

"WHAT IS YOUR HURRICANE NAMING SCHEME?"

SOME OF THE CONTRIBUTORS' NAMES WERE WHISKED AWAY BY THE *COUGH* HURRICANE *COUGH*.

Happy Friday, and welcome to another term's worth of **mathNEWS!**

For those who are picking this paper up for the first time, hope you're having fun so far. **mathNEWS** is the oldest student-run publication on campus, and by far the best [citation needed —Imprint]. We also have a cute little office right on the third floor of MC, which is where you should endeavour to spend all your time anyways. The lack of windows in most rooms (including our office!) makes it feel similar to a lotus-eater machine, as your mind loses sense of regular human things like the outdoors and the passage of time, and you can finally focus on your assignments like you meant to six days ago when the last one came out. Come by sometime! We promise not to keep you here against your will. Although we can't promise that'll still be yours after you visit.

For long-time readers, good to see you back and holding another copy of **mathNEWS!** Too bad you won't be reading this, as you'll have just flipped to the **profQUOTES** like a seasoned veteran. Don't forget to submit more, either, to mathnews@gmail.com. Good stuff. Keep it up.

In this issue:

- Prof. David McKinnon answers your burning questions and teaches you how to get into grad school.
- The death of the pink tie sticker returns. Not new news, but necessary news.
- Sad **mathNEWS**-related happenings are detailed.
- Co-op-less co-op students are given a way to put their minds at ease.
- Math and girls. Or people of any gender, really.
- Fast food lyrics and Oreo studies.
- A useful statistics prerequisite chart for all who wish to major, minor, or anything else in statistics.
- Something to get you through those long, long days of WaterlooWorks applications.

That's all, folks! Come out to production night on Monday, Oct 2nd to become part of our next issue! (We take souls, too.)

Ito**ED**
Editor, **mathNEWS**

The Editors

Teemo	Name hurricanes after regions America hate, so people can relate
Yaboi	name hurricanes after your worst co-worker
Nitric Acid	name the first hurricane a, the second ab, and then n th as (n-1)(n-1) ⁻¹ for n ≥ 3 where x ⁻¹ denotes the inversion of a string, swapping a for b and b for a.
Beyond Meta	Use the names of mathNEWS writers
Zethar	Just name them all ε. It seems like an extremely futile task to give all of them individual names.
Soviet Canadian	"that one, you know, no the other one I think"
waldo@<3.LE-GASP.ca	Find all the jerks and awful exams you can, then pick the letters that come up.
Viceroy Butterfly	Each one gets a unique guttural screech.
Diminutive Rex	Ask them what their preferred name is.
dank	Instead of naming hurricanes, let's just name each air molecule individually!
	Pokemon
	JavaScript Frameworks
	The place I last co-oped at because I probably broke productions and it's representative of their dev team right now as they try to fix it.
	Name all of them Steve.
tbdED	Give them the author names of our authors who forgot to sign their mastHEAD answers.
itorED	
ExtrovertED	Dog breeds. If those run out, cat breeds!
quizeD	First, suppose for the sake of the argument, that there are at most N ₀ hurricanes to name, then we can index the hurricanes with H _i . We can then define a <i>naming scheme</i> for the sequence of H _i as a function f mapping from the sequence into...

ARTICLE OF THE ISSUE

Congratulations to Octopodes for your great article, Octopodes' handy prereq chart — STAT edition! We are sure many people will read it and gain insight from its greatness.

Drop by our office (MC 3030) to pick up your prize! If we're not here, email us at mathnews@gmail.com to figure it out.

Six editors. A perfect number indeed.

MICHELLE ZHU, **mathNEWS** EDITOR FOR SEASON 2017
ALONG WITH SHAUNDALEE CARVALHO, ANGELA LE, ZISHEN
QU, CAMERON ROACH AND HEATHER STONEHOUSE

A RE-FAREWELL TO THE PINK TIE STICKER

THE END OF AN ERA CAME IN THE NAME OF ACADEMIC INTEGRITY FOR MATH-APPROVED CALCULATORS

As of February 16, 2017, the Math Undergrad Office has handed out the last of the pink tie stickers to those students who had brought in their calculators for approval. Unfortunately for the students who missed out on this opportunity, there will **never** again be a new stock of pink tie stickers to approve one's calculator. That means, if you have a calculator that can be approved, you currently have no method to get it approved.

WHY IS THIS HAPPENING? WHY NOW?

Back in June of 2015, the Math Faculty announced a major change to the calculator policy: the only calculator that would be permitted would be the TI-30XIIS/B and all permitted calculators (i.e. those that currently sporting a pink tie or its equivalent) currently floating around would be rendered useless beginning in Fall of 2015. The main reason for this change was to streamline the policy, allow for fewer opportunities to violate academic integrity, and make it easier to proctor exams and catch perpetrators. In addition to this, the pink tie sticker was intended to be phased out completely and only models that had an embossed pink tie (or equivalent) would be permitted for use in exams. Many who were caught violating academic integrity in the past had acquired a sticker, placed it on similar looking, yet unapproved calculator models that had higher functionality/power (i.e. programming capabilities, integration functionality, etc.), and made use of said unapproved calculators on exams. While the Faculty places a high priority on academic integrity, it unfortunately neglected to consult students prior to making these policy changes.

The Spring 2015 MATHSOC Student Council and the Executives at the time went all the way to the Associate Dean's Office with many students' concerns and fought to have the policy modified. Their efforts at the time gave us the current policy we see today with the Math Faculty permitted not only just the TI-30XIIS/B model, but also the Casio fx-300MS and the SHARP EL-531X/XG/XH models. The agreement at the time however also meant that the pink tie sticker was still poised to be phased out as the three newly approved models would be sold on campus (as well as distributed in the first-year Orientation kits) with an embossed pink tie, or equivalent. Any remaining stickers would be distributed as needed for students who did not have them on their calculators yet, and no more would be acquired as such. The Math Undergrad Office dutifully distributed its remaining back stock of stickers, always with the caveat that they may run out. Almost 5 full terms later, they disappeared.

