurtz' thesis as his advisor and nowhere else. The curriculum model I mention is the Saylor-Alexander-Lewis curriculum development model in which decisions about what, how and when topics are taught are made from a top-down approach.

Finally Jakob Thomasius was more of a philosopher than a mathematician who lived during the 17^{th} century. Leibniz often discussed with Thomasius through let-

ters, discussing topics such conciliating the Aristoltelian and mechanical philosophies. From Thomasius descend mathematicians such as Pfaff and Gauss. They are up there in the family tree. It is important to remember that we mathematicians come from thinkers who at the time were philosophers.

Without further ado, the following is our family tree:



Interestingly, Chris doesn't descend from Thomasius. When looking at his common lineage with other professors I found Mersenne to be the common ancestor. Sadly, this left Margaret, Maria, and Jennifer out of the lineage from which Chris forms a part of. I was able to find a link however with Jess! Both Chris and Jess descend from Galileo!

Some of you may also have heard me mention a certain character Adriaan van den Spiegel when walking me through the hallways or on campus. I thought he was our common ancestor when doing the draft version of the tree. But refining the search and my finding the most-recent common ancestor led me to other people. van den Spiegel is an ancestor of everyone in the Thomasius set except for Olivier, who is van den Spiegel's great-great-....-great grand nephew though. Another interesting fact is that van den Spiegel and Thomasius are actually not related, the lineage comes from Pfaff's advisor Johann Elert Bode. Pfaff's other advisor A.G. Kästner is the great-great-grand advisee of Otto Mencke, who was Thomasius' student.

With this, I'd like to restate that we're all a family here. Be it in the sense of academic relationship, coworkers, friends or even actual family. Personally, after three years of being in CSU, the community (students, faculty, staff, and more) has played an important role in my wellbeing, feeling welcome and received, and in knowing that there's people there for me and people who I can be there for. To the first years, welcome! I sincerely hope you may enjoy this experience as much I have, and to everyone else: thanks! Thanks for being a part, for being there when I have needed you and thanks for trusting me in moments where I have been able to help.

As a final note, I would encourage the interested reader to complete the labor with every faculty member's academic lineage. As I mentioned, this tree is restricted to those professors had students which I had knowledge of up to May 2025. If you are such an example, I will be glad to share with you the materials for the search.

Welcome Back!

Welcome to the 2025-2026 school year from the Colorado State Torus! If you are new, or somehow forgot about us :(we are a graduate student run newsletter for the CSU Mathematics department. We here at the CST look forward to bringing you interesting articles like this fascinating article by Ignacio. Thanks Ignacio! In addition, we want to share information about the department, other opportunities around campus, and much more. Do you have an idea for an article, puzzle, ad, or column? Please send it in to math_coloradostatetorus@colostate.edu and we'll be sure to include it in next month's edition.

If you are interested in becoming an editor for the Torus, we are currently accepting applications for a third editor. Contact us to learn more.

Have a great semester!

- Joe and Ian

Sam Scheuerman wins the Graduate Student Representative Position

After an intense week of campaigning, the race for a new graduate student representative has been called in favor of Sam Scheuerman. In an exclusive interview with the Torus, Sam Scheuerman shared with us:

"I appreciate the support everyone has shown me, and I want to thank Jacob for running a clean race and representing the pure math party. I think right now, it is especially important that we as graduate students have our voices heard. I hope to continue the work of my predecessors in bridging the gap between graduate students and faculty. Thank you all for allowing me to advocate for and support the graduate body this coming year"

Many experts are asking if Sam's Victory represents a political shift in the department: with Sam being the first representative coming from Applied Math party in over three years. This may signify the end of the Pure Math parties nearly continuous 3 year reign, with the exception of the Math Education parties Kaylee Fantin-Hardesty who held the position for one semester. Other experts believe the results of this election signify increased collaboration, pointing towards Sam and Jacob's previous work together as Greenslopes organizers.

After the results, Jacob shared the following in his concession speech:

"I want to congratulate Mr. Scheuerman on running an excellent campaign. Sam has my full confidence that he will proudly serve like those who have held this noble office before him. Many thanks to the members of the Pure Math Party for their nomination, and to the voters who voted for me in the general election. I look forward to the Pure and Applied parties working together moving forward towards our common goals."

Catching up with the Grad Students

Nate Collins attended an SLMath summer school in Leipzig.

Parker Montfort spent much of her summertime being feral and dancing around in the trees.

Did you know every plastic toothbrush ever made still lingers? Try bamboo with natural bristles–you may never return!

Page Wilson worked on finding a doctoral thesis topic and learned to make bread from scratch.

