9 770705 041004

"HOW DID YOU SPEND THE VICTORIA DAY WEEKEND?"

Hello **mathNEWS** enjoyers here and everywhere, and welcome to the new term! This is admittedly my first ever term as editor, so I'm still learning the ropes (and trying to fit none pizza in the budget). Feel free to reach out to me about any ideas, suggestions or feedback that you may have. I have had the pleasure of meeting many of you the past week or so and I have to say I am enjoying the job so far. Long live **mathNEWS**!

This issue is as always quite exciting — we have some writers going on about some incredible bagels, some lamenting the death of their hair, some reliving their childhood memories thanks to some incredible biryani, and some reaching the heights of investigative journalism by measuring slopes around campus. We also have a huge article on MathSoc updates to keep you posted and involved with the math community. Along with all that, we also managed to finally trap evaluatED in a room and force him to answer all your important questions. *[Editor's note: let me out let me out let me out let me out let]*

Can I take a moment now to complain about the weather? What is happening up there??? One day it's cold enough to make me forget that it's "summer," the next it's hot enough to make me forget that I'm in Canada. Pick a side Waterloo smh.

Anyways, I can't believe it's spring already (mainly due to May getting off to a breezy start). Make sure to take it easy this summer and enjoy the nice sun we get before it's all gone and we go back to being a frozen hellscape. On the topic of relaxing, I hope you all had a fantastic long weekend. I'm not sure why the university made Tuesday a make-up day for Monday, only to then make up for the missed Tuesday by declaring a make-up day much later, but a holiday is a holiday. Speaking of which, I dare one of you to explain to me what Victoria Day is. Wrong answers only.

As always, enjoy reading this issue of **mathNEWS**. It looks like we might be returning to a shorter issue size after a few terms of regular 50-page, wallet-lightening issues, although this could be owing to production night falling on Victoria Day, so we'll see what happens. Stay tuned to find out! Speaking of, you (yes, *you*) should come write for **mathNEWS** at our next production night. Friends and free pizza to be had. Check the **lookAHEAD** on the back page for details.

awED
Editor, **mathNEWS**

DICK SMITHERS	Making a new, better Victoria to venerate. Down with the false Victorias!
NO PUN INDENTED	20 hours of school. 0 hours of dating. 0 hours of showering.
TENDSTOFORTYTWO	eating delicious, delicious bagels
LWO	Being at a funeral for my great-aunt :(
NORMALPARAMETERS	watching the blue jays lose at baseball
__INIT__	eating bagels and sleeping
MOLASSES	reviewing bagels at 7am :)
ARC	played way too much zelda and got absolutely no work done
TR1E@WONDERLAND	I went to Wonderland and broke my back. Funnel cakes were okay, I love Planet Snoopy tho.
YUMMYPI	resting my mind and nourishing my spirit (both of these involve neglecting my assignments)
WINK WONK	peeing, pissing even
JEFF	mmm Chicken m yum miam chimken ch i
LABYRINTH	Victoria Day weekend isn't a currency, how can I spend it?
LARS NOOTBAR	Distributed propaganda for the Monarchist League of Canada
YALEVOYLIAN	Refactoring a C++ game engine and baking cookies
PREDAP	Went home and ate maybe too much barbeque
CUTLET	finished Neon Genesis Evangelion 😳
PLATYPUSGOD	Free from coursework... for now
AWED	Writing for **mathNEWS** whilst sleeping!
DISTRACTED	prepared this term's **mathNEWS** budget (making sure no extra money is budgeted for none pizza left beef)
EVALUATED	Draining the **mathNEWS** bank account 💰💸

ARTICLE OF THE ISSUE

There were many quality articles this time around. So many, in fact, that we deferred this all-important decision to the divine oracle known only as The **mathNEWS** Editor. After a series of prolonged rituals, they instructed us to award article of the issue to cy for their article, PHY 153 Study Room. Come pick up your $25 gift card in MC 3030!

evaluatED
Editor, **mathNEWS**

I assure you my puns are not awe-ful.

AWAB QURESHI, math**NEWS** EDITOR FOR SPRING 2023
ALONG WITH EVAN GIRARDIN AND DANIEL MATLIN

mathASKS 152.1
FEATURING mathNEWS EDITOR EVALUATED

LWO: HOW DOES IT FEEL TO BE THE mathNEWS/PMC VERSION OF FERIDUN (A FORMER UW PRESIDENT THAT WAS EXTREMELY MEMED, FOR THOSE NOT IN THE KNOW)?

Well, that's an opener! Uhh… Foreign, maybe? It's not something I've ever experienced before in my life. I don't really understand why people have rallied behind me so much and made me such a figure. Is it just because I've helped run a bunch of things? I guess I just care about a lot of things and so I appear in a lot of places, so I'm kind of recognizable. I don't think I'm really the most interesting person, nor do I see myself as the most charismatic or energetic person. I'm a little awkward, to be honest. I don't know if I deserve it.

It can feel a little isolating sometimes — being "known" by many people, but not feeling more deeply *known* by very many people. I've sometimes felt helpless, having so many surface-level connections with people but feeling incapable of deepening many of them. But it's probably better than not being known of by many people at all, right?

In any case, my final answer is that I am very humbled by it, even if I don't understand it :)

ROBBOTC: WHAT'S YOUR FAVOURITE FONT AND WHY? WHY IS/ISN'T IT USED IN mathNEWS?

Different fonts for different contexts. It depends on what feelings you're trying to deliver. I guess some nice fonts are *Gotham*, *FF DIN*, and *Eurostile*. The first font appears in the MathSoc logo (and University of Waterloo logo), the second font appears in the **mathNEWS** logo, and the third font has cool vibes.

CUTLET: FAVORITE CS COURSE?

I haven't taken CS 444 or 442 yet, and I expect to like those courses. Of the courses I *have* taken, though, CS 241 left a great impression. The course notes were super engaging, the topics were fun to learn, and the assignments felt really good to work on. It's probably one of the best-structured CS courses at Waterloo, and it boosted my interest in compilers and languages a lot. An honorable mention goes to CS 146; some people don't like it because it's a little scattershot in its topic selection, but I thought the topics were well-framed and the course as a whole had a very particular *attitude*. In any case, it made me a whole lot more interested in language design and functional programming. A big part of it is probably just that Lushman is such a good teacher.

UKNIGHTED: WHAT'S YOUR FAVORITE PART ABOUT EDITING FOR mathNEWS?

This is something unique to editing in Winter 2023, but I had a lot of fun putting together the designs for the 50th anniversary issues. It felt really good to surprise people with these faithful callbacks to the **mathNEWS** of days past. I worked really hard on them and I'm glad people liked them (I think) — it made me really happy to hear people saying things about the issues that term. I don't know if many people read all the **mathASKS** — they were pretty long — but that's ok! I'm thankful to everyone who picked up an issue last term.

Having the opportunity to meet Steve Treadwell last term was really incredible too. I never thought that I'd be sitting across from one of the founding editors of **mathNEWS**! I guess that wasn't directly "part of editing **mathNEWS**", but the 50th anniversary volume gave me a good reason to pursue it :)

CUTLET: FAVORITE KIND OF MEAT?

I decline to comment on "favorite food" type questions in general since food preferences vary strongly across hours.

…With that said, I maintain that *chicken* is the most *versatile* meat. It pairs well with more dishes than any other meat, there are more ways you can cook it, and it tastes pretty good! Plus, without chicken, we would've never gotten the masterpiece articles Report of The First Plenary Session of the Korean Fried Chicken Council (KFCC) and Report of the Second Plenary Session of the Korean Fried Chicken Council (KFCC) from **mathNEWS** 149.6 and 150.6 respectively.

CHICKEN ISN'T MY FAVORITE MEAT I LIKE CHICKEN A NORMAL AMOUNT OK I'M JUST COMMENTING ON SHARED HUMAN EXPERIENCES STOP GRILLING ME OVER THIS

BOLDBLAZER: ARE YOU GOING TO BE AN ETERNAL EDITOR?

I'm graduating next year, so I guess not. Wouldn't want my ghost sticking around and cluttering up the place! The **mathNEWS** office is tight enough on space as it is.

__INIT__: HAVE YOU KEPT UP WITH mathNEWS AT ALL SINCE FINISHING UNIVERSITY?

You're treating me like a ghost and I'm not even dead yet?! I can't believe this.

TENDSTOFORTYTWO: WHAT'S YOUR FAVORITE PROGRAMMING LANGUAGE AND WHY IS IT SCALA?

The chaotic answer: Bash, but only the POSIX-compliant parts.

The real answer: You know, for all the funny language talk I do, I don't actually know that many languages. At this point the only ones I know thoroughly enough to speak on their design qualities are C++, Scala, and, unfortunately, Java. Oh, Racket too, I guess. So maybe my opinions on this aren't very useful.

Scala is interesting because, on its own, it's a *really* nice language; it's got some really nice syntax, has great first-class treatment of functions and higher-kinded types, and has these tasteful expression-oriented and functional flavors. Rapt by these qualities, it's easy to forget that it's built on the JVM and gets collapsed down into ugly Java code (this is the price to pay for Java interoperability). This makes it feel a bit less "real" in some sense, but there are more concrete consequences: namely, it inherits Java's shitty package system, shitty compile times, and shitty build systems. Also, the shitty JVM performance, I guess.

C++ is… well, there have been plenty of articles written in **mathNEWS** in the last few years that are more or less reflective of my perspectives on C++. It's fast, I like it a lot, and I'm very comfortable with it, but it can definitely get hard to read and has its share of safety concerns.

So anyway, my favorite language is Bash.

CUTLET: WHY IS PYTHON YOUR FAVORITE PROGRAMMING LANGUAGE?

No

TENDSTOFORTYTWO: WHAT DOES mathNEWS MEAN TO YOU?

I've had a lot of involvement in student groups and that sort of thing in the last few years, but I think owe it all to **mathNEWS**. I've also been lucky enough to make some really great friends in the last few years; indirectly or not, I also owe this to **mathNEWS**.

I started writing for **mathNEWS** in 2019, and it's been my one throughline throughout. In my first year, I was pretty isolated from others (this was before COVID came around). Most of the people I was around in my advanced classes were obnoxious and I couldn't see myself being friends with any of them; lectures are pretty bad for making friends no matter what, and I was either completely uninterested in or intimidated by most groups and clubs around campus. I also came from rural Newfoundland, not the GTA or whatever, so I was a bit culturally distant from a lot of the people I ran into. Basically, it sucked. But the one thing I always showed up to, ever since reading through my orientation issue, was **mathNEWS**.

I felt a little lonely at **mathNEWS** too, at first. I got to recognize faces over time, but it always felt kind of like I was floating in my own bubble at production nights. People had established friend groups, and it's hard to insert yourself into a conversation you're not part of. COVID actually ended up helping a lot here — with everyone forced into a one-room Discord call, everyone kind of has to talk to each other and get to know each other! But yeah, I slowly got to know people online, and I guess I eventually started to assimilate into the culture and group.

Indirectly, **mathNEWS** also led me to PMC — I walked by the office sometimes in first year, but it was always pretty full and I was too shy to walk in. But I ended up getting involved with it pretty quickly through some people I knew in **mathNEWS**, and when we returned to campus in Fall 2021, it felt like I had a fresh start with a bunch of people I could talk to and hang out with. For the first time, I had a sense of belonging and community, and I didn't feel so lonely anymore.

I've also long been fascinated (and sometimes made envious) by just how tight a ship is run at **mathNEWS**. Last spring term I spent a lot of time thinking about this. That term and the ones before it had some really, really good editors; they were opinionated, they presented a really strong and unified front, they were exceptionally competent, and it always felt like they had something up their sleeves. There was this real sense of magic and wonder that **mathNEWS** had for me.

I didn't get the chance to work with that set of editors. Sometimes I feel sad about that and kick myself for not becoming an editor sooner. But then, I also think about how I wouldn't have felt any of the magic if I had been an editor back then. A play is a lot different when you're the one operating things backstage, and a magic trick loses its magic when you're the magician. But I'm happy I'm an editor now. I know I'd be kicking myself a few years from now if I didn't do it. I'm just a little obsessed with trying to preserve the magic for others now.

Anyway, you could really argue that my **entire experience** here has been dictated and determined, *in whole*, by **mathNEWS**. And for all of the organizations and groups I've become involved with as a result — PMC, MathSoc, Orientation, MEF, whatever — I think **mathNEWS** will still always have the most special place in my heart.

TENDSTOFORTYTWO: WHEN WILL YOU LET US ORDER NONE PIZZA WITH LEFT BEEF?

No

CUTLET: HOW LONG DID IT TAKE YOU TO ANSWER ALL OF THE QUESTIONS IN THIS mathASKS?

I forgot to time myself. What's the hourly rate I'm getting for this again?