WHAT DO I DO NOW? I NEED A PINK TIE STICKER!!!!

As it stands right now, if you need a new Math Faculty approved calculator, you are only able to purchase one on campus at MATHSOC (MC 3038), Campus Tech (SLC Basement), WriteStuff (SCH), or Media Doc (STC). Depending on the model of calculator desired, students may need to

spend as little as \$17 to as much as \$36 for an embossed version. Of the outlets mentioned, arguably the cheapest one to purchase a Math Faculty approved calculator is MATHSOC itself. They sell the **TI-30XIIS for \$17**, the **Casio fx-300MS for \$20** (which is currently out of stock), and the **SHARP EL-531XG for \$23** with all pricing being cash only, with taxes included. The absolute cheapest method for acquiring an approved calculator by far, however, is finding a friend who can let you borrow theirs. While MATHSOC itself also has pink-tie calculators available for borrowing, it is important to note that they do not currently loan them out for exams.

THAT'S GREAT AND ALL, BUT WHAT'S BEING DONE TO FILL THE GAP FOR STUDENTS WHO HAVE ALREADY SPENT MONEY ON CALCULATORS THAT NEED TO NOW BE EMBOSSED?!

MATHSOC Directors, Student Council and the Executive are currently looking into ways to fill the gap to make sure students spend as little money as possible on getting the materials they need. Proposals have included offering a calculator exchange program where students would pay a nominal fee (i.e. under \$5) to have their calculator embossed with MATHSOC itself so long as it's a more approvable model. That said, it may very well take a few terms to have such a new system in place after consultation with all affected parties. If any of **mathNEWS** readers have further concerns about the demise of the pink tie sticker or suggestions to fill in the gap that was created, feel free to message MATHSOC's current Vice President of Academics, at vpa@MATHSOC.uwaterloo.ca.

If you are ever concerned about the calculator requirements for your classes, however, please don't hesitate to contact your instructors for clarification (some are more strict about the policy than others).

A Mediocre Kitty



mathASKS 135.1

FEATURING PROF. DAVID MCKINNON

OLIVER XU: IS IT HARD TO BOTH BE AN ADVISOR AND A PROFESSOR?

Nope. You guys are so great that it's easy to manage both.

DIMINUTIVE REX: WHAT IS YOUR FAVOURITE PROOF?

Ooh! Tough one. I'm gonna go with the proof that there are infinitely many composite numbers. I learned it from the great Hendrik Lenstra.

"Assume that there are only finitely many composite numbers. Multiply them all together, and then don't add one."

THEUNDECIDED: WHAT IS YOUR FAVOURITE SHADE OF PINK?

My favourite shade of pink in year n is whatever shade the Math Tie is in year n .

MYSTERIOUS STRANGER: WHAT IS YOUR LEAST FAVOURITE VALID PROOF?

Oh, jeeppers, there are so many. So often, mathematicians figure out how to prove something before they figure out why it's true, and that can lead to some truly dire proofs.

I think I'm going to go with the standard proof of the Jordan Curve Theorem. For something that seems so obvious, that's a heck of a complicated argument.

NITRIC ACID: WHAT IS THE BEST JOKE YOU'VE TOLD IN CLASS?

Well, I'm not the best person to judge that. In fact, you guys might be the best people, since **mathNEWS** is in the business of collecting funny things profs say in class. Nevertheless, I'll give you the best one I can think of at the moment, which came to me courtesy of Edward Onochie, a student in my PMATH 347 class a while back:

Q: How much money do you have if you can afford to commute?

A: Abelian dollars!

WALDO@<3.LE-GASP.CA: HOW DOES IT FEEL TO NOT BE THE ASSOCIATE DEAN ANYMORE?

Not so different from being the Associate Dean, actually, although obviously there's significantly less administrative work for me to do now. While I was the Associate Dean, I felt — perhaps even correctly — that I was able to do some good for students, staff, and faculty at the University, and I don't feel I'm able to do that as much anymore. But there were a few things about the job that got a bit wearing after a while. One very good way to describe it is to imagine that you're holding a mug full of coffee in your hand. When you first pick it up, it feels pretty light, and it's no trouble to hold it. But if you're

still holding that same cup of coffee three hours later, it feels like a ton weight and you're aching to put it down. There were a few aspects of being the Associate Dean that eventually made me feel that way, but on the whole it was a very positive experience. The people I worked with closely, and most of the people I worked with more remotely, were all great people, doing a really good job of keeping this place running smoothly, and working to make it better.

CYLONSYMPATHISER: DO YOU FEEL BAD WHEN PEOPLE ASK YOU TO SIGN THEIR PMATH MAJOR FORM WHEN IT'S THEIR SECOND MAJOR?

Absolutely not. If they can't figure out that Pure Math is da bomb and second to none, screw 'em.

MICHAEL HUNT: HOW MANY SUITS DO YOU OWN?

Five. Two black, one brown, one blue, one green.

SOVIET CANADIAN: WHAT IS YOUR FAVOURITE SANDWICH? (BE GRAPHIC PLEASE)

First, you get a roast beef. Then you get a knife, its blade gleaming sharply, and slice deeply and ruthlessly into the roast, carving slice after slice onto the rich, white bread. Slices of juicy tomato pile on top of the roast beef, their nakedness inviting the cover of layers of lettuce. Finally, a second slice of bread is lovingly lain atop the sandwich, bringing the process to completion. Mmmmm.

BENJAMIN DOVER: HOW DID YOU GET SO BEAUTIFUL?

It's a side effect of the alien probes.

PERSON WHO WANTS TO HAVE AN OVERRIDE FORM SIGNED: CAN YOU SIGN MY OVERRIDE FORM?

To quote Scott Adams, "The answer to your question is 'trout'. Hope that helps!"

ME: WHAT IS YOUR ANSWER FOR A NUMBER DIVIDED BY ZERO?

