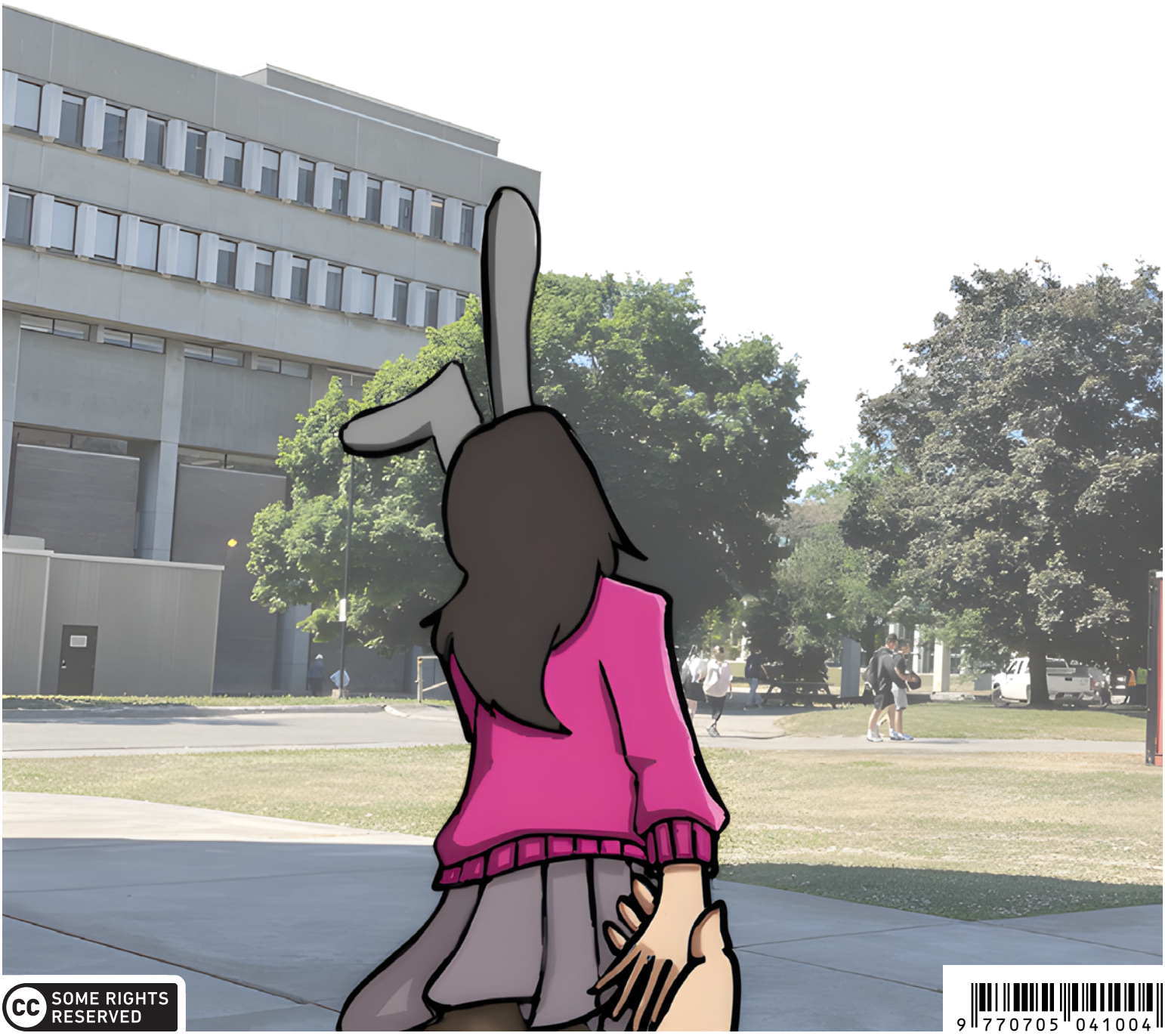
mathNEWS

VOLUME 150 • ISSUE 0

ORIENTATION ISSUE 2022



9 770705 041004

GREETINGS MATHIES!

Hello and welcome to you, first year Math student!

This is **mathNEWS**, the University of Waterloo's bastion of erudite thought, and official newspaper of the Faculty of Mathematics. We've been running since 1973 and publish a new issue every two weeks, usually six issues a term.

An issue of **mathNEWS** is made of a lot of different parts. After the cover is what we call the **mastHEAD**, composed of a blog-style article written by the editors (a.k.a. the one you're reading right now) and a question and answer section with our writers. This time, we've replaced the Q&A with a table of contents—this issue contains a ton of useful advice from **mathNEWS** writers and editors that you'll definitely want to come back to later in the term.

The bulk of the issue is formed from the many articles and pieces of artwork we get from the **mathNEWS** community. This **mathNEWS** Special Editon™ focuses on articles from faculty clubs and other informative articles from our writers. There is still some of the classic **mathNEWS** spirit, which is to say utter chaos. We've got low-effort articles that are derivatives of others, inside jokes, surrealist comedy, and some arguably tasteless jokes that will definitely get me a stern talking to. Surprisingly enough, we've even got a couple articles of actually interesting content. Not in this issue are poems, articles