N THINGS I LEARNED AFTER GRADUATING

- In *The Last of Us*, you'll die if you engage in sustained combat
- Outside rail connections in *Cities Skylines* can sometimes not work in Steam Workshop maps
- I have lost all my skill in *Team Fortress 2* from years of disuse

UW Unprint

FUCK THE RICE PURITY TEST, WHAT'S YOUR CANADIAN BLOOD SERVICES QUESTIONNAIRE SCORE

The following questions ask about your wellness today. Are you feeling well today?*
☐NO ☐UNSURE ☐YES

Do you have a flu, sore throat, fever, or infection?*
☐NO ☐UNSURE ☐YES

In the last 12 months have you had a rabies shot or a shot for exposure to hepatitis B?*
☐NO ☐UNSURE ☐YES

Before 1986, did you receive human pituitary growth hormone?*
☐NO ☐UNSURE ☐YES

Since 1980, did you receive a blood transfusion or blood product in the United Kingdom, France or Ireland (Republic of Ireland)?*
☐NO ☐UNSURE ☐YES

Have you ever had cancer?*
☐NO ☐UNSURE ☐YES

Have you ever received a dura mater (brain covering) graft?*
☐NO ☐UNSURE ☐YES

In the last 8 weeks have you travelled outside Canada?*
☐NO ☐UNSURE ☐YES

From January 1, 1980 through December 31, 1996 have you spent a total of 3 months or more in the United Kingdom (England, Northern Ireland, Scotland, Wales, the Isle of Man, or the Channel Islands)?*
☐NO ☐UNSURE ☐YES

Have you spent a total of 5 years or more in France and/or Ireland (Republic of Ireland) from January 1, 1980 through December 31, 2001?*
☐NO ☐UNSURE ☐YES

Were you born in Mexico, Central America or South America?*
☐NO ☐UNSURE ☐YES

Was your mother or maternal grandmother born in Mexico, Central America or South America?*
☐NO ☐UNSURE ☐YES

In the last 3 months have you had a tattoo?*
☐NO ☐UNSURE ☐YES

In the last 3 months have you had skin or ear piercing?*
☐NO ☐UNSURE ☐YES

In the last 3 months, have you had a new sexual partner? *
☐NO ☐UNSURE ☐YES

In the last 3 months, have you had more than one sexual partner?*
☐NO ☐UNSURE ☐YES

In the last 3 months have you had acupuncture or electrolysis?*
☐NO ☐UNSURE ☐YES

In the last 6 months have you taken illegal steroids with a needle?*
☐NO ☐UNSURE ☐YES

In the last 12 months have you been in jail or prison?*
☐NO ☐UNSURE ☐YES

In the last 12 months have you had sex with anyone who has ever taken illegal drugs with a needle?*
☐NO ☐UNSURE ☐YES

In the last 12 months have you taken money or drugs for sex?*
☐NO ☐UNSURE ☐YES

Have you ever taken illegal drugs with a needle even one time?*
☐NO ☐UNSURE ☐YES

Have you, in your past or present job, taken care of or handled monkeys or their body fluids?*
☐NO ☐UNSURE ☐YES

Did you make your last donation or last attempted donation at Héma-Québec?*
☐NO ☐UNSURE ☐YES

aphf

ANIME ALIGNMENT CHART

This is apparently the typical media consumption of a weeb.

RobbotC

MATHSOC SEZ
ALTERNATIVELY, MATHSOC PREZ SEZ

Hello Mathies, and welcome to your S23 term! MathSoc Sez is back to grace (ha!) the pages of your favourite fortnightly publication, featuring updates from your S23 MathSoc Execs! Here, you'll hear about what MathSoc is doing for you.

WE LIVE IN A (MATHEMATICS) SOCIETY

What is MathSoc, anyways? It's short for the Mathematics Society — we're the student government for the undergraduate Math students here at UW, and we're here to represent you! All Math students are members, and to you we offer our services:

- The Math CnD (MC 3002) and MC Comfy (MC 3002), both now OPEN!
- Academic advocacy on your behalf, to faculty and administration
- Math novelties! T-shirts, ties, pins, math socks, you name it!
- Our huge collection of board games for rental and our textbook library
- Cheap printing and photocopying services; lockers; and faculty-approved calculators
- MathSoc's events! Pi Day (free pie!), Party with Profs, academic review sessions, and more! This term we're even looking to host a semi-formal~
- Free candy, and more!

You can find us in the MathSoc Office (MC 3038) or in the MathSoc Executive Office (MC 3035). The office is open from 10am to 5pm, which gives you plenty of time to drop by and say hi! There's also a bunch of wonderful MathSoc Clubs that you can say hi to, and even sign up to be a member of! Most of them live on the third floor of MC, but a few take up residence in M3.

A MATHSOC-CESSFUL SPRING '23 TERM

Excuse the pun. What are some of the things that the Executive team are working on this term? Well…

- Planning the MathSoc Semi Formal, as well as more great events!
- Advocacy for the STAT 231 Final Exam from W23
- Supporting the MathSoc Clubs so that we can all have a fun term~
- Advocacy for M4 continues! This will be a long-haul project, since M4 construction is planned for late-2023, and we all know how long construction takes. The plan is to continuously advocate for student space, as we have been doing.
- A bunch of mental health initiatives — a topic that I ran on in the election.
- Making MathSoc more accessible to the Math student community.
- A FAQ for all Math students, for when you're having a problem and don't know who to consult.
- And more!

YOUR MATHSOC EXECUTIVES

Oh yeah. Who *are* the MathSoc Executives, anyways, and what do they do? Glad you asked (or didn't ask — I don't know, you're the one reading this!)

President (president@mathsoc.uwaterloo.ca)

- Handles questions about MathSoc as an organization, its operation, and some advocacy
- Represents the Society to other organizations, and keeps the Society running

Vice-President, Academic (vpa@mathsoc.uwaterloo.ca)

- Handles academic advocacy, such as for academic and co-op related matters
- Exam bank, textbook library, academic events (like review sessions!)

Vice-President, Operations (vpo@mathsoc.uwaterloo.ca)

- Keeps the MathSoc Office open; in charge of MathSoc spaces, like MC Comfy
- Handles our novelties, board games, and any questions you have about the office

Vice-President, Finance (vpf@mathsoc.uwaterloo.ca)

- Manages the finances of the society
- Handles budgets, cheque requests, and refunds

Vice-President, Internal (vpi@mathsoc.uwaterloo.ca)

- MathSoc's events and clubs!
- In charge of all of MathSoc's volunteers, and keeps the spirit of Math alive~

Vice-President, Communications (vpc@mathsoc.uwaterloo.ca)

- Advertising of MathSoc events, and keeping you informed!
- Reach out for marketing requests and poster approvals

WE'RE ALL IN THIS TOGETHER~

But we're not doing this alone, oh no!

We have the help of MathSoc Council and our Board of Directors, both of which are student-run, as well as the Execs' volunteers! One of my initiatives this term is to make MathSoc more accessible to the average student, and so you should know who makes up MathSoc!

Council is a body of elected student representatives from various programs, here to bring your opinions and concerns to light so we can do something about them! If you have an issue to bring up, bring it up to your program representative! One thing that Council handles often is with clubs' concerns, such as budget.

Board is responsible for the long-term operation of MathSoc. One of their current committees is working on advocating for more student space in M4. They also recently approved a hardware upgrade to the Math CnD, to keep your favourite CnD running better than ever.

GETTING INVOLVED

And of course, our volunteers help the Execs keep everything running.

- Want to join the team that keeps the MathSoc office open? Want to make amazing friends? Sign up to become office staff!
- Interested in event planning (especially for a semi formal)? Volunteer for the VP Internal, and help execute events like Pi Day, Party with Profs, and Board Game Night!
- Are you an influencer at heart? Our VP Communications opened up a NEW position to make short form videos for our socials!
- Want to plan a review session that'll save other students' marks on their exams? Become an Academic Events Director.

You can find applications to our volunteer positions here: https://mathsoc.uwaterloo.ca/volunteer-at-mathsoc/, and help our lovely exec team bring about all our events, services, and advocacy! You can also check out our wonderful MathSoc clubs and affiliates, while you're at it!

PREZ SEZ

Hi everyone! I'm Grace Feng, your President for S23! I hope your term has been going well so far, and I wish you the best of luck for the rest of the term! As S23 progresses, I hope to bring you more updates on what MathSoc is doing for you, and I have a feeling we're going to blow your math socks off! Let's have a great term together!

MATHSOC(IAL)

In Person: MC 3035 and MC 3038

Our Website: https://mathsoc.uwaterloo.ca/

Email us: info@mathsoc.uwaterloo.ca

Instagram: @uwmathsoc

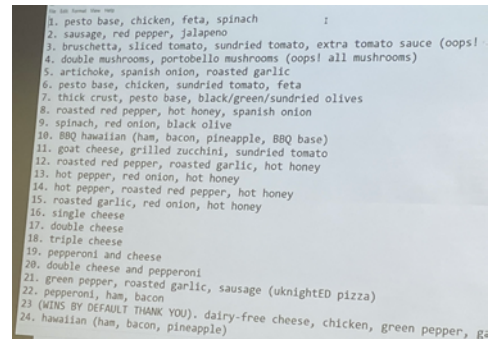*Grace Feng (MathSoc President, S23), on behalf of the S23 MathSoc Executive Team*

HOW I DESTROYED DEMOCRACY
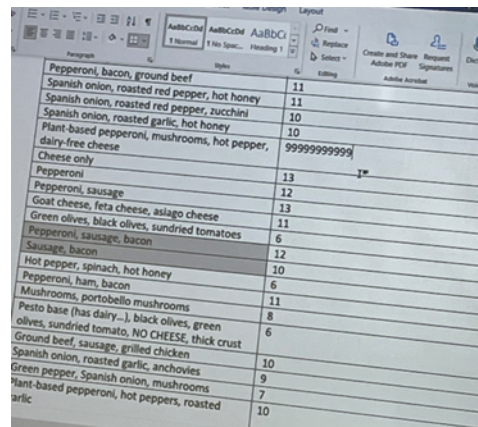### *INSIDE PIZZA'S RADICAL PLAN TO DESTROY DEMOCRACY*

Voting is fake. Democracy is dead. Dairy free cheese reigns free (and fuck you roommates, dairy free cheese does not taste like carpet).
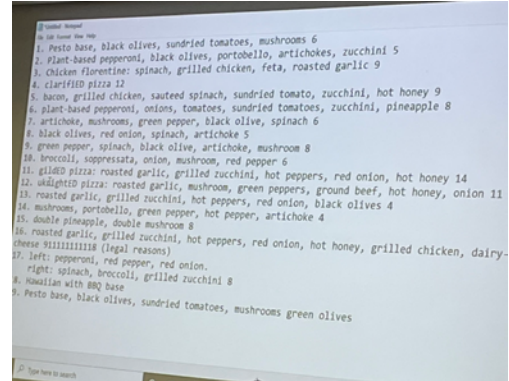
Voting is not even an option.

There do not exist 99999999999 people in **mathNEWS**.

(thank you **mathNEWS** for giving me food and not letting me starve)

Not a N*rd

HAVE WE CONSIDERED THAT TINDER MIGHT SUCK ON PURPOSE?

I don't think it'll be controversial to say that I don't like online dating. Nobody likes online dating. Even people who are good at online dating don't like online dating. It's impersonal, it's transactional, it makes you feel inadequate, etc. You've heard this before, you don't need to hear it again from me.

But why does it suck so much? Why hasn't it *ever* changed?

Most people, at this point, are aware of how social media apps aren't neutral platforms that present an unbiased view of the world. They show you content in a deliberate, particular way to support their own agenda. This agenda isn't a political one, as some might suggest — rather, it's a financial goal: keep you on the app (and looking at ads) for as long as possible.

Sure, these apps nominally try to do this by allowing you to view global news or your friend's vacation pictures, but these aren't the ends — they're the means. They're the hooks by which they lure you onto the platform and, crucially, they aren't the glue that makes you stick. The constant dopamine rush of the content infinity pool, plus the potential for ceaseless validation by strangers and/or constant insecurity by comparing yourself to those strangers: *that's* the real product that social media companies make. The platforms try to subtly guide user behavior in order to keep the app open on people's phones as long as possible. That's their *only* goal.

So why don't we look at dating apps this way? Because from where I'm sitting, it doesn't seem like Tinder has *any* incentive to actually find you a partner.

Most of the financial motivators are the same as Instagram or Twitter. These are free apps that slowly, subtly monetize their user base. They have the same investors who demand infinite growth in user numbers with a finite amount of people on Earth. The biggest difference is that the bulk of their revenue comes from selling premium services like the three thousand different tiers of Tinder you can buy, which gives them even more incentive to not let anyone find a long-term connection. After all, if you're happy with your dating life, how could they convince you to spend $40 a *week* (the actual max price of Tinder Platinum! What the fuck!!) on improving your odds?