"Infinity" every time, baby. Well, unless "a number" also happens to be zero, in which case all bets are off.

A SMALL PIECE OF CHEESE: DO YOU SPEND YOUR FREE TIME AS A SMALL PIECE OF CHEESE?

No. I've put on weight.

A THIRD DISTINCT SMALL PIECE OF CHEESE: WHAT ARE YOUR FAVOURITE MATH BOOKS?

Ooh! This is a fun one. I've got lots, but amongst my personal highlights at the moment are Serre's *Lectures on the Mordell-Weil Theorem*, Allan Clark's Elements of *Abstract Algebra*, and Hindry and Silverman's *Diophantine Geometry: An Introduction*.

QUIZED: WHERE IS THE WORST BLACKBOARD THAT YOU'VE EVER TAUGHT ON?

You know, I'm not sure — all the blackboards I've taught on have been pretty decent. You should ask Professor Cam Stewart about this, though. He once taught a class in RCH, when it was still under construction (and therefore still called ELH), and on the first day, he arrived in the classroom to find a stream of water flowing down the middle of the blackboard. Gotta be a chalkboard record for badness.

HOW TO GET INTO GRAD SCHOOL

Actually, this is how to get into grad school in pure mathematics, because that's what I know. I bet it's not too different in other subjects, but if in doubt, apply the following wisdom:

"If there's somewhere you want to be, find someone who got there and ask them how."

In other words, if you want to go to grad school in CS, find a computer scientist and ask their advice.

Anyway. There are only three things that matter when applying to grad school in pure math:

1. Marks on your transcript
2. Letters of reference
3. Nothing else

OK, that's not quite accurate. But if you don't have good marks, or if you don't have good letters of reference, you're not getting into grad school. And if you have good marks and good letters of reference, then you're almost certainly getting into grad school.

You all know as much as you're gonna about how to get good marks, so I won't talk more about that. The letters of reference is a trickier business, though. First, most important thing:

Every research faculty member has, as part of their job, the responsibility to write letters of reference for students, unless there's a good reason to say no.

Asking someone for a letter of reference is a bit like asking someone out on a date. It's putting a little piece of your self esteem on the table, and asking someone whose opinion you respect to please not crush it. The sentence above will, I hope, make you feel a little less intimidated.

Now, there are lots of reasons a prof might say 'no' to you, many of which have nothing to do with your worth as a student. But if they say "no", accept it and move on. Don't hassle them, because a best case scenario there is a reluctant, crappy letter that will do you way more harm than good.

Who should you ask? If you did a USRA and it went well, ask your supervisor(s) for a letter. Such letters are like gold. Otherwise, ask professors who taught you the most advanced course you took in which you did well. It doesn't really matter if you never talked to the prof during the term (though it helps if you did) — the professor can still write a useful letter based on the substantial mathematical information about you provided by your assignments and exam scores. It's also perfectly OK to tell prospective letter-writers what your aspirations are, and ask if they can write a letter to support them. "I want to go to grad school at Cornell. Can you write me a letter of reference to support my application?" For example.

"What about the Research Statement?" I hear some of you ask.

Doesn't matter what you write there. Most places don't even read them. But if you want to be safe: pick a piece of mathematics that is as difficult and technical as possible that you still thoroughly understand, and write about it and how much you like it, for about two paragraphs' worth. But seriously, it doesn't really matter. The GREs also don't matter, except that you probably shouldn't bomb them. Yes, that includes the subject test.

So, to sum up: get good marks, and find three professors to write letters saying you're awesome. Don't chicken out and ask the nice prof for a letter; ask the prof whose hard third-or-fourth-year course you aced. Do that and you're set.

David McKinnon

DATA SCIENCE CLUB SEZ

After an exciting year of becoming an official major in the the Math Faculty and inviting corporate speakers such as Facebook and Uber, University of Waterloo's Data Science Club has recently joined Math Society. Data Science Club connects passionate minds together, to teach and equip them with tools to excel in data science through hosting weekly knowledge sharing groups, workshops and speaker events.

Data Science Club will be hosting its first weekly meeting of the term on Tuesday, September 19th at 6:00PM MC 4058. In addition to weekly meetings, upcoming events include a Co-op Panel and Resume Critique session taking place Thursday, September 21st and Thursday, September 28th at 6:00PM in MC 4058, respectively.

For more information, stay up to date with the club through their Facebook group, Waterloo Data Science Club, or subscribe to their mailing list: <http://bit.ly/2xLKbq7>



Data Science Club

WHY DIDN'T HACK THE NORTH ACCEPT ME WITH AN APPLICATION LIKE THIS

THE LAMENT OF A SADDENED mathNEWS EDITOR

Tell us about the project from the last 8 months that you're most proud of. Why are you proud of it, what roadblocks did you face, and how did you overcome them? Be sure to include relevant links. It's okay if it's something you're currently working on!

First of all, this isn't a tech project. I'm sorry, but it just seems wrong to write about something that I coded over a weekend when I've been pouring my soul into an endeavour I hold much closer to my heart: **mathNEWS**. (mathnews.uwaterloo.ca)

Near the beginning of last term, I was made aware of a soon-to-be-endangered species in UW's math faculty — the **mathNEWS** editor. The last of a dying breed, these poor editors spent most of their time hiding from outsiders in their natural habitat, the **mathNEWS** office. Occasionally venturing outside for food (production night pizza) and water (tea/coffee from the CSC), these creatures lived in relative solitude, with only the company of other editors and those who dared to visit them in their tiny cramped office devoid of windows and air conditioning. They should have lasted at least another year in that lifestyle, if not for an ominous change advancing on the horizon: graduation.

You see, the **mathNEWS** editors may have been dedicated to their way of life, but their seclusion meant that they had not readied anyone to carry the flaming torch of **mathNEWS** once the current editors faded from this state of being. What a tragedy it was, witnessing the end of a generation, the death of an era. As an aspiring anthropologist, I could not let this opportunity to observe this phenomenon escape my grasp. And so began my lengthy, painstaking study of these delicate creatures.