Many from the math department were spotted at Tour de Fat this year. Hopefully next year there will be even more.

Alissa Romero went camping and hiking with her husband.

Ian Jorquera competed in the Mugs T-shirt competition but did not win.

In July, Kristina represented our SIAM student chapter at the SIAM Annual Meeting in Montréal. Much poutine was consumed.

Joe Geisz went on a family trip to southwest Germany.

Kylie Schnoor went bird watching this summer

Joel Barraz Nava began reading Volume 3 of Capital by Karl Marx.

Linley Bosse spent much needed time in the woods with her family.

Some students are starting to wonder if the art/things hanging in the grad offices have been there longer then some of the grad students have even been alive.

Send in your updates, questions, or comments to be included in October's edition.

Problem of the Month

Given

$$\int \frac{1-7\cos^2(x)}{\sin^7(x)\cos^2(x)}dx = \frac{g(x)}{\sin^7(x)} + c$$

Find $g'(0) + g''(\frac{\pi}{4})$.

How I'm Learning to Stop Worrying and Just Write

Kristina Moen

I walk into LSC 372 at 8:30 a.m., set up my laptop and keyboard, and stack the papers I'll need. My phone is off and in my backpack. My water bottle is filled. A few students gather by the coffee and snack station. I join them. We nod, silently acknowledging the work ahead. Today is about writing. Before we begin the retreat, facilitator Kristina Quynn invites us to share our intentions. Speaking my goals aloud to a room of strangers feels surprisingly impactful. I've made a commitment to them and to myself. At the end of the day, we'll reflect. Some of us will have found flow; others are simply proud they showed up and faced the page. Before we close our laptops, we set goals for the next writing session. This rhythm of intentions, writing, and reflection is familiar by design. We are developing sustainable writing habits that will last through our careers. This is CSU Writes.

CSU Writes helps grad students write for class, publication, and degree completion. I'm a mathematician. I love numbers, patterns, and proofs. I appreciate a good problem set. But to earn my math PhD, I will need to write. A lot. CSU Writes offers retreats, workshops, and drop-in sessions that give me time and space to write consistently and joyfully. And there are perks: mugs, stickers, community. Learn more and register at csuwrites.colostate.edu/grad-writes/

Intramural Ultimate Frisbee is Back!

Are you interested in playing some semi-casual ultimate frisbee on Monday nights at 8:30pm? This year we are hoping the beat the stats department, who already has a team of 14 players. If you are interested, contact Ian Jorquera or Chris Liu, the team captains and they will add you to the team.

Foto(s) del Mes

This edition, we have two photos. The first is from orientation week, in the tilt great hall. The second is from the growing food security farm. Thanks to Ignacio for the photos.

New Faculty Spotlight

Dr. Joe Antonides

My name is Joe Antonides, and I'm excited to start this fall as a tenure-track Assistant Professor in the Department of Mathematics. Before coming to CSU, I was a postdoc at Virginia Tech under the mentorship of Anderson Norton, and I completed my graduate studies at Ohio State where I was advised by Michael Battista. My research is in mathematics education, with a primary interest in mathematical psychology and epistemology. I'm generally interested in cognitive processes involved in students' mathematical reasoning and sense-making, as well as the nature and structure of mathematical knowledge itself. I draw on Piagetian genetic epistemology and related theories to build models that can explain and predict students' mathematical thinking. More specifically, I'm interested in spatial reasoning across domains of mathematics, especially at the undergraduate level. I'm also interested in students' combinatorial, logical, and quantitative reasoning, and how we as teachers and researchers can support students to build increasingly powerful and generalizable understandings.

I am very excited to begin this new chapter of my life in Fort Collins. My partner, Wesley, and I enjoy hiking and exploring nature trails. We also like to play board games, with a modest collection of about 150 games currently, and I enjoy cooking and baking plant-based foods of all kinds. Feel free to drop by my office and say "hello!"

Next week's spotlight: Dr. Ben Knudsen

Math Madlibs!

Ashley Armbruster

One _____ (adjective) morning in Fort Collins, I woke up to the sound of a _____ (animal) making _____ (plural sound effect) outside my window. I quickly put on my _____ (adjective) _____ (piece of clothing) and grabbed my _____ (noun) before heading out the door.

I decided to start my day with a visit to _____ (place in Fort Collins), where I saw a group of _____ (plural noun) dancing to _____ (music genre) music played by a _____ (adjective) band named "The _____ (plural noun)."

I stopped to take a photo with a _____ (color) mural of a _____ (mathematician) riding a _____ (vehicle) while eating _____ (food). After laughing for _____ (number) minutes, I walked _____ (adverb) down the street toward _____ (local business) to buy a _____ (adjective) _____ (noun) as a souvenir.