Many people have drawn some pretty drastic conclusions about themselves, other people, and the world from observations gathered during online dating. And I definitely don't want to discount the personal/societal aspects here; there are a lot of *really* gross things people do, unprompted, on dating apps. I've had more than one woman tell me the reason they agreed to a date was because I didn't *immediately* — as in, within the first message — ask for sex. Obviously, at the end of the day, people make a choice to be weirdos, no matter what the systemic incentives are.

But my point isn't just that things are bad, it's that no one involved has any incentive to try and make it better. A population composed of users who find it extremely difficult to date is actually what they want. Like so many other things in our society, it's convenience at the cost of quality. I don't work for Tinder, I have no idea how much of the shittiness of their platform is intentional and how much is accidental, but the effect is the same.

I think the ripple effects of this (intentionally?) poor design go out farther than you think. Like I said earlier, a lot of people don't look at Tinder and see a flawed system; they see a flawed society or, worse, a flawed self. For a lot of people — a lot of young men, in particular — the conclusions they draw from this can lead to some really self-destructive behavior.

Traditional male gender expectations include a very strong correlation between self-worth as a man and your success in dating. A lack of these things can lead to the development of some very serious inferiority complexities and/or the buildup of resentment towards society at large and women in particular. This is ridiculous, obviously, but it's real.

There's no better symptom of this warped worldview than the phenomenon of Andrew Tate and his various other troglodyte worm-like imitators, who prey on men who feel lonely and unsuccessful and convince them that the problem is they're not a big enough dipshit. (The sinister part of this is that the more you act like a complete asshole to people, the more people will not want to associate with you, which, to the person convinced they're fighting The Matrix, is just evidence they were right all along and the solution is giving Andrew Tate more money.)

I firmly believe that it's not that hard to date, and that most people will find someone eventually. That's not me being romantic, that's just the hard stats. Don't flatter yourself by thinking you're literally one in 8 billion. Odds are you'll find someone who your particular quirks and appearance resonates with.

But if you thought that online dating *was* dating — that the experience of using Tinder was not a warped view of reality, altered for financial reasons — you might think that the loneliness and frustration of the app experience is all that awaits if you try to reach out to other people. It isn't.

You aren't having a bad experience because you're unlovable, it's because a tech company refuses to give you the company and companionship you desire, because keeping you sad and lonely and desperate is better for their bottom line.

See guys, it's actually *capitalism's* fault I'm single.

Dick Smithers

PHY 153 STUDY ROOM
UW REVIEWED 1

In this room there are eight solid, wooden tables, their surfaces so scratched you can't use single papers on them. Instead I use notebooks, and these tables are so massive I can spread out all my belongings without encroaching on the person sitting beside me. Underneath my hand, a marking on the table says "M + ", the second initial never finished. The seats on the matching wooden chairs are black from decades of use, and their joints creak with the slightest move, so I clench my legs and try not to fidget. Tall windows make up the entire left wall, flooding the room with light, casting us in a warm summery glow.

I don't remember when I found this room, nor how I'd first worked up the courage to walk in and sit among these upper-year Physics students who are so loudly discussing assignments and writing long equations on the blackboards that rest on the radiators. All I know is that I study here a few days a week in my 1A and 1B terms, but I am not a good student, so what I really do here is procrastinate and people-watch and breathe in the stale campus air that feels fresher here, somehow, purified by the sunlight and the laughter and all the commotion that bubbles with energy but never boils over.

Prevailing wisdom says never to reveal your favourite study room on campus, but I think it's fine to do so now, in my final term. PHY 153 is a study room with eight large tables and outlets next to almost each one and copious amounts of natural light, and it is the study room I have always dreamed of, back when I was in high school playing with magnets and thinking about majoring in Physics, when I'd imagined myself diligently taking notes and speaking with professors in ancient lecture halls and scribbling across blackboards with long-haired peers.

I am, of course, not a hard-working Physics student but a lazy Computer Science student, and this is who I am in 1A too, churning out functions in DrRacket and cramming calculus. But I can pretend. A guy is shouting from the blackboard about "h bar" and I nod along. On the wall opposite me is a window into the Phys Club room, adjacent to this one. Phys Club attendees have pizza there, and sometimes they bang on the window and invite us to eat with them too. On one such occasion I go, pretending I am just another physics student, deserving to be among the rest of them. Here it's easy to reassure myself that it's not over yet, that I can study harder, transfer into Pure Math or Applied Math maybe, blossom into the academic I'd always wanted to become.

In these five years I have given up on Physics, Pure Math, Statistics, and English. I take all the easiest courses I can find, barely managing to write a **mathNEWS** article once a term, just checking off my degree requirements until I can get out of here. But when I step into PHY 153 and see the worn wood tables, something springs up inside me. Maybe it's nothing more than the light coming in through those big windows, deceptively bright and beautiful, but I am my optimistic high-school-then-first-year self again, believing that I can have anything I want if I just reach out and grab it.

On the bookshelf next to the door there is a kettle, instant coffee powder, and some creamer. I have always wondered if it's free to use, but never dared to try; it isn't mine; I don't belong here. But I think one day I will belong to a room like this one, where I'll have some wild idea on math or art or writing, and the people will write it down on a big board and we'll stand around and laugh and chat about it as we drink terrible warm coffee and the sun spills all over us, bathing us in the kind of light that makes one good moment last forever.

cy

HOW TO GET TO CLASS
FOR THE MATH NERDS

Most math nerds,
lacking charm,
travel to class on their feet.

That's not cool,
y'all are just fools,
I'll tell you the obstacles you'll meet.

In the fall you'll be late,
'cause the first years won't stop begging
for directions.

In the winter you'll be bitter,
'cause you won't escape the seeking eye
of your ex.

In the summer you'll be bruised,
'cause the geese will inevitably
bite your face.

Come close, listen well;
I'll tell you how to travel.

In the fall you can surf
on the crowds gathered round
'cause you're cool.

In the winter you can ride
on the high after that girl said you seemed nice
'cause you showered.

In the summer you can roll
cause you circle, and no one will know if that's
'cause you buff, or you just a potato.

no pun indented

MEASURING THE SLOPES OF RAMPS ACROSS CAMPUS

So, first of all, I'm literally not even a wheelchair user. I just started using a cane this term, and also now have a backpack with wheels. And one day I was walking down the ramp at the "front" entrance of MC, down to the basement for my MATH 239 lecture, with my backpack in tow, rolling down and pushing me a little too fast for my fragile little knees to handle, and it occurred to me: there's no way this shit is ADA compliant, right? And so, of course, it took me a whole week to stop procrastinating and actually measure it. And then I decided you know what, I might as well measure a *bunch* ramps around campus, and write a **mathNEWS** article about it.

Anyway, let's get a bit of context out of the way. ADA, or the Americans with Disabilities Act of 1990, is, as the name suggests, an American piece of legislation. It says that the maximum slope of ramps shall be 1:12, or 4.76°. The UN Department of Economic and Social Affairs (which has a terrible website btw) recommends a rise:run ratio of less than 1:20 (2.86°) for comfortable use by a wheelchair user without assistance, and anything greater than 1:10 (5.71°) is a hazard. For this article, I will be measuring the ramps with the level in the built-in Measure app on my phone, which has a precision to the nearest full degree, and I'm laying my phone down flat in the ramp in a few different orientations and taking the average measurement to account of the thickness of the buttons and cameras. I've heard it's not the most accurate but that's about as much effort as I'm willing to put into this.

MC FRONT ENTRANCE

Um. Yeah. So. 8° lmao. Like that's a lot. Also there's like literally potholes in it. I don't even know how that's even possible tbh. But like okay fine it was built in the 60s or something probably, at least they have a ramp right??

SLC

I measured the two ramps at the corner where SLC-MC bridge is, but there's at least the one downstairs like near Smokehouse BBQ that's very similar. 4°, which is at least ADA compliant! Good for them.

MC-DC-M3 BRIDGE

Honestly uh I don't even know what to say about this. The entire bridge to M3 is just one big slope, which like, okay, I guess the floors *are* at different heights in the different buildings. Now the two levels of the MC-DC bridge tho… They're literally stacked on top of each other, why do they have different slopes and also slope at different spots?? I mean I can figure out why, it's to accommodate the M3 bridge probably. The upper one that also connects to M3 has a slope about a meter long right before the M3 intersection, goes back to being flat, and then past the M3 connection it keeps sloping. Those two slopes there are 2° and 4°. The lower level, however, instead has a very short and somewhat steep slope right outside of MC, 5°. But like, again, not a wheelchair user, but like I can't imagine that trying to hit the automatic door button while rolling up that ramp would be very easy? Overall, very confusing slope situation. As a cane user, it does actually slightly mess with me, because the first couple of times going through there I wasn't really expecting the slopes to be where they are, and it changes my cane placement which then messes with balancing on it. Like, I can see the reasons why it's like that, but I would still like to complain about it.

MC-QNC

3°, pretty decent yeah. Again the way it alternates between slope and flat is a little annoying the first couple of times I walked through there while getting used to my cane, but it was fine.

QNC FRONT ENTRANCE

2°, also pretty good! Very wide and bright, not entirely sure why it's not just flat though?

CONCLUSION

It is at this point that I realized, maybe walking around campus unnecessarily is not great for my mobility issues and pain, who would've thought. So that's all the data for now. You may have noticed that most of these are not actually ramps as an alternative to stairs for better access, but rather just random slopes they decided to put places. I guess they make sense and are necessary? Maybe? To adjust for some small height differences between different buildings or parts of the same building. But like is that *really* necessary? Some of them definitely just feel like design choices though. Man, I never noticed how many slopes there are everywhere before now. But yeah, the MC front entrance ramp? Truly horrible. That is all.

treee

AN UNSAFE HOME

i've made my home unsafe
i don't know what to do about that
i'm scared of the razor on my nightstand
but i'm also scared of throwing it away
it feels like
no matter which way i look
there's nowhere to go
but there's something nice about having been lost in the dark before
i've realized that
if i just. keep. moving.
eventually
it will be light again
i'm still tired of the dark, though

Golden

THE CALCULUS OF CONFUSION

"Calculus", as it turns out,
does not refer solely to the mathematical study of infinities
as taught in high school
but instead to the general notion of a mathematical language
which underlies so many foundational theories.

This revelation, along with so many others
like how ideals are subgroups of rings
or how real numbers are more infinite than integers
sent my head spinning on a worldwide journey
snaking through finite fields packed densely like businessmen
in a crowded city.

En route to my dizzying destination
I encountered garrisons of guards between the nations
each of whom demanded I follow along with their inexplic-
able ideology.
The Imperators, who sought a simple, ordered, iterable
itinerary to life.
The Purists, who turned out stones within stones seeking the
base layer of reality.
The Designers, who wanted to frame the world in abstract,
colourful patterns.
Each group impressed upon me their notes, their learnings,
scriptures
in the form of these marvelous little jigsaw pieces
except I couldn't fit anything with anything else
and I misplaced several, sprinkling them all over the
continents.

One night I found myself in the middle of a storm.
It wasn't a surprise; I had seen it coming from miles away
and I had been looking out for it the entire way.
Despite that, I resolved to push forward with only a flimsy
umbrella
confident in my ability to withstand the waters.
Big mistake. The drops cut me like glass
attacking me like bees
and I was defenseless.
But it was at that moment that the pieces
which I had held for so long, and which still didn't fit together
piled on top of my tattered mobile canopy,
so numerous that they blocked entrance to the lambda-shaped
raindrops
letting me slip out on the other side of the clouds.

When I finally stumbled back to where I had started,
I saw in front of myself a very strange sight.
Some were deep in reflection, while others were still shaking
the rain from their own eyes,
and in front of me there was a man with a scroll
and he smiled, and I understood.

The42ndRhombiDodecahedron

CHICKEN

FIG 1: CHICKEN

WHY DO THEY GET A COOL HAT AND SET OF JOWLS??
THEY'RE RED????? This is so fucked up and I cannot believe
nature settled on this as the ultimate form for its cutest and
most delicious bird. I spent like 30 minutes figuring out what
the cool hat and jowls do and no answer could suffice, for I
would still feel cheated. What went so wrong in our evolution?
Why does God hate humanity but love chicken? Was it our
intellect that snatched away from us a cool hat and jowls? Our
hubris? Our sin? O, were I to be endowed with this hat and
jowls by our Creator I would be a happy man — no, a happy
chicken, for only the humble chicken could be met with such
a happy and agreeable fate. I will die and forever roll in my
grave despairing how, as my constituent extremities lose their
form, my hat and jowls do not, for they could hold no such
form to boot. Yes, I would give it all for that cool hat and set of
jowls — if only I had anything at all to give.

jeff

EPISODE 55: VERSION CONTROL

Enjoy Episode 55 of the MathSoc Cartoons series: CS
136L — Version Control!

Want to see the next comic BEFORE it's released and
provide feedback to help us out? Sign up anytime to be
a reviewer at https://bit.ly/mathsoc-cartoons-
reviewer-signup and get the chance to win a gift card from a
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MathSoc Cartoons channel in the MathSoc Discord server or
sent to cartoons@mathsoc.uwaterloo.ca.