I spent months in that office with them, learning their ways of life. I attended production nights, voted on pizza, and even pretended to write articles for them. After all, one cannot truly understand the subject of one's study without attempting to integrate into their culture.

After a few weeks like this, I earned the trust of the weary editors. They allowed me into their sacred abode and taught me the ways of copy-editing and layout. I was even allowed to participate in the ritual of selecting the cover colour. In this, I gained indescribable knowledge.

However, the end of term came along, meaning I would soon have to say a teary goodbye to these strange but darling creatures. As I embraced them in a final hug, I heard a gentle voice whisper in my ear: "You know this is your life now, right?"

In that final moment, realisation dawned: I had become what I came to witness — the last **mathNEWS** editor.

itorED

MISFORTUNE IN THE mathNEWS ROOM

I've recently come to discover that I'm an unlucky person. A very unlucky person. But not the ordinary kind. I cause minor misfortune to those around me whenever I come near **mathNEWS**. And I don't understand why.

The first time I tried to come to a **mathNEWS** production night, it didn't go well at all. My friend dragged me along and convinced me to go, so we decided to take the GRT. One thing I've learned after five years of taking the GRT is to never take the GRT. Since I'm from Waterloo, I live at home and take two buses to come here every day, which sucks, but it's also taught me all of the terrible aspects of this evil transit system. On this day, the bus happened to take a wrong turn, and then we got stuck in the worst traffic I've seen in my life. Like MC-between-classes-bad. We ended up giving up/going home and I thought that **mathNEWS** had released me from its grasp. I was so wrong.

Last week I was in the PMC room when suddenly someone came up from behind and whisked me away to the **mathNEWS** room. I had never been there before and the lovely people there threatened me convinced me to come to production night. So I came, and within a minute of arriving there, an editor's laptop let out a scream of horror straight out of first years getting their midterms back and promptly crashed. I could see their eyes judging me for this: I had murdered their beloved laptop, a crime punishable by being locked inside the **mathNEWS** room, forced to complete an article. It's so dark and warm in here. I don't know what time it is. Send help. Please.

[The first term's the worst. You get used to it! -TurnipHED]

Nitric Acid

The **mathNEWS** Twitter:
in case this issue
doesn't fill your weekly
nonsense quota.

THE ONCE-SENTIENT BEING THAT WAS
@UWmathNEWS ON TWITTER

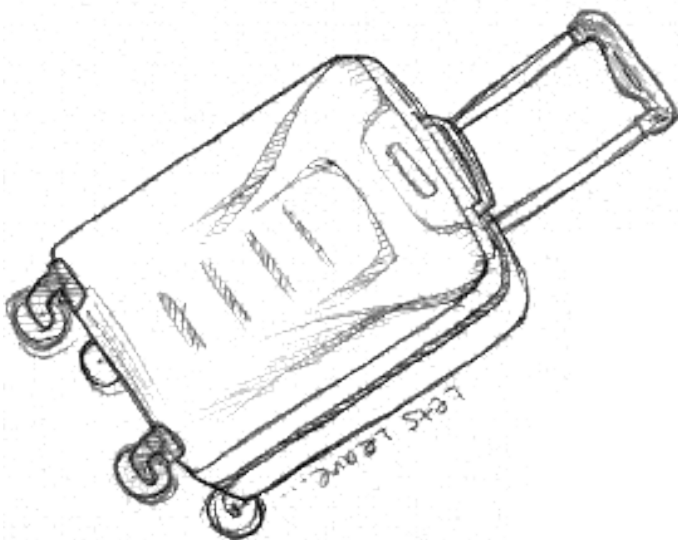
EURO TRIPPING

After a lifetime of education, I figured I owed myself a break before jumping into the workforce full time. Of course, the first idea was backpacking around Europe, and while it is a stereotype, it exists for a reason. I went with the expectation of practicing my long abandoned French, visiting family I haven't seen in a decade, and hitting all the landmarks. Now on the other side of the trip, I can share some of the things that stood out most.

- Everything has so much history. If you ask locals about their area they will have stories stretching back thousands of years, almost without fail. Often with buildings and landmarks from that era still standing.
- You have to be adaptable with your plans. Sometimes things go wrong and you will end up sleeping in airports, or staying on couches. A backup plan is always useful. (Always triple check your booking details!)
- Don't try to do everything. The fastest way to drain the fun out of a vacation is to constantly rush around. Decide on what things are important, and build in some time to be flexible.
- Know local laws. I broke a handful in my few months of travel, but thankfully nothing important.
- Lock your bags. If you hit any major city or transit network people will take your stuff through stealth or scams. Just consider it a risk of travel and don't stress.
- Airbnb and Hostels are great ways to get to know people. If you only have a few days in an area make the most of it and meet people.

In the end, the trip wasn't anything life changing, but it was a filled with great stories and experiences. I hope some of you reading this get to go on your own adventures soon enough.

Pockets



CO-OP ALTERNATIVES TO PUT YOUR MIND AT EASE

With another term starting, students again have to deal with the stress of finding another co-op position. For the best of us, for the ones who have gone to California for software engineering and to France for their artistic apprenticeships, this probably isn't much of a concern.

However, if you're like myself and have been (and are still depending on) the sheer volume of applications you have at your disposal, and are worried dumb luck won't land you a job this time, then you've come to the right place. There are three backup careers you've been training for as a university student without even knowing it.

ON-FOOT COURIER

If you've ever wondered why you or someone you know has classes from their major in buildings completely opposite on campus, this is the reason why. Whether it's sprinting from MC to STJ with that 10 minute gap for your next lecture or wondering where the heck PAS is suppose to be, you've been working on traversing this campus with the speed needed to deliver packages with efficiency UPS could only dream of.