On the way, I passed a _____ (adjective) festival happening at _____ (Fort Collins landmark). There were booths selling _____ (plural noun) and even a _____ (adjective) contest where participants had to _____ (verb) while balancing a _____ (noun) on their head.

I joined in and somehow won _____ (number) tickets to a secret _____ (event) at _____ (place) that night. Before heading there, I met up with my friend _____ (person's name), who brought their pet _____ (animal) named _____ (name) wearing a tiny _____ (piece of clothing).

We ordered _____ (number) servings of _____ (food) and drank _____ (plural bevergaes) until the sun turned _____ (color). As the evening ended, we rode home on a _____ (adjective)

_____ (mode of transport), laughing about the time we saw a _____ (adjective) _____ (animal) doing _____ (verb ending in -ing) in Old Town Square.

It was the most _____ (adjective) day I've ever had in Fort Collins!

September '25 Crossword

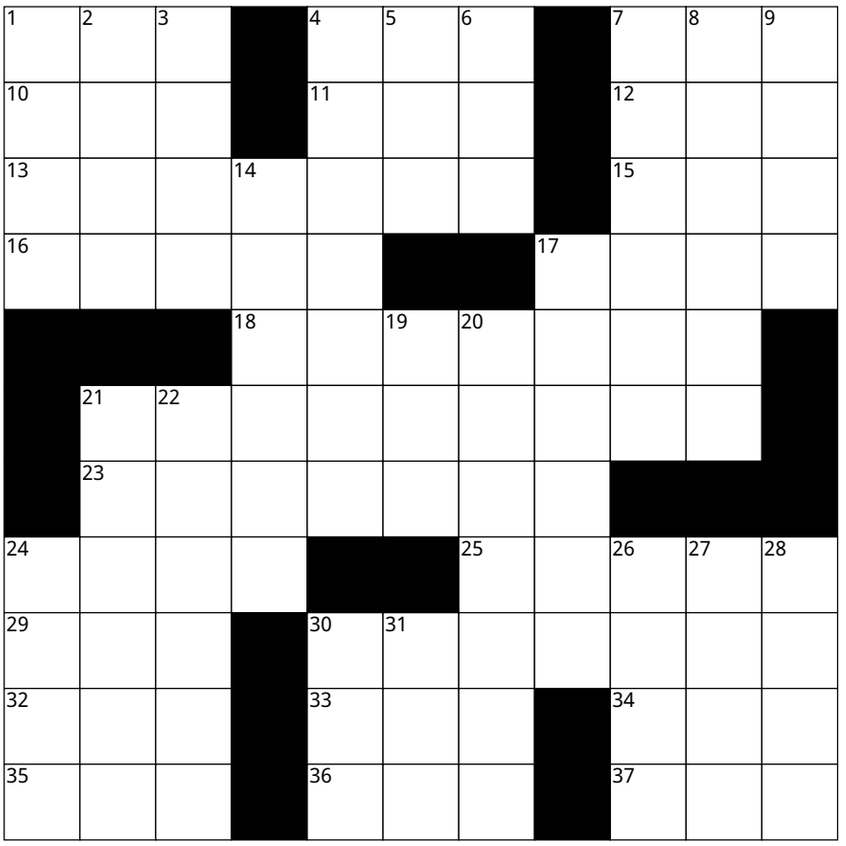
Kyle Salois

ACROSS

1 Humanities maj.
4 Actress Arthur
7 "Because seven ___ nine!" (punchline)
10 Odell option
11 Ancient vessel
12 Lily ___
13 The sequence 1, 1, 2, 5, 14, 42, 132, ...
15 Revolutionary Guevara
16 Coil
17 Suffering
18 Recipe step
21 The sequence 0, 1, 1, 2, 3, 5, 8, ...
23 Paperwork?
24 Gator's kin
25 ___ nous (between us)
29 Certain recyclable
30 The sequence 1, 1, 1, 2, 2, 3, 4, ...
32 Movie FX
33 Something you either want, or don't, around your neck
34 Boring, in modern slang
35 Chest muscle
36 What's up?
37 TV annoyances

DOWN

1 Agreement
2 Salad
3 Snowy creature
4 University of Georgia athlete
5 Span
6 Raggedy ___
7 Integral H.S. course?
8 Island near Bora Bora
9 Biblical paradise
14 Numeral system
17 "The Godfather" actor
19 Genetic info
20 Shipping option
21 Search, as for food
22 Paradoxical
24 Letters on Sputnik
26 Rating for "The Last of Us"
27 Plunder
28 They might be split or burnt
30 Viewer-supported network
31 "Peachy!"



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