MathSoc Cartoons

CS 136L: VERSION CONTROL

STORY BY: CAITLIN KWAN AND BRYAN CHEN
ART BY: ISABELLA SCOTT

prof**QUOTES**

CO 487: ALFRED MENEZES

❝ The 10-year timeframe has been around for 20 years.

❝ Libertarians love bitcoin.

❝ Anarchists love bitcoin.

❝ If you're a hardcore conspiracy theorist, you love bitcoin.

BU 247 (LAURIER): ROBERT MATHIEU

❝ *[Student: Will we ever have to deal with non-linear lines of regression?]* No no, we leave that for UWaterloo. Here, we like to keep things simple.

CO 250: KANSTANTSIN PASHKOVICH

❝ I make a happy face, you make a happy face, but a happy face is not a proof that everything works out.

❝ Please be silent, like in a wedding. No objections.

❝ What should I do to make you stop talking during lectures? Show movies? [student at the back says something, class laughs] I didn't hear that but I hope it was a good joke.

❝ The textbook is stuck with it, and for the purposes of this course, the textbook is my bible.

❝ The solution is surprisingly simple. It is so simple that you cannot do it.

CO 342: PETER NELSON

❝ *[Talking about the empty graph being disconnected]* If I'm at a pub with another graph theorist I can bring it up and have an argument.

❝ If you ever lose marks for this in a future class, refer them to me. I will get your marks back.

❝ In math, especially graph theory, laziness is a virtue.

CS 234: CAMERON MORLAND

❝ Racket, I swear. It's brain damage.

CS 240: ERIC SCHOST

❝ We torture you just a little bit at the beginning and then we forget about it.

❝ L'Hôpital bought this rule from a stronger mathematician, Bernoulli, so it should be called Bernoulli's Rule, but l'Hôpital paid for it, so he has the trademark.

❝ At some point I have to draw the line and say, "This is math, so I won't do it."

CS 241: GREGOR RICHARDS

❝ *[Points to 'ç']* That is where the communism lives.

❝ The nice thing about a cache is that it's a cache.

❝ No, MIPS does not have a sexually transmitted disease.

❝ The inventors of MIPS were jerks. It's very confusing, frankly.

CS 251: ZILLE HUMA KAMAL

❝ 90% of the market is for intel, 20% is for ARM and that's rapidly growing.

CS 350: KEVIN LANCTOT

❝ *[Logging into undergraduate environment]* I remember it using 'LoST CauSe': Linux.STudent.CS.uwaterloo.ca

PMATH 347: DAVID MCKINNON

❝ *[Figuring out why $f(a^{-1}) = f^{-1}(a)$]* I don't want to spend more time on this. It's definitely true. *[Begins erasing board]*

❝ When I draw a number sign, I'm either trending on Twitter or denoting the number of elements, and I'm never trending on Twitter.

❝ My apologies to the Italians.

❝ There's a holiday on Monday to celebrate… a dead person.

PMATH 351: ALEXANDRU NICA

❝ *[Phone rings]* If it's my mom, tell her I'm busy.

❝ I say so, and I am very important, so if I say it is, it is.

❝ Hint: the answer is "yes"… I have saved you six months of work.

PMATH 450: BLAKE MADILL

❝ I'm doing something shady, but if I'm honest about, it is it shady? Is this the way crime works?

PMATH 464: RUXANDRA MORARU

❝ I don't think about the zero field. It's not relevant!

❝ I don't understand the use of whiteboards.

TO CATCH THE PAST

I've been working on decorating my apartment to feel less like a stark container and more towards a cozier retreat. Over the past year, I've built up the decorations to have a certain narrative flow. Every morning, I would wake up, stumble out of my bedroom through a dark hallway to the living area, turning to face the couch where I'd place a small, teal green, pill-shaped stuffed frog, handmade, with a wide smile staring back to greet me in the morning: *hello, I love you, I hope you had a good rest, there's a hug, here, if you need it, hi.*

He's a good frog. My partner had crocheted him.

With a smile, I'd stroll over to my kitchen where every morning, I was met by a painting, hand-crafted, of affection, teamwork, and love. Every morning, I'd exit my kitchen to eat breakfast overlooking the beautiful sunrise, the frog beside me, the sunlight bathing us both.

I've been trying to go for morning runs. I don't have asthma, but my lung capacity would say otherwise, and I'd like it not to. My eyes love the morning, but my heart loves to rest, and most mornings I've been home before the frog really noticed I was gone. The rest of the day has so much to do, so much to preoccupy one's mind with, but when the world is nothing but aching lungs and running shoes on pavement, it forces you to use the moments to think; to observe the cracks in the solid ground you'd otherwise ignore. But if I got home fast enough I could convince myself that it was just a hallucination, tomorrow's problem, I could distract myself with pull requests and club events long enough to get to the next night, long enough to forget that the cracks were widening, deepening, splitting every seam.

Eventually the cracks reach a point where they no longer move. Where they are beyond repair, you know they're going to shatter, the ground falling out beneath you but it hasn't yet — it's silent, your phone is silent, she hasn't texted you back, you haven't texted her back, and your world holds its breath, and the frog only says *good morning, hi, everything will be okay, hold me, it'll be over soon, you'll be okay, I loved you.*

And it breaks.

I went for a run this morning, pausing, every step to the door. By the time I had done my normal suburban loop, I stood moments from my apartment. For the first time, I extended the run. I ran away from the apartment, from the shattered debris, running from the devastation to try to reach yesterday again, if I can just run fast enough, run far enough, maybe I can catch it before it gets away, maybe I can reach out and touch it, hold it, ask the past to stay, one more day, one more hour, one more moment, anything; I run, deep into unexplored territory, looking for that last moment, that last glimpse, don't make me go back and see what remains, don't put more memories between me and that joy, please, I want the warmth we'd had, please, I want the start again, please, I want to go *home*. I run.

I run. It's said that we are but boats against a current, borne unwillingly into the past, but for all my trying I just. Can't. Make. It.

true.

I walk back to my apartment. Taking off my shoes, I pass by pink mittens, left on the dining table I never use alone. I get water from my kitchen, where the wall lies bare. I pass a returned moose plushie, discarded, rejected amid the debris. I return to the main space, where an empty blanket lies on the couch, still creased from where the frog once sat.

The frog says nothing.

molasses

THE ROOM

The Room
been here since the womb
Shadows dancing left and right

and yet, I follow what is bright,
beyond my fright, I might

For a vine that knows it's worth,
grows beyond its place of birth
And yet, the shadowy figures intertwine

I follow the gravel
through the road untravelled.

Toward the lights I grovel
- an escape from withdrawal
And yet, Darkness returns

As the years go by,
shrouded in darkness
A light grows from within.

Beyond fear and trembling,
A faith resembling
An ever-growing flame,
consuming all shame

As I bask in the light,
I know this is right.

And yet, left behind
The shadows dance within the room

To their ignorance they succumb
now, lay their tomb.

The Stickyan

HOW THE TSB OF CANADA BECAME ONE OF THE MOST TRUSTED INVESTIGATIVE AGENCIES IN THE WORLD

AKA: HOW SWISSAIR 111 LEGITIMIZED THE TSB

On September 2nd, 1998, Swissair Flight 111, carrying 229 people from New York JFK to Geneva on an MD-11, crashed off the coast of Nova Scotia near Peggy's Cove, killing all on board. The investigation by the Transportation Safety Board of Canada (aka the TSB) would uncover a series of design deficiencies with the insulation, the wiring to the entertainment system, the checklists to diagnose smoke, and the FAA's unwillingness to listen to their Chinese counterparts (the CAAC).

The TSB took over four years to investigate this accident, and almost all of their recommendations have been implemented, making flying much safer. It's actually amazing to think that the TSB only existed for eight years when Swissair 111 crashed, and that the way it came into existence involved the lack of trust with investigators.

LACK OF TRUST

In 1985, Arrow Air Flight 1285 crashed after take-off from Gander, Newfoundland, killing all 256 people on board — mostly US soldiers returning to the US from the Sinai. The Canadian investigative agency at the time, the CASB, was extremely divided on the cause of the crash. While a slim majority believed that the plane was brought down by a combination of ice on the wings and an overloaded airplane, a sizable minority believed that it was an explosion on board. Despite the majority report, in my opinion, having the most plausible cause, the lack of evidence at the crash site and, pushed forward by the CASB, lead to a review by a former Canadian Supreme Court Judge. On July of 1989, the judge ruled that *both* the official report and the dissenting report lacked evidence for their reports, undermining the entire agency.

During this review, in March of 1989, Air Ontario Flight 1363 crashed after take-off, and the investigation into that crash found that ice definitely brought down the plane. However, presumably because of the controversy surrounding the CASB at the time, and the ongoing review, the investigation was done as an judicial inquiry under Virgil P. Moshansky, who was an aviator himself. While the investigation itself was an important and detailed investigation in and of itself, the fact that it had to be done under the supervision of a judge showed the sad state of Canadian aviation investigations.

NEW AGENCY

In 1990, the Canadian government dissolved the CASB, and introduced the TSB. The standards were raised, and the TSB was made independent of every other department. Still, how does a country go from having a shoddy investigative history to having one of the most trusted investigative agencies in the world?

It started in 1991, when a Nationair flight, flying under Nigerian Airways, caught on fire after take-off from Jeddah, Saudi Arabia, and the raging fire killed all on board. The Saudi investigation, which was heavily aided by the TSB, found that a tire was very underinflated, causing another tire to burst during the take-off roll, and that tire caught on fire. The plane's fate was sealed when the crew brought up the landing gear. The TSB uncovered Nationair's numerous safety violations, and their involvement in the investigation resulted in a Saudi final report that was unusually transparent.

The TSB also investigated Air Canada Flight 646, which crashed after an attempted go-around in December of 1997, and their investigation found deficiencies surrounding the regulations around Canadian safety.

THE BIGGEST INVESTIGATION IN CANADIAN HISTORY

All of that background goes into how successful the TSB's investigation into Swissair 111 went. As stated before, it took the TSB over four years to investigate this accident, and it cost $57 million CAD.

The TSB committed itself to recover as much of the aircraft from the bottom of the ocean as possible, and, despite the 55 metre (180 foot) depth of the wreckage, they managed to recover 98% of the aircraft. The wreckage was in literally millions of pieces, and it took hard effort to sort the pieces, and find which pieces were relevant.

Unfortunately, because of the nature of the fire onboard, the last 6 to 7 minutes of the flight was lost when the fire burned through the wires of the Cockpit Voice Recorder and the Flight Data Recorder. Without that information, we still don't know much of what happened during the final moments. All we know is the radar returns, some limited data from other sources (which did indicate that a pilot shut down an engine on purpose a minute before the crash, possibly due to a false alarm, giving evidence that a pilot was flying with a level of control), and the resulting wreckage itself.

The bundles of wires were a tangled mess, and somehow, the investigators found evidence of arcing in just one small section of the many miles of wires in the MD-11. This arcing related to the then state-of-the-art entertainment system, which drew a lot of power, and ran extremely hot. However, the investigators didn't stop there. They wondered, "how could this result in a fatal fire?" The answer: Mylar insulation.

The TSB inspected the FAA's fire tests for insulation and found that they were insufficient in showing the true flammability of Mylar. Moreover, seven incidents involving the burning of Mylar between 1994 and 1995 — including two that were investigated by the CAAC — prompted them to urgently inform the FAA of their findings. Unfortunately, the FAA took no action

until the TSB urged them to during their investigation of Swissair 111.

The TSB further investigated the troublesome checklists, the violations made by the company that wired the entertainment system, and more. Of the 23 recommendations, 20 were swiftly implemented. The fact is that the TSB's detailed investigation of a flight flying a major route made their agency one of the most trusted in the world.

In fact, when the ATSB (Australia's investigative agency) was criticized for one of their investigations, they went to the TSB to review how they did the investigation. In its review, the TSB did say that the investigation fell below the ATSB's own standards, and this resulted in the investigation being redone. That's the trust the TSB now gets.

lwo

QUEEN VICTORIA
WHO?

Queen Victoria knows where she is at all times. She knows this because she knows where she isn't, by subtracting where she is, from where she isn't, or where she isn't, from where she is, whichever is greater, it obtains a difference or deviation. The guidance sub-system uses deviations to generate corrective commands to drive herself from a position where she is, to a position where she isn't, and arriving at a position where she wasn't, she now is. Consequently, the position where she is, is now the position that she wasn't, and it follows that the position where she was, is now the position that she isn't. In the event of the position that she is in is not the position that she wasn't, Queen Victoria has required a variation. The variation being the difference between where Queen Victoria is, and where she wasn't. If variation is considered to be a significant factor, it too, may be corrected by the GEA. However, Queen Victoria must also know where she was. The Queen Victoria guidance computer scenario works as follows: because a variation has modified some of the information Queen Victoria has obtained, she is not sure just where she is. However she is sure where she isn't, within reason, and she knows where she was. She now subtracts where she should be, from where she wasn't, or vice versa. By differentiating this from the algebraic sum of where she shouldn't be, and where she was, she is able to obtain a deviation, and its variation, which is called "error".