PROFESSIONAL MATTRESS TESTER

Whether it's after a regular day of class, a hard night partying, or spending every waking moment studying, we all know everyone enjoys a good night's sleep. So why not take this to the next level? According to Workopolis, the average salary of a mattress tester is around \$50,000 a year, meaning that if you ever felt guilty about sleeping in a class that's a part of your multi-thousand dollar tuition, just think of it as training for your new profession.

HUMAN GUINEA PIG

If university has thought me one important thing about myself, it's not the value of hard work, or even the need for time management, it's that the human body is far more resilient than I ever believed. Surviving on pizza, ramen and coke for weeks at a time, repeated all-nighters that make you question if you're even a functional adult (let alone a functional human being), many students on campus constantly push the human body to frontiers that'd make the Voyager Space probes jealous. This makes the student body prime candidates to further the cause of science (just think about what questions could be answered with so many subjects). One of these scientific trials is already occurring on campus, though this is a trial the candidates have willingly paid for themselves oddly enough, with the E7 building set to expand the "Engineering Tolerance" experiment the campus has been running since its inception to push the limits of how much course load a single human being can handle.

WANTED: CHEAP ADVENTURERS

I came home last night to find that while I was out getting groceries my home somehow became infested with goblins. Little green rascals all over the damn place. Goblins in the cupboards, goblins in the fridge, goblins bouncing on my bed. Total fiasco. One of them even tried to knife me. I called pest control and the police, but apparently the former only handle non-sentient¹ vermin and the latter just assumed I was prank calling them.

So since the proper authorities aren't of any use, I'm going to have to hire some freelancers.

I'm willing to pay \$20 for a group² of adventurers willing to come sort this mess out. If you're going to go all murderhobo on the problem, just make sure you clean up after yourself. I'll already be shelling out the 20 bucks, and at this point I'm probably going to have to replace most of the furniture in the place, so I don't want to have to pay someone else to scrub goblin blood off the walls³ as well.

I don't need high caliber adventurers here⁴. As long as you can swing a sword or sling a magic missile or two, maybe take a kitchen knife to the thigh and not die immediately, you should be fine. These goblins are by no means the cream of the crop. I'm pretty sure if I waited a week or two they'd probably all end up choking trying to eat my silverware or falling off the pantry and crippling themselves. But the sooner they're out, the less stuff they'll break⁵, so I'd rather see if a bunch of newbies fresh from meeting in a tavern can sort this out a little quicker.

*Your quest NPC,
 $s, t \in \{2k, k \in \mathbb{Z}\}$, 144*

1. And unarmed.
2. That's for the whole group, not per person. I meant what I said in the title.
3. Or, heaven forbid, do it myself.
4. Budget aside, I've seen the collateral damage the A-listers can do, and I don't need that in my house.
5. Or eat.

TALKING TO STRANGERS AND MAKING FRIENDS AT UNI

A lot of people struggle with making friends at university.

Clubs day is happening right now. Go to clubs day.

Beyond Meta

SOLVING THE NOT LIKE MOST GIRLS PARADOX

Aside: The article also works if you swap gender.

It's a dating cliché that most girls tend to emphasize the fact that they are not like most girls. This behaviour is often mocked as contradictory. I would argue that in fact it is possible for most girls to say this statement and have it be true in a non-trivial manner.

Too often, we think of categories in a 1 dimensional manner. There is the average girl shown by lovely standard bell curve. This is, however, not the best approximations. Consider instead a model where there are multiple different clusters of the most common ways that people express femininity. For the sake of example consider if we have 4 clusters of A, B, C and D.

A takes up 40% of the population. B, C and D take up 20% each. A is considered the prototypical girl whose portrayal is shown in the majority of media, in a way that is disproportionate to it's true proportion. So whenever B, C and D mention they are not like most girls what they are really saying is that they are not a member of group A.

Seeing as every cluster is smaller than the majority, they can in fact accurately say so. And the statement does have some amount of meaning.

Sincerely, someone who is not like most girls,
Beyond Meta*

* You really have no way of knowing if I even am a girl. I suppose you could figure it out by reading through my backlog of articles. It's probably been explicitly stated somewhere. But are you really going to go bother? I guess it will remain a mystery.

Production Nights are every other Monday. We meet at 6:30 in the MathSoc Office.

Please come...

**A LONELY mathNEWS EDITOR
DESPERATE FOR HUMAN INTERACTION**

PLUS, THERE'S FREE PIZZA

THE FAST FOOD SHUFFLE

TO THE TUNE OF NOBODY SPEAK BY RUN THE JEWELS

Picture this

It's a bag of chicks

Grill them till they're crisp

On a spit

I am making some McNuggets on my shift

Tastes like shit

Gonna flip a fresh McChicken real quick

Take a piss

Punch a customer who's acting like a dick

Cook a snack

I ain't lyin', gon' be fryin' when I'm back

I'm the chef, no that isn't what they ordered, are you deaf?

Gonna take over the drivethru

Hold the patty? What the f?

Yeah, you pay at the next window

The machine is to your left

The best crew

Gonna shame you if you try to jump our queue, fuckin' rude

I'm the dude who serves your food, you'll make do, yeah it's true

With whatever I see fit to serve to you, cordon bleu

See you in here every day, deja vu

Hey, you wanna hear a good joke?

Nobody eats, nobody gets choked

I'm grillin'

Orders in the billions, I'm fillin'

Just chillin', my flame-grill's the illest, such brilliance

Praise my crew cuz they killed it, I billed it

If we'd been filmin', the score be by John Williams

I feed Grimmus, Mayor McCheese and Old Ronnie

I'll reorder the szechuan, quarter-pounders ain't scrawny

Goddamn, I'm the server with fervour for servin' coffee

You're just a jerk burglar whos burgers are damn floppy

Get outta here, yeah

Only fact, I won't serve a

Billionaire or an actor if they act, like a loser

No tact, get smacked, don't make disgraceful cracks or brag,

diners served fresh snacks and y'all eatin' it

Yeah, we seatin' ya, food's great, treatin' ya

What more can I say? We be fillin' ya

Flavour with less calories

Rapidly serve idiots

Feed kings and miscreants

Us and all our affiliates

Got that mouthfeel, our tastes are great, insidious

I just want the buns and expired patties to throw away

I don't work for free, min-wage is 'bout what they pay

So tell everyone who's applyin' better try Swiss Chalet
Heyyo, here's an apron, son, now run, and put that phone
away

Welcome to McDicks today

Nobody eat, nobody get choked hey

Viceroy Butterfly

IMPACT OF OREO FILLING ON STRUCTURAL INTEGRITY AND EDIBILITY OF COOKIES

The correct ratio of filling to cookie base in Oreo cookies™ is a hotly debated topic. This study explores the impact of different Oreo fillings™ on the structural integrity and edibility of manually refilled Oreos™.

Two separate case studies were analyzed: an Oreo cookie™ that was quadruple stuffed with icing and an Oreo cookie™ that was quadruple stuffed with cookies. The quadruple stuffed Oreo cookie™ with icing did not allow for proper breakage; the structural integrity of the cookie was compromised without allowing it to be eaten. The quadruple stuffed Oreo cookie™ with Oreo cookies™ maintained structural integrity before suddenly collapsing into a pile of Oreo cooke crumbs™.

It was concluded that filled Oreo cookies™ are unable to sufficiently maintain structural integrity and thus be neatly eaten. As a result, non-stuffed Oreo cookies™ are recommended for future consumption.

Diane



profQUOTES

CS 145: GORDON CORMACK

“ If I manage to turn on the computer — which is iffy...

CS 246: NOMAIR NAEEM

“ There have been students that have gotten 99 or 100 in this course, but they're crazy.

“ I own [the textbook], but I haven't read more than a page of it.

“ There are seminars which teach you time management; I've never managed to find the time to go to them.

“ If you have a Windows machine, the garbage can is over there, just throw them out on your way out. You may want to stack them neatly so I can sell them. Just kidding, you should donate them instead.

“ This building is falling apart, hopefully not when I'm in it.

CS 246: ROBERT HACKMAN

“ At my old university, I had "rhackman", which was much better [than r2hackma]. I also had friends.

“ [On how to pronounce 'RegEx'] It's like /dʒɪf/ vs /gɪf/.

CS 489: JIMMY LIN

“ [A] computer is a device for generating heat.

ACTSC 431: MIRABELLE HUYNH

“ When something "exists exists", it really exists.

AMATH 473: ACHIM KEMPF

“ Fifty kilometers from here, there's a city with a lot of Hamiltonians. And most of them commute!

STAT 330: REZA RAZEMAN

“ I'm worried about December, especially in this room [M3 1006] where you can occasionally see elves and Santa Claus.

“ Make sure your grandmas and grandpas are healthy around the midterms.

STAT 442: WAYNE OLDFORD

“ [On the eye] This is not intellegent design. This is dumb design if you ask me.

“ I used to be a bit more like Hitler and Putin, but now I'm more like Churchill

CO 330: KAREN AMANDA YEATS

“ Yeah! We're gonna have to use the quadratic formula! And you were probably thinking "aughh, I hope I'll never have to use that again".

CO 351: MARTIN PEI

“ [As students leave lecture early] There's a flow out.

“ The laughter is directed at you.

MATH 147: LAURENT MARCOUX

“ We still need to learn real numbers before we can stop caring about them.

“ That's a horrendous definition — we'll take it for now.

“ This is just convenient notation that lets us save a couple of chalk trees.

“ We need a little more math [...] and by a little, I mean two years.

PMATH 331: ROBERT ANDRE

“ Normally I don't take pictures with my phone. I just use it as a phone. Cause it's a phone.

“ Students always find very original and interesting ways of getting it wrong.

“ You think Maple is a girl but she's not. It's a software.

PMATH 445: BEN WEBSTER

“ Is that someone trying to get my attention or does someone just like clicking their tongue? [...] I understand.

PMATH 453: MATTHEW KENNEDY

“ It's not first-countable. It's not Hausdorff. Name any nice property you want it to have — it doesn't have it.

“ There's this Dover book you can get for \$15, it's called "Counterexamples in Topology". But don't get it! I'll use some of the examples for assignments. Get it after this term.

PMATH 930: ROSS WILLARD

“ Do you spell "exercise" with an s or a z? [...] I'm not American any more.