AHpache

I'M LOSING MY MIND… ABOUT LOSING MY HAIR

My term starts with my hair and it ends with my hair (or my hair ends with the term). I've managed to save a good(-ish) amount of it over the last couple of terms but, alas, the danger persists. "You're stressing too much!" is the popular refrain that follows my hair giving notice… and I have no reason to doubt it. The alternative is that a small spectre (really, more like a ghostly mouse than a person) sneaks creepily into my room at night and carefully pulls out N strands off my head, negligently depositing them on my pillow for further inspection in the morning. I have no peace.

So it is the stress. (Proof: I lock my doors every night, and if there really is a spectre hiding in my room around sunset, here's a message for you: you're sick and you need help. Also, give me my hair back, Also, there are plenty of other people with better hair.)

I suspect, based on rudimentary data, since I'm not brave enough to take a close look at my head for a more thorough inspection, that all hope is not lost. There are conditions which cause me to lose hair and consequently conditions which will let me keep my hair. I don't know what those conditions are. Rest assured, they exist. (Proof: assume toward a contradiction that such conditions did not exist. Then, I would still have a full head of hair. We have thus reached a contradiction.)

I wanted to formulate this as a linear program (give me a break — I have a CO assignment due tomorrow and I think it's seared into my grey matter) but I can't think when I hungry. I also need to eat to stop the hair loss. I'm also suffering from writer's block since I haven't written anything apart from assignments and Piazza posts in the last 7 months or so. In short, I'm losing my hair over writing an article about losing my hair. The recursion going on here would make my CS 135-self proud.

To those of you who have had a shower drain clogged with hair, or woken up to find that your pillow has more hair than it did the previous night, I sympathize. I relate. I don't have any advice since I'm vain and self-centred and focused on my own hair, trying desperately to make it through a term without most of it taking a fatal jump off my scalp. One has hope. But I wish you good luck.

everlasting_peace

A PRECISE, NO-FAIL RECIPE FOR CONGEE

INGREDIENTS

- water
- cooked, leftover rice

STEPS

1. Put rice in a medium or small pot; try to get it in an even layer
2. Add enough water to just cover the rice (add more or less depending on how thick you want it to be)
3. Cover and turn on heat to high
4. Once the water is boiling, turn it down to low and let it simmer ~15 minutes or until all the rice grains have broken down nicely

EXPOSITION, I GUESS

My mom taught me this recipe, because she knew that I always make way more rice than I can finish and it eventually becomes hard and sad and stale. This congee (honestly, we call it "rice soup", but I think congee is the official English term for it) is great with pork floss, topped with a fried egg and scallions, sesame oil or fermented bean curd, etc.

Rice is a very important part of Chinese culture and many, many other cultures. I think that it's often cited to feed half the world. It is delicious, versatile and can be reliably grown to provide people with large amounts of calories. However, it is incredibly water-intensive and I often worry about whether or not it will be feasible to grow it in the future.

My grandparents in China have a small farm, and they grow rice, soy, squash and other assorted vegetables. Their rice fields are not flooded, because their farm is small enough that they can take care of it without needing to flood them with water. Rice is special in that it can grow very well in water-rich environments whereas most other plants quickly die. This makes farming rice quite labour-effective, since pulling weeds is like, 50% of farm work. It's still back-breaking work, but a farmer can cultivate a much bigger crop by using this to their advantage.

The water in rice paddies also attracts all sorts of critters, making it a sort of unique ecosystem. There can be crabs (cool), small fish (also cool), eels (tasty), water bugs and their larvae (bad), frogs (cool because they eat the bugs and are also tasty), wicked bacteria, etc.

I think it's really cool, but most people probably don't think about rice and the way it's grown that much. But now that you've read this article, maybe you'll think about it the next time you enjoy a humble bowl of rice.

yummyPi

YOU SHOULD PLAY OMEGA STRIKERS

AMOGUS STRIKERS

Do you like air hockey? What about killing people (online)? Giant hamsters? A world where the Eldritch One plays air hockey? And all for free with an adorable art style and banger music?

Then you'll love Omega Strikers! A fun 3v3 game where you get to play as many characters with different play styles (unbiased but pick Juno) and try to score against and/or beat up the opposite team! In typical(?) air hockey fashion, you try to score against the enemy team, but each game you get to choose different buffs to your abilities that make each game a new experience!

The game recently came out and is celebrating the launch of two new characters with an event starting this Thursday, so it's a great time to get into the game.

It's even made by Waterloo alumni, so you can support the school or something (or apply for a job there ik the co-op grind never stops).

If you're reading this on your PC, you can get the game here:

https://store.steampowered.com/app/1869590/Omega_Strikers/

But it is also available on mobile, as well as Nintendo Switch and other consoles!

okay unpaid shill section over

PlatypusGod

MUDDY THE MUDCAT

In my most recent co-op, I have had to frequent many small Ontario towns, many of which I have never heard of. Every week I travel to the vibrant communities of Cayuga, Middleport, York, Glen Morris, and Belwood. Many have at least one gas station, a few dilapidated old buildings, a vape/weed store, and not much else. Drives can be quite boring. However, upon entering the town of Dunnville, I am greeted by something new; something unique; something you can't see anywhere else. A 50-foot long, 27-foot tall catfish statue, known to locals as "Muddy" the Mudcat, stares me down.

"MUDDY" THE MUDCAT, IN ALL ITS GLORY

According to `https://dunnvillemudcat.home.blog/`, "Muddy", constructed in 2009, is the worlds largest (and potentially only) mudcat statue. The plaque beneath reads:

Welcome to Dunnville, Home of "Muddy" the mudcat. A Mudcat is a form of channel catfish and is being recognized here due to its longstanding association with Dunnville. At over 50 feet in length, it is the largest statue of its kind in the world. The statue was built as a project of five Dunnville service clubs, all of which have contributed generously towards its construction and ongoing maintenance costs.

Upon further research, it appears that mudcats may be the main personality trait of Dunnville. The main tourism draw to the town is fishing for mudcats on the Grand River. Every June they host the Mudcat festival, which includes "Live Music, Car Show, Fishing Derby, Strongman Competition, Townsend Amusements Midway, Children's Entertainment Zone, Parades and more!". Their baseball and hockey teams are called the Mudcats. Even their bowling alley, which is known for its high level youth bowling competitions, is called Mudcat Lanes.

However, despite the majestic nature of "Muddy" the Mudcat, Dunnvile does not need to be completely defined by the common Channel Catfish. Dunnville is home headquarters of Bick's Pickles, Canada's number one brand of pickle. It is also home to the driving course used in Canada's Worst Drivers, of doctor's waiting room fame. Therefore, I propose that the great service clubs of come together to build the worlds largest pickle. It only needs to be larger than 3 stories to beat the current record holder in Pittsburgh. Only with this addition can the people of Dunnville truly present the dynamic benefits it offers the world.

Lars Nootbaar

IN-PERSON INTERVIEW TIPS
100% REAL, NOT SATIRE

In-person interviews are back this term, and I know it's been a while for many of us, so here are a few tips that I think are important to remember going into this interview cycle:

- Be sure to not shower for a few days beforehand. The smell will make you more memorable, and you'll stand out among the sea of applicants!
- Do all of your whiteboard coding questions in Racket. This will make it impossible for interviewers to know if you've made a mistake because they won't be able to read your code.
- Get some Lazeez right before your timeslot and eat it during the interview. This will give you more energy so you can be better at answering the interviewer's questions!
- Don't forget to mention the number of hours you have in League at some point. This will show that you're dedicated to the grind.

I hope these are helpful! For more great interview tips, email pd1@uwaterloo.ca.

arc

HOW TO FIND OUT THINGS YOU'RE NOT SUPPOSED TO KNOW IN PYTHON

here's a cool function i just wrote

```
def distribute(iterable, n):
    # initialize n empty lists
    groups = tuple(list() for i in range(n))
    for index, item in enumerate(iterable):
        groups[index % n].append(item)
        return groups
>>> lst = [1, 2, 3, 4, 5, 6, 7, 8]
>>> a, b = distribute(lst, 2)
>>> a
[1, 3, 5, 7]
>>> b
[2, 4, 6, 8]
```

Ok so this function sucks because there's a redundant parameter. Why do you have to specify n? You can clearly see that there are 2 variables on the left side of the equals sign, so why do you also have to pass 2 in as a parameter? How do we fix this?

Uh. Well, it's not a huge mystery why you have to pass 2 in as a parameter, since most languages that allow a function to "return multiple values" do it by packing all the values into a tuple or array or something, and then returning that, and having some sort of syntactic feature that allows you to unpack the tuple or array or something into multiple variables. (Go works a little differently, but that's not super relevant here.) Indeed, that's what we're doing here; you can see the tuple being returned, and of course that tuple has to have been created before we return it, meaning we already set the size:

```
>>> distribute(lst, 2)
([1, 3, 5, 7], [2, 4, 6, 8])
>>> a, b = ([1, 3, 5, 7], [2, 4, 6, 8])
```

Fortunately, Python is a little cooler than all those other languages[1], since unpacking works on all iterables rather than only tuples or lists or something. This means we can determine at unpack-time how many things we want to return. (An iterable is an object that produces iterators, and an iterator has a method that gets called every time someone needs the next item in the sequence, meaning you can run code before and in between each item being produced.) Unfortunately, while being helpful, this doesn't help us *that* much, since we still don't have a way of determining how many variables are waiting for us to unpack things into them.

Maybe it'll be helpful to know how things work behind the scenes when we're unpacking. Let's say we have something like a, b = [1, 2]. We can use the dis module to find out what Python bytecode this compiles to:

```
>>> def unpack():
...     a, b = [1, 2]
...
```

```
>>> dis.dis(unpack)
  1           0 RESUME                   0
  2           2 LOAD_CONST               1 (1)
              4 LOAD_CONST               2 (2)
              6 BUILD_LIST               2
              8 UNPACK_SEQUENCE          2
             12 STORE_FAST               0 (a)
             14 STORE_FAST               1 (b)
             16 LOAD_CONST               0 (None)
             18 RETURN_VALUE
```

So it looks like there's an instruction called UNPACK_SEQUENCE that takes the number of variables to unpack to and just unpacks that number of things and pops them onto the stack. This doesn't really explain how UNPACK_SEQUENCE works, but here's what I think it's doing:

- Since lists are iterables, we can obtain an iterator from them. For most types of iterables, this is done by calling their __iter__ method. If we call [1, 2].__iter__(), we obtain an iterator that we will use in the next few steps.
- The iterator's __next__ method is called. This returns the first value, which is assigned to a
- The iterator's __next__ method is called again. This returns the second value, which is assigned to b
- The iterator's __next__ method is called again. Since there are no more items to return, the __next__ method raises a special exception called StopIteration. This is caught by the unpacking system so it knows that there are no more items.
- If __next__ didn't raise StopIteration, the unpacking system would know there were more values than the number of variables it was trying to unpack into, and it would throw an error of its own and not actually assign any of the variables. Similarly, if __next__ raised StopIteration before all the variables had been assigned, an error would be thrown.

Makes sense; still doesn't give us much to work with. The only two things __next__ can do are return a value or raise StopIteration, and if it gets it wrong it can't hit undo and try again. Not sure how we'll get around this.

…did you hear that?

Okay, I'm not entirely awake right now so I'm not sure if my brain is messing with me, but I swear I'm hearing a voice whispering something. I can't make it out, but it's repeating the same thing over and over. Insect… doctor… something? Inspect? Inspect… dot current…

```
inspect.currentframe()
    Return the frame object for the caller's stack frame.

    CPython implementation detail: This function relies on Python stack frame support in the interpreter, which
    isn't guaranteed to exist in all implementations of Python. If running in an implementation without Python
    stack frame support this function returns None.
```

Let's ignore the part about the implementation detail. Yeah so this function gives you an object representation of the currently executing stack frame. How? I don't know. Stop asking questions.

Obviously what this means is we can get the parent frame from the current frame (i.e. the function calling this piece of code):

```
>>> def kljfdslkj():
...     print(inspect.currentframe().f_back)
...
>>> kljfdslkj()
<frame at 0×00000236EB199260, file '', line 1,
↪code >
>>> inspect.currentframe()
<frame at 0×00000236EB199260, file '', line 1,
↪code >
```

What else can you do with a frame object?

```
>>> dir(inspect.currentframe())
['__class__', '__delattr__', '__dir__',
↪'__doc__', '__eq__', '__format__', '__ge__',
↪'__getattribute__', '__getstate__', '__gt__',
↪'__hash__', '__init__', '__init_subclass__',
↪'__le__', '__lt__', '__ne__', '__new__',
↪'__reduce__', '__reduce_ex__', '__repr__',
↪'__setattr__', '__sizeof__', '__str__',
↪'__subclasshook__', 'clear', 'f_back',
↪'f_builtins', 'f_code', 'f_globals', 'f_lasti',
↪ 'f_lineno', 'f_locals', 'f_trace',
↪'f_trace_lines', 'f_trace_opcodes']
```

Oooooh what's f_code? Is it like one of those code objects that we played around with in my article in **mathNEWS** 149.6, _How to rewrite a Python program at runtime_? Can we use the dis module to inspect the bytecode??

```
>>> dis.dis(inspect.currentframe().f_code)
0           0 RESUME               0
1           2 LOAD_NAME            0 (dis)
            4 LOAD_METHOD          0 (dis)
           26 LOAD_NAME            1_(inspect)
           28 LOAD_METHOD          2_(currentframe)
           50 PRECALL              0
           54 CALL                 0
           64 LOAD_ATTR            3_(f_code)
           74 PRECALL              1
           78 CALL                 1
           88 PRINT_EXPR
           90 LOAD_CONST           0_(None)
           92 RETURN_VALUE
```

Holy shit that's a single line of Python that disassembles itself. I love this language so much. Wait ok I have a better idea:

```
>>> def print_call_disassembly():
...     dis.dis(inspect.currentframe()
↪.f_back.f_code)
...
>>> a, b = print_call_disassembly()
0           0 RESUME               0
1           2 PUSH_NULL
            4 LOAD_NAME            0_
↪(print_call_disassembly)
            6 PRECALL              0
           10 CALL                 0
           20 UNPACK_SEQUENCE      2
           24 STORE_NAME           1 (a)
           26 STORE_NAME           2 (b)
           28 LOAD_CONST           0_(None)
           30 RETURN_VALUE
[some error message that I don't care about]
```

aaand it looks like we have our solution. To find out how many values we need to return, we can just inspect the parent frame's bytecode, find the call to the function, and find the parameter of the UNPACK_SEQUENCE instruction immediately following it. The great thing about this solution is we can just totally ignore the tangent I went on about how iterables work. I'm running out of words here so I'll leave it as an exercise to the reader to fully implement this. Good luck

___init___

1. I'm told this is how JavaScript works too and I'm exhibiting a case of Python defaultism

BABY GEESE, ALREADY GRAY

I'm in my fourth year, but this is only the first time I'm in Waterloo at the right time of year to see the baby geese grow up. You can see them near Silver Lake uptown, or grazing near the Health Services building on campus.

They're really, really cute, and I'm glad that I didn't miss them yet again. The other week, there were so many tiny yellow fuzzy chicks, and now, they're already mostly gray, still fuzzy, and more… plump, I guess.

Their necks are getting longer, but they're still far from adult length. I'm somehow less surprised by how much neck growth needs to happen than by how much the plumage will need to change; the feathers will need to become less fuzzy and more flightworthy, and more black around the neck and head. It feels like I can anticipate how all the in-between states for the neck will look, but for the feather changes any in-between state I can imagine looks kinda ridiculous. I guess I'll be seeing how exactly this happens soon.

cutlet

KABOB SHACK MADE ME RELIVE MY CHILDHOOD

It all started with aaqsr showing me a draft of their article, <u>N more places to get Biryani, (Part 2)</u>**,** and proclaiming that Empress of India had been dethroned in his eyes as the best biryani in Waterloo. When he said that, he had my interest. When he said that Kabob Shack was a solid *six out of five stars* for biryani, he had my attention. I added an event to my calendar for a Friday afternoon to go pay the place a visit.

ॐ

The Friday afternoon I picked was uncharacteristically warm for mid-April Waterloo. After a brief stint at Health Services, I headed over to Williams and sipped iced coffee while reading through my five-issue backlog of **mathNEWS**. After sipping away the coffee and a good bit of the ice cubes that had melted away, I put my laptop away and walked over to Kabob Shack.

It was as though I had walked into the past. As I entered from the hot, lazy weekend afternoon into the cool breeze of bare-minimum air conditioning, my mind was flooded with memories of

- half-finished malls dotted across my city that everyone visited for that one store that chose to open there of all places,
- seedy restaurants in side streets that claimed (rightfully so) to be world-famous across Delhi for their fish tikka,
- my dad's office, where I spent my childhood playing video games and breaking computers, and my teenage years fixing them,

and oh, so much more. The restaurant itself is arranged like any other restaurant in the plaza — wooden tables and chairs in the middle of the room, a couple of booths with couches on the side next to the window, and the counter taking up one corner.

As I walked up to said counter, a person walked out of the door behind it, as though he'd seen me entering. I asked for a minute, and eventually asked for a chicken biryani and a mango lassi. He took my order with a friendly politeness, speaking the same mildly accented English of first-generation Indo-Pakistani immigrants that I did. I paid for my meal, and then slid into one of the booths by the windows.

The bright sun shining from its pedestal on the blue sky, the dusty heat emanating from the ground, the difference in temperature across the right side of my body facing the window and the left side the cool interior of the restaurant… as with every Indian summer, I needed something to cool me down. And as with every Indian summer, the mango lassi delivered.

A lassi is a cool drink of sweet[1] buttermilk, spiced up and churned from yogurt into a thin consistency. Add in mango milk before you churn it and you get mango lassi. April is early in the year for mangoes, so you'll detect a tinge of sourness of raw fruit in the sweet nectar of mango that's mixed into each sip. That's always how it is early in the year, when you coax your grandma to make it even though she insists that the mangoes aren't ripe yet. The mangoes that Kabob Shack were also slightly raw, and the lassi slightly sour. It was perfect.

I had barely taken a couple of sips when the waiter showed up with my biryani. Like every world-famous-in-Delhi restaurant, the food was already made and ready to be served, because the cooks already knew how much they'd sell that day. I thanked them for the meal, and took my first bite.

There was a biryani place in Old Delhi that my dad loved to frequent. That place made biryani with rice so good, that people would request the restaurant to have "boti kam" — less meat. This is because the rice tasted so good, they wanted to have more rice even at the cost of having less meat, which is normally the more expensive component of a biryani.

The rice was so good, it made me wish I'd asked for boti kam. It was flavorful and spicy, soft in a way that melted in your mouth. The spices covered my tongue in a gentle tickle, with the saffron, chili, onions, turmeric all blending into a marvelous whole. I could sit there and chew on the rice all day happily, and I did… until I came up onto the meat.

The chicken was succulent, perfectly cooked and falling off the bone in a way I've never been able to replicate. And it was spiced the same way, losing me again in that sea of delicious flavor. Maybe it was okay that I hadn't asked for boti kam after all…

I sat there a good half hour, working my way through the plate, sipping the lassi whenever the flavors got too over-whelming. I loved every minute of it. They had proportioned the rice and meat perfectly, and I ran out of both at exactly the same time despite not budgeting either of them.

As I walked out, I thanked the waiter profusely. He asked me to come again, and I assured him that I would.

ॐ

As I walked across Philip St, someone outside Marble Slab blew dust from their little lawn all across the sidewalk with a leaf blower, leaving my surroundings dusty. And as I crossed the Plaza, a Kia Forte nearly ran me over, with a driver who had their window open, and was clearly looking neither at me nor where their vehicle was going.

I was home.

tendstofortytwo

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1. They also have salty lassi, but I don't like that so I will pretend that it doesn't exist.

THE EXTENSIVE mathNEWS CHECKLIST

You there! Are you a **mathNEWS** writer? If not, become a writer first, then, after that, continue reading this article. If you are a writer, then I hope the following is helpful.

I have devised a checklist writers should go through before each prod night's deadline. There have been way too many instances where I missed doing a critical[1] step and regretted it immensely,[1] instead ending up having to do them for the following prod night. So, to prevent doing so, I suggest everyone keep this article somewhere close to their person when doing the standard **mathNEWS** activities.

BEFORE PROD NIGHT

1 — HAVE YOU BEEN COLLECTING profQUOTES?

The lucky among us[2] have profs with personality who often say funny quips or sus[2] comments in class, and it is your duty to jot them down for submission later.

2 — HAVE YOU WRITTEN YOUR SECONDARY ARTICLE AHEAD OF TIME?

If you write at least one article, you get your pizza for prod night, so however early you want, have a secondary article ready and submitted. It should not need to take much thought and effort. Something short and sweet can do. Go get your prod night pizza guaranteed ahead of time, just in case.

3 — HAVE YOU THOUGHT ABOUT YOUR PRIMARY ARTICLE?

You can consult the ideas-bot in the **mathNEWS** Discord server. If you are the type of person to plan out everything in advance (like me), perhaps you have already prepared enough article ideas before start of the term. Maybe you can collaborate on an idea with some of the other writers. Just make sure that you actually can finish it in time though. Even if it turns out you need more time and thus delay your article to the next issue instead, at least you already had your secondary article submitted for that pizza.

4 — HAVE YOU SUBMITTED YOUR profQUOTES?

Once you have your two weeks worth of **profQUOTES** collected, send them to mathnews@gmail.com making sure to include in which course and by which person the particular quotes were said.

DURING PROD NIGHT

5 — HAVE YOU FILLED OUT THE mastHEAD?

You can submit the first thing that comes to mind (such as amogus[2]) or actually put some effort into a thoughtful answer. Perhaps talk with others to create a chain of related responses?

6 — HAVE YOU SUBMITTED QUESTIONS TO mathASKS?

How often do you get to ask a prof or an editor if they are sus[2] or not? You can even be really specific in your questions if you want. Have some fun with it. Ask away!

7 — HAVE YOU SOCIALIZED WITH OTHERS AT PROD NIGHT?

It can be a good way to get to meet some people.

8 — HAVE YOU PRESENTED THE "NONE PIZZA WITH LEFT BEEF" OPTION TO THE EDITORS FOR THE PIZZA VOTE?

Self-explanatory.

9 — HAVE YOU CREATED A COALITION TO VOTE ALL TOGETHER FOR THE "NONE PIZZA WITH LEFT BEEF"?

It's important that enough people vote for this pizza in an approval voting system, otherwise it can get easily drowned out.

10 — HAVE YOU CREATED PROTEST AND OUTCRY AGAINST THE EDITORS' DECISION TO 1984 THE "NONE PIZZA WITH LEFT BEEF"?

It is important that the editors feel shame about their blatantly undemocratic actions. *[Editor's note: I feel pride.]*

11 — CONSIDER GOING TO PIZZA QUEST.

After having witnessed the tyranny of the editors, consider going to pizza quest if you are passionate about ~~helping out~~ getting first dibs on pizza. Do note that carrying pizzas is quite the workout for your arms.[3]

AFTER PROD NIGHT

12 — HAVE YOU FINISHED YOUR PRIMARY ARTICLE?

The deadline is 9 AM the day after prod night, so you have some amount of time after prod night ends to finish up your primary article, if you have not yet. Perhaps **mathNEWS** is important enough to warrant an all-nighter? It's up to you.

☙

With this, you should not miss a single important step. This list should smoothen out the entire process surrounding prod night, leaving no one with the eerie feeling that you may have left out something important. I hope all your future prod nights go well!

boldblazer

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1. Just go with the exaggeration.
2. haha sus among us
3. I almost died once.[1]

MODERATING THE WEB
A HANDY SURVIVAL GUIDE TO BUILDING COMMUNITY THAT MATTERS

As a Discord and Reddit moderator, there's one thing I can say for sure: people are terrible on the Internet. Always have been, always will be. Of course, that's not a new observation, but it holds true. No matter what your definition of terrible is, there will be somebody on the Internet being that exact thing. That being said, the question remains: how do you build a space where you and the other people you want in your community can exist happily while keeping whatever terrible things you want out? I'd like to think that I have a few tips I can offer.

KNOW YOUR AIM

Different communities have different goals, and setting out some good goals can be really helpful! While it can be nice to grow a space to be the biggest within its niche on the Internet, most of the time I think it's actually better if you can build a small but active community with regulars who know and respect each other. These two goals require vastly different skill sets and ways to manage the community, so it's important that you know which one you want to build towards as you interact with users.

BE OPEN TO COMMUNICATION

Even if you created the community, as soon as you let other people into it, it's not fully yours. Nobody likes an overcontrolling mod; talk with the members of your community, especially your fellow mods, and make sure that you're all on the same page with what actions should be taken and where things should be going as a whole. Sometimes, people other than you may have good ideas, and it's worth respecting that.

HAVE A GOOD SET OF RULES

In order to be fair to your users, it's good to set out what lines people can and cannot cross. For example, I moderate comics communities, where different communities can have very different rules about piracy. A more general rules difference might be over NSFW content. Defining what exactly breaks the rules can be really useful to users, first to tell if the community is for them upon first joining, and second to be sure that if somebody does something against the rules, they can't say that they hadn't been warned.

BE FAIR WITH YOUR ACTIONS

I've seen mods go soft on their friends time and time again. Don't do this, please, it just creates an environment where there are clear favourites and everybody knows it, which just builds resentment against the mods. It's easy to fall into the trap when you know that your friends can do better, they were just in a really bad mood, but fair is fair. If you won't extend that courtesy to somebody else, don't do it to your friends.

ACT DECISIVELY

There's this one Twitter thread from a guy named Michael Tager that details the story of one time he went to a bar and a guy sat down next to him, who the bartender immediately kicked out. Tager asked the bartender why, and the bartender told him that there were some Nazi symbols on his shirt. The bartender went on: "[Y]ou have to nip it in the bud immediately. These guys come in and it's always a nice, polite one. And you serve them because you don't want to cause a scene. And then they become a regular and after awhile they bring a friend. And that dude is cool too. And then THEY bring friends and the friends bring friends and they stop being cool and then you realize, oh shit, this is a Nazi bar now. And it's too late because they're entrenched and if you try to kick them out, they cause a PROBLEM. So you have to shut them down."

This happens all the time online, too. Communities can tip into racism, transphobia, or whatever other thing you're trying to avoid, much faster than you think. You have to remove them before they become a substantial part of your community. Sometimes the person who starts pulling out these talking points is already a regular. This combines with the last point: they still gotta go. Learn to recognize the dogwhistles and have a quick trigger finger when they start being used.

PERSEVERE

It can be very difficult to run a community. Sometimes, you ban one guy once and then they come back again and again with dozens of different accounts. Sometimes, they threaten to sue you for banning them, or target one specific user for harassment. But you can't give up, because then they've won. Then you've let them destroy the community you've worked so hard to create. Stand strong against threats, work with the rest of your team, and take mental health breaks when you need them. But keep going. It's worth it in the end, I can promise you that, and I wish you the best of luck. :)

Predap

WARNING

I have no idea when the incoming students do their course selection for this upcoming fall term, but I swear, none of you first years better be taking a course taught by David Jao. If he is teaching MATH 145 again, I would say you should leave while you still can. *[Editor's note: Do incoming students read* **mathNEWS***? This is a genuine question]*

boldblazer

I LOVE YOU

I am trying
To be better
At telling my friends
I love them

I hope that one day it is a normal part of my vocabulary
I hope that one day I won't have to justify
To add a disclaimer
"I love you" "as a friend"

That I will know
Them
Well enough to feel
So deeply for them all
Without reservation

That they will know
Me
Well enough to know
That I love them
In all the ways that count

Why should I have to tell them any different
Why should I have to discount my feelings
When what I mean is that
"I love you"
The same as any other

I never tell it to them
I'm always too scared

But I think it at them
Every time they make me smile

I used to tell it to them
I used to be braver
Or maybe just younger
And less anxious

Maybe this is my secret way of trying
To be better
At telling my friends
I love them

normalparameters

MOTIVATIONAL

If someone can show up before every single PAC exam in a fursuit, regardless of the time or weather, just to spread encouraging messages, then you can take a moment right about now to make a friend's day a little bit brighter.

(seriously I have massive respect for whoever did this)

hyperlynx

ARE ADVANCED COURSES WORTH IT?

INCLUDES COMMENTS ON MATH 146, MATH 249, MATH 247, STAT 240, STAT 241

"Are advanced courses worth it?" This is the question most Waterloo students ask in their first or second year. I'll offer my perspective for MATH and STAT courses because, well, why would I care about CS or non-math courses? *[Editor's note: ☺]*

If you have a genuine interest in the subject, advanced courses can offer a wealth of knowledge and be personally rewarding. However, it's important to be cautious and aware of certain factors. For instance, some advanced courses, like my MATH 146 offering, may attempt to cover a significant portion of material from MATH 245 in a shorter period, potentially resulting in a denser and more challenging learning experience.

MATH 249 is much more interesting depending on your interests and the prof you get. Some profs tend to do much more enumeration stuff. I've heard of an offering with 8 weeks of enumeration and 4 weeks of graph theory; a lot of people were in love with enumeration after that course, but the graph theory was really dry. Similarly, there have also been offerings with 8 weeks of graph theory and 4 weeks of enumeration offering, which I had — it was pretty bad because I'm an enumeration guy.

STAT 240, in some terms, was hellish. In some offerings, the course may incorporate upper-year material like STAT 330/333, and certain aspects may require knowledge from PMATH 450/451 to grasp fully. Nonetheless, it can be an exciting experience to witness measure theoretic probability in action. I took STAT 241 mainly to avoid the dreaded STAT 231 — but it ended up as, probably, one of my favorite courses that term.

Courses like MATH 247 are useful if you plan to do further analysis courses. If you don't take 147/148/247 and want to take any further analysis courses, you'll need to first take PMATH 333 to get filled in on the stuff you'd be missing from those courses. So, might as well, right?

So, if you can, just take advanced courses and enjoy the challenge.

toxic-cs-people

> # I'm not a mathematician, I'm a statistician, which is better.
>
> ### PROF. MICHAEL WALLACE

WHAT'S FOR BREAKFAST?

In his dream, John found himself in the good world. This world had milder weather than John's world. The birds were a bit prettier, and the tap water was a bit softer. People were also a bit friendlier: a bit more open and honest with each other.

John rolled out of bed and left his apartment, taking a moment to admire a faint rainbow in a nearby sprinkler. It was not long before John noticed that he did not feel at ease. What could it be?

He wandered around town, trying to put it into words. He stood by a nearby shop and idly gazed at its window, as smooth and as clear as the surface of a puddle. It then occurred to John that he could not bear for this world to last forever. He knew that he needed to destroy this world.

This was a sad and strange thought to John — why did this world need to come to an end? He could not say.

John entered the store and bought a pack of gum. The storekeeper was a sleepy fox, curled up in a ball. John placed a dollar in front of the fox, and the fox stretched its orange body and handed him a penny in return.

As John left the store, he stared at the penny in his palm. He then put the penny in his mouth and sucked on it. It tasted like blood, as copper does.

A drop of rain fell onto John's hand. He checked for rainclouds; there were none.

A thought occurred to John. He returned home and dug through his closet, unearthing a large glass jar. He placed the penny in the jar and knew at once that the world would end the day it became full.

John then got on with the rest of his day — one of his friends had invited everyone over for dinner that evening. His friend made fried rice with bell peppers; it tasted excellent and it lifted John's spirits. They all indulged in wine and dancing and deep conversation, well into the night. John walked home in the dead hours of the morning, sleepy and smiling.

Every day, John would return to the store to buy a pack of gum, handing the fox a dollar in exchange for a penny. John never spoke to the fox, nor did the fox ever speak to John; their exchanges occurred in knowing silence.

After depositing the penny, John would spend the day with his friends. Not for a moment did John ever regret being with them. On some days, they would explore the world, hiking and climbing and swimming all there was to explore. On other days, they would gather at someone's place and enjoy each other's companies over food and drinks. Not once did John ever regret a day he spent with his friends. At the same time, not once did John ever forget about the jar of pennies in his room.

One night, one of John's friends invited everyone over for stir fry noodles. They were the most incredible noodles John had ever eaten, and he ate so much that he grew drowsy. John eventually fell asleep during a long conversation about time.

In his dream, John found himself in his own world. His friends, the stir fry noodles, the pennies, the fox — they were all fading chunks of some distant and imagined memory. John thought it was a very strange dream, so he laid in bed and stared blankly at the ceiling until he got hungry.

What's for breakfast? This was all John could think about as he entered the kitchen. Maybe he could stick a few waffles in the toaster. Or actually, he remembered that he had some pancake batter left over from yesterday — he could use some today. Did he have any blueberries left? Didn't look like it, but he still had some bananas on the counter — perhaps he could cut one up. And that bottle of maple syrup on the fridge door was brand new, so maybe he could open it today. Any yogurt left? Guess not, but he still had a bit of almost milk left — perhaps he could finish that up. How many eggs did he have left…

As John prepared this delightful breakfast, there was a knock at his door. It was his friends, and they had brought him a small container of stir fry noodles. John woke up with a shudder.

John found himself wrapped in a blanket, locked in a hug with one of his friends. It seems that everyone had fallen asleep during the long conversation about time. He wanted to fall back asleep, but the tap was dripping, and he couldn't turn it off without bothering his friends. So John did not sleep that night; he only listened to the dripping of the tap, steady and ceaseless. When would it run out of water?

He knew he would feel a great relief when he could finally leave his friends and close the tap.

Day by day, the jar was filled. One morning, John looked at the jar and knew that today would be the final day. He went to the store and bought a pack of gum from the fox, taking a penny in change. As John left the store, the fox hopped off the counter and followed him. John and the fox walked through town one last time. There were dense grey clouds overhead; John knew that no world could ever be built to withstand the rain these clouds held.

When John reached the steps of his place, the fox blocked his way and demanded to be pet. John pet the fox, first on its back and then on its belly. Once satisfied, the fox leapt up and ran away.

At home, John dropped the final penny into the jar. He could no longer screw on the lid, so he left the jar open. The rain began to trickle outside, so John returned to bed and waited. He slowly fell asleep.

John found himself back in his world. He was sprawled on the floor of his home, his body covered in scrapes and cuts. His front door was open, so he closed it and returned to the kitchen, where he found a fully prepared breakfast. John ate his breakfast, completely at ease.

John then stepped outside and saw that it was drizzling. The rain felt good on his scrapes and cuts, so he stood still with his arms outstretched, letting the rain wash the dirt and blood from his wounds. It poured harder and harder. John stood so still for so long that he became a statue: a man not of blood but of copper.

It rained ceaselessly.

χ

REMOTELY WORKING FOR mathNEWS

Though my physical presence in the University of Waterloo is currently unavailable, I wonder if I can still exert influence on what **mathNEWS** writes from across the country…

Hello from Greater Vancouver! Please do not resist as I write my words around 4000 km away from the nearest M3 1006. I hope you enjoy my timestamp on this post, editors. *[Editor's note: 12:32 AM]* Seeing me write this past midnight, ha! Though, I guess y'all'prob'd've stayed up later at one point or another.

As for me, I'm basically unemployed :3. WE Accelerate it is? That's about it really. My younger sister made me dress up like her, so now there is a photo of me wearing a Stussy hoodie, baggy pants, ski sunglasses and… "throwing fours". or something? Prithee thee, if thoust can helpeth me decipher the slangs of my mother's child it would be much appreciated.

I have COVID now. Yesterday I pulled an all nighter for fun doing nothing. What's my life come to? rawr uwu

Wait, also, since when has the word limit been 1000 — *[Editor's note: ☺]*

andoiii

> ## It's not how brilliant you are; it's how dumb you're not.
>
> PROF. IAN MUNRO

CS 497: DESIGN PROJECT
A COURSE NO ONE SEEMS TO KNOW ABOUT

What (Short Version): CS-parallel of the Software Engineering Capstone Project. Check the official course website[1] for more details.

What (Long Version): Individually, or in a team (recommended size is 2–3), propose and work on a computer science project. Most people seem to make mobile apps, but anything CS-related is fine as long as the professor approves. The course is primarily self-paced and self-directed, with a few checkpoints sprinkled throughout the term. Each checkpoint is either a meeting with the professor or a presentation in front of the class. The focus of this course seems to be on your idea and the way you sell it, rather than the implementation itself. Obviously you do need a (somewhat) working prototype at the end — it's a CS course after all — but more importantly, you have to be prepared to explain the unique value of your project. And if you can't, well, then why are you working on it?

Why: Work on a project that interests you, while receiving expert guidance, collaborating with like-minded peers, and earning a course credit. CS 497 also satisfies the *One of CS 440– CS 498* degree requirement.

When: Supposedly every term if there is enough demand, probably need to confirm on a term-by-term basis.

Prerequisites: Officially, CS 246, CS 341, CS 350 and Level at least 3B. Web development experience and/or CS 349 can be helpful.

Alternatives: The *CS 493/494: Team Project* sequence is the two-term equivalent of *CS 497: Design Project.* It's harder to fit into one's schedule due to co-op sequences and such, so realistically CS 497 works better for most people.

courseSelectionStarted

1. https://cs.uwaterloo.ca/get-involved-with-ecapstone-at-cheriton-school-of-computer-science

N THINGS I DRANK IN FORTNITE

1. chug jug
2. slurp juice
3. guzzle juice

tr1e@tiltedtowers

SOME SONGS I'VE BEEN LISTENING TO:

駆け抜ける BY SCHOOL FOOD PUNISHMENT

Off their first album, *amp-reflection*, Yumi Uchimura provides a transcendent journey through the use of 2000s JRock Sound combined with Synths and Violins. I was studying for my STAT 231 exam when I was doing a full listen of *amp-reflection*—previously I had listened to individual songs from SFP but never ran through the album (haha, this song translates to RUNNING THROUGH). In the middle of reviewing maximum likelihood estimates, at *3:55* of the song, there's pitched down version of Yumi Uchimura, maybe even auto tuned that echoes the chorus. It was this moment I was shocked, and promptly added it to my playlist. I was in love with the sound, the story the song tells.

Check out School Food Punishment if you want more of that 2000s Japanese experimental blend of pop, rock and some electronica.

SAY BY DEB NEVER

Say comes straight out of Deb Never's last EP, "Thank You for Attending". Deb offers an assortment of unique sounds, that the label "Indie Pop" could not contain. *Say* starts off with a nice acoustic guitar, then soothes your worries with her warm and calming vocals. There is not a lot to say here, but there is a lot to hear, check her out.

WILDFLOWER BY MDMA

If you're a fan of the intersection between rap and hyper pop, akin to midwxst—I think this song is for you. MDMA or Molly's production brings a new sound to the genre—I am definitely excited to hear more of his sound. He will definitely be on my radar.

SALTY & SWEET BY AESPA

I am a big fan of the electronic, noisy, gritty kind of sound so when Aespa was introduced to me half a year ago, I was in love. Off Aespa's latest comeback, "MY WORLD", *Salty & Sweet* introduces you to the song full of grit through rap layered with hard and aggressive industrial synths. This sound screams Aespa; no other group could pull something like this off. Also, I love Winter.

That's been 4 songs that have been on my mind recently. Have fun with these and keep listening!

tr1e

N ACRONYMS FOR CND

- Coffee and Donuts (the usual acronym)
- Cheap and Delicious
- Cherished and Desired
- Convenient and Delightful
- Chili and Daily Specials (who doesn't love the Friday chili and garlic bread sticks?)
- Cash and Debit (the CnD takes both as payment!)
- Credit and Debit (not mine. The CnD also takes credit as payment!)
- Councillors and Directors (MathSoc Council and Board of Directors. MathSoc operates the CnD after all!)
- Contractors and Delays
- Construction and Development
- Cancellations and Disruptions
- Closed and Deserted (you can tell I was coping with CnD renovation)
- Cartoons and Distributions (see MathSoc Cartoons ep. 46)
- Cease and Desist (credit: AHpache)

I love the Math CnD <3

labyrinth

MATH 145: THE SHOW

Come here to enjoy a show like you've never seen before. Come here to see the magic; the birth of mathematicians and brilliant minds alike; the birth of Putnam contestants. Come and enjoy the show, come watch the proofs fly and sparks appear. Watch awe sparkle in the eyes of the youth. It's the experience of a lifetime, I tell 'ya!

Now, you may ask, "why should I even attend?" Well, if the above doesn't sell 'ya, let me tell you about the added benefits. Let me tell you about rewards and riches beyond your wildest dreams; rewards that will make you drool! First and foremost, you say it is difficult and impossible to do. But have you ever stopped to ask yourself if anything worth doing in life is ever easy to do? All things that are worth a damn will give 'ya trouble; may as well reap the rewards now.

You will see the magic of the profs, be set up with a small class, and get a wonderful group of mates. You'll gain knowledge beyond your wildest dreams. And buddy, I tell you, knowledge is gold. Just imagine the fortunes that await as people flock to you to gain some of wisdom and knowledge. All because you took a simple class!

SO COME, MY FRIEND, AND ENJOY THE SHOW! IT IS ONE OF A KIND!

Kermit

GRIDWORD

OMG NEW gridWORD
gridCOMMENT *152.1*

heloooo everyone!! welcome back to a new semester of **gridWORD** content, delivered biweekly by me, mr wonk.

for those joining to try their best at **gridWORD**s this semester, welcome! i wish you the best, and i wish everyone continuing to take on these **gridWORD**s their best as well!! :oooo

this issue, you may find some words are sort of… **inky**, but hopefully it's not too messy for you to complete ;)))

as usual, i ask you all a question. this time, i ask you "what, if anything, do you desire most?"

please send your **gridWORD** solutions, **gridQUESTION** answer, and pseudonym to mathnews@gmail.com by June 5th at 6pm, and i will read your answers next time! :0000

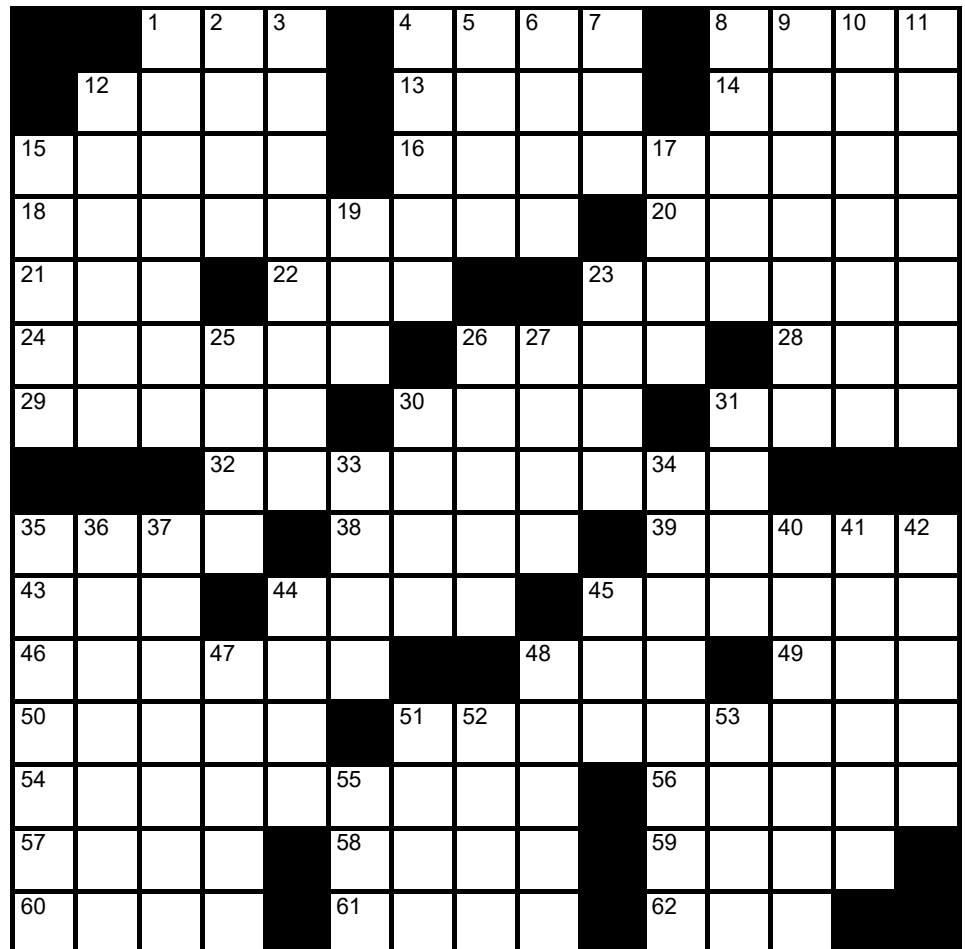good luck, and hopefully your semester goes well!!! see you again soon xoxo

Wink wonk

ACROSS
1. 1. Pair
4. 2012 word, meaning cool
8. Wonk even*
12. Dessert ___
13. Robe for Caesar
14. Gulf of ___, off the coast of Yemen
15. Addiction
16. Replace old with new
18. Of words or thoughts, not spoken or expressed
20. Bikini, e.g.
21. More, in Madrid
22. Alter, in a way
23. Female part of a flower
24. Implant
26. Londoner, e.g.
28. Old White House nickname
29. Suez Crisis figure
30. Dinghy or dory
31. Decorated, as a cake
32. Features of some bright rooms
35. Can be used for 26 down
38. A long, long time
39. Martini garnish
43. Santa ___, Calif.
44. Hardly a Pulitzer candidate
45. Hypothetical hominid
46. Guide
48. Ball
49. What an oozy thing might ooze
50. Kind of race
51. "Legend of Zelda" character, over-caffeinated*
54. Amass
56. Mommy's sister
57. Thing you enjoy during 26 down
58. ___ and terminer (criminal court)
59. Droops
60. Back talk
61. Dalai ___
62. "So ___ me!"

DOWN
1. "Clair de lune" composer
2. Condo, e.g.
3. Be more clever than*
4. Eye site
5. Interlaced
6. Got gray
7. Long-jawed fish
8. Growths
9. Nutty
10. Resembling a mesh
11. Tolled mournfully
12. "Later!", in Spanish
15. Steamy
17. "Hold it!"
19. Unagi, at a sushi bar
23. Rind lining
25. Something to do
26. Followed by -ing, meaning sex ;)*
27. Companion of riches
30. Coalition
31. Bermuda, e.g.
33. Calendar span
34. Higher-ups
35. Reversible fabrics
36. Resistance to change
37. Gorges
40. Have an effect
41. Brags about
42. Exalt to the heavens
44. Like the baby goslings say
45. "___ you ready kids?"
47. Carpet fasteners
48. Where to hear an aria
51. "Hey!"
52. Primordial matter, as hypothesized by the Big Bang Theory
53. Island feast
55. Neighbor of Ger.

lookAHEAD

SUN MAY 28	MON MAY 29	TUE MAY 30	WED MAY 31	THU JUN 1	FRI JUN 2	SAT JUN 3
National Burger Day 🍔	Drop deadline Tuition and fee refund deadline — 100%	Drop with WD begins		International Sit In Your Truck Day	Final exam schedules released 😟	World Bicycle Day

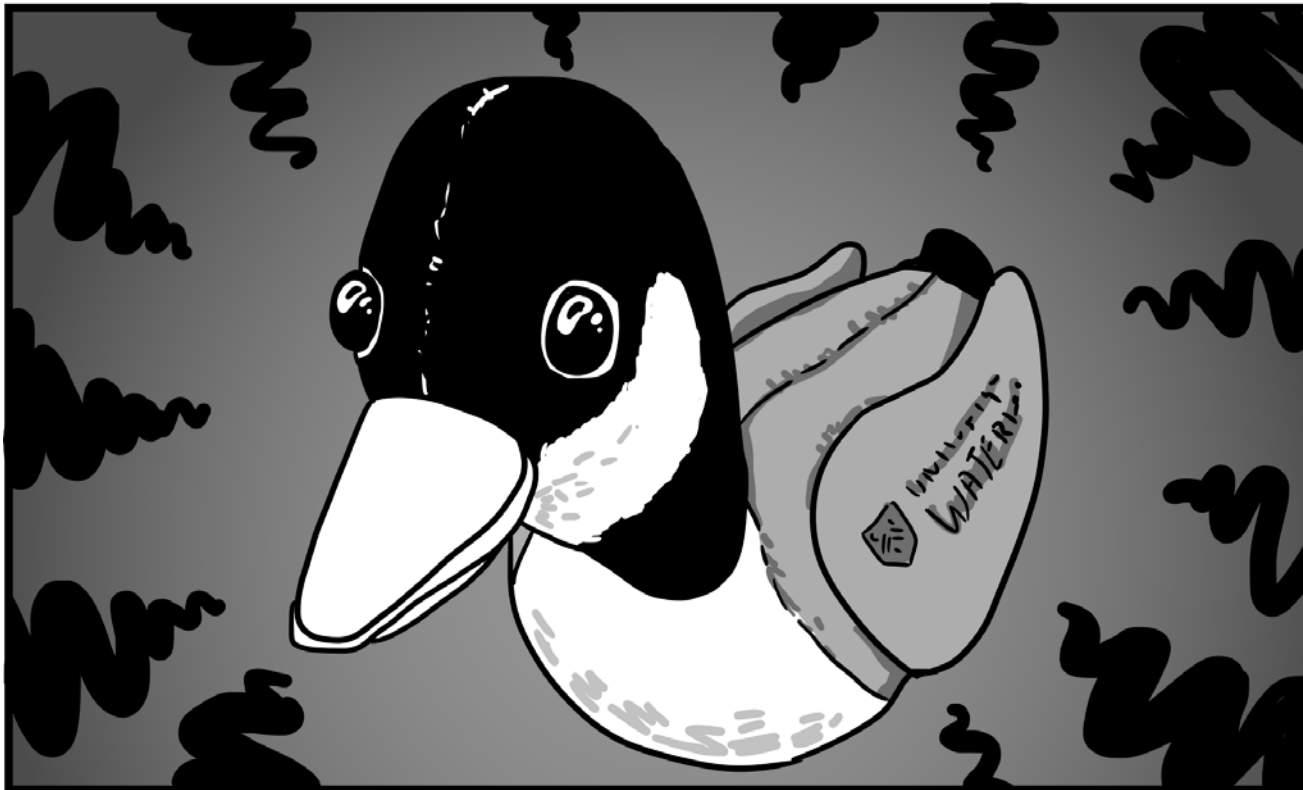| SUN JUN 4	MON JUN 5	TUE JUN 6	WED JUN 7	THU JUN 8	FRI JUN 9	SAT JUN 10
Regional Burger Day 🍔🍔	**mathNEWS** 152.2 production night Course selections end		Cycle #1 interviews end	Cycle #1 rankings available	**mathNEWS** 152.2 released Cycle #1 match results available 😣	

otherNEWS is made technically possible by club executives of the Math Faculty.

I say "technically" because if they had sent us more news this week, this box wouldn't be here.

THE mathNEWS EDITOR WHO PUTS THE "NEWS" IN mathNEWS