OCTOPODES' HANDY PREREQ CHART — STAT EDITION

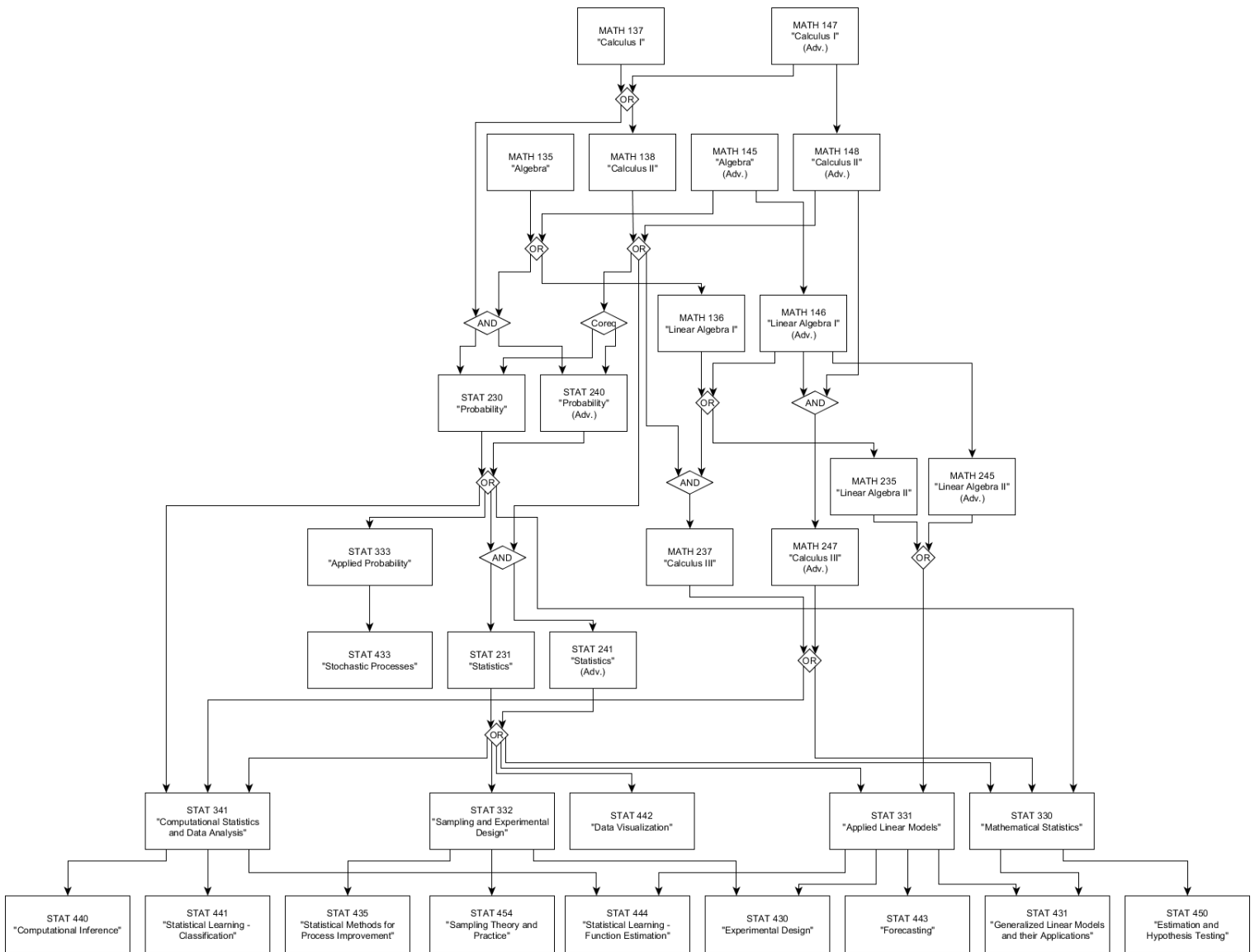
Octopodes' handy prereq charts are back! This issue is Stats. There's nothing overly complex about the structure — there are a handful of 300-level courses after STAT 231, and all the 400-level courses have just one or two 300-level prereqs. Note that a couple courses require MATH 237, which CO majors might not have.

As usual, I've omitted some courses from the chart, but there are a couple I'd like to specifically call out this time. Firstly, STAT offers a tonne of courses for non-math students in healthsci, accounting, business, and other disciplines. If you're a rare non-math student reading *mathNEWS*, I'd strongly suggest checking those out. Secondly, there's STAT 340, which

you can consider taking instead of 341 if you're a computer science person interested in STAT 440 or computational methods of statistical inference in general.

Since all of its prereq chains are relatively short, Stat is a perfect department to take a minor in. You only need Calc 3 (MATH 237/247), three courses from STAT 330 – 333, and two additional 300- or 400- level Stat courses. If you can tolerate MTHEL 300 (Professional Communications in Statistics and Actuarial Science) and one more 400-level course, you can even get a joint statistics major!

Octopodes



Exercise: Replace all gates with Toffoli gates.

AN OVERWORKED TWO-INPUT GATE

gridCOMMENTS

It appears to be fall yet again. For all of our new readers this term, welcome to the crossword section of the paper (at least, it's usually a crossword) where your ability to scribble letters onto a grid of lines in class while taking notes is tested. For the veteran solvers, welcome back to yet another exciting volume of Zethar's crosswords; I hope you enjoyed my vacation where I had been told there wasn't any **gridWORD**. For shame, editors of Spring 2017.

So let's just cut to the chase: for all but the final issue of the term I will sit in a dingy office for several hours and create a crossword and write this column for pizza so that you (yes, you, the readers) have the luxury of solving a puzzle. But wait, there's more—if you submit your attempt at solving the puzzle to the **mathNEWS** editors, either physically by slipping your submission under the door to the **mathNEWS** office (MC 3030) or via email to mathNEWS@gmail.com, and it is before the issue's deadline (18:00, October 2nd, 2017 for this issue), you could be eligible for a prize. On that date I come in and after I

write next issue's **gridWORD**, I look at the submissions, grade them, and award a prize (prize specifics to be determined by the editors) to the submission with the most correct grid. In the event of a tie, my favourite answer to the issue's **gridQUESTION** shall be the tiebreaker.

Now that the boilerplate is over with, I can proceed to asking this issue's **gridQUESTION**, "What is the ideal party?" Furthermore, I implore all solvers to provide identifying information like a name so that if you earn the prize, the editors can affirm your identity and award the prize to the right person as opposed to any schmuck who shows up to the office pretending to be the prizewinner. It's like those things that you would think doesn't need mentioning like remember to put your name on assignments and exams, but it happens still occasionally. If you are one of those individuals, how are you still here?

Best wishes in solving,
Zethar

ACROSS

1. Funicular
9. Ward off
14. Birthright
15. Shaver
16. Airtight
17. What impatient people don't have
18. Solid
19. French nuns
20. Precursor to the Prophet
21. Wrongly
22. When a giant fire orb plays the angle
23. Popular FPS
24. Quirk
25. Cured
26. Bread spreads
28. Lawyer exam
29. American org.
30. Author of the Three Principles of the People
34. Flight coordinators: Abbr.
36. Head lines, for short?
37. Alternative to a convertible
41. Scale material
43. 347-year-old Canadian business stock symbol
45. Location of the imperial city of Vietnam
46. Everything
47. The sun
48. Ready for battle
49. A toast

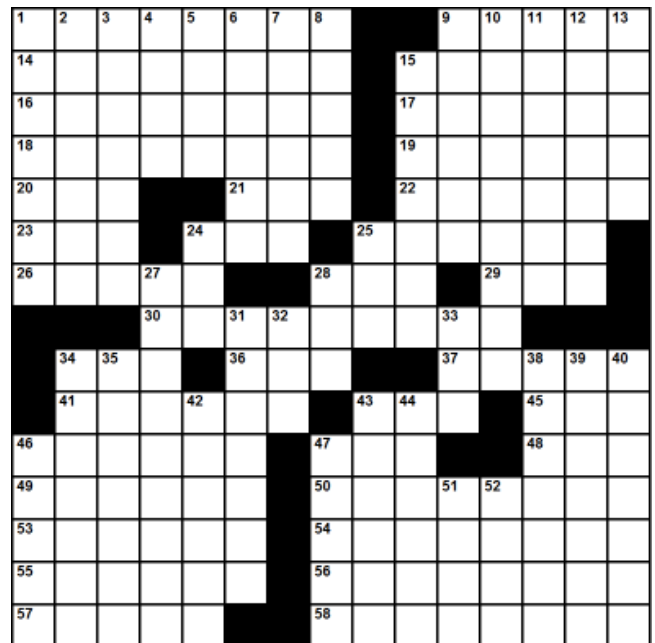
50. Plant with a bitter fruit
53. IVP in Dominion
54. Right after
55. File clerk
56. Men of letters
57. Gibe
58. Desirable residences

DOWN

1. Giorgio de _____, Italian artist who influenced the Surrealist movement
2. Spray
3. Pattered fabric
4. Hero of Time
5. Use acid
6. Quills
7. Mushroom
8. Salmon spawning grounds
9. Total
10. She wrote as "Demosthenes"
11. Consumer
12. Parents
13. Secret meeting
15. People in the fast lane
24. ♪
25. Cave dweller
27. Waver
28. Sack
31. Nor
32. Longing
33. Key abbr.
34. Alberta locality in Parkland County

35. Field of operations
38. Peaceful demonstrations
39. Golden
40. Unbeatable foe
42. Sway
43. Child's equine

44. Explosions
46. Bible books abbr.
47. Burn
51. Afrikaner
52. Sped

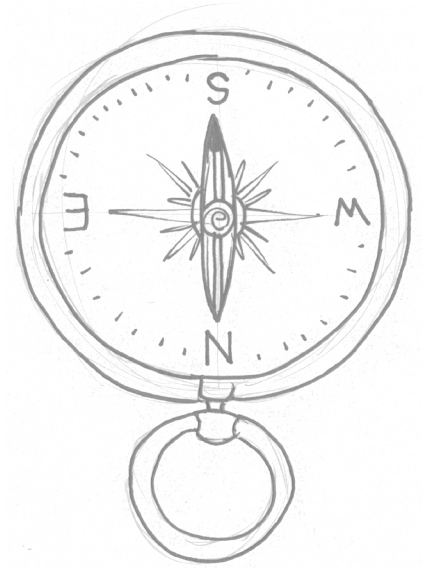


Drop your **gridWORD** solutions off at MC 3030. And yes, we do award points for creativity.

haltingPROBLEMS

JOB POSTING BINGO

FREE FOOD	FOOSBALL	NINJA/ WIZARD/ROCK STAR	BLOCKCHAIN	HASHTAGS
WORLD-CLASS	DISRUPT	UNNECESSARY BOLD/ITALICS	MANY HATS	COMPETITIVE PAY
HIT THE GROUND RUNNING	NEXT GENERATION	DOESN'T ACTUALLY SAY WHAT THE JOB IS (FREE SPACE)	FAST-PACED	MACHINE LEARNING
INNOVATE	EMPOWER/ ENABLE	AGILE	FREE BEER	BLEEDING EDGE
BIG DATA	WORDS IN ALL CAPS	SELF-STARTER	FELLOW	STARTUP



**Data Science Club is
Illuminati confirmed**

THE ILLUMINATI

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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lookAHEAD

SUN SEPT 24

Welcome to Humans vs
Zombies!

MON SEPT 25

First round of
WaterlooWorks closes
(9am)

TUE SEPT 26

Drop, no penalty period
ends

THU SEPT 28

Data Science Club Co-op
Panel

FRI SEPT 29

A Friday that feels empty
without a new issue of
mathNEWS...

SAT SEPT 30

The weekend! Good times.

SUN OCT 1

mathNEWS production
night 2

MON OCT 2

Bring food to the
mathNEWS editors day

TUE OCT 3

WED OCT 4

THU OCT 5

Data Science Club Resume
Critique

FRI OCT 6

mathNEWS issue 2 release!

SAT OCT 7

CSC SEZ

Hi everybody!

We're the *Computer Science Club* (often abbreviated **CSC**), and we'd love to inform you of our existence! You can visit our office (**MC 3036/3037**) at any time, and most of the time it will even be open!

Once you're there, you can become a member for the amazing price of just \$2 a term! Once you're a member, you'll be able to **use our computers** (both in the office and remotely), but most importantly, you can attend our **100% amazinglicious** social and academic events we'll be organizing throughout the term!

You can find out about our events on our website, csc.lub.uwaterloo.ca. If you have any questions, you can contact us by emailing exec@uwaterloo.ca. We also have our own IRC channel, on the [@freenode](https://freenode.net/network, #csc) network, [#csc](https://freenode.net/network, #csc)!

Speaking of events, if you're reading this on **Friday** (Sept. 22th), you have the amazing opportunity to go to our super special **extra elections at 6:00PM** in the **MC Comfy Lounge (MC 3001)**! You'll be able to vote for our Vice-President and Secretary, and you'll be able to ratify our Systems Administrator!

—*not the CRO*

1. You can find instructions on how to use IRC at https://wiki.csc.lub.uwaterloo.ca/How_to_IRC.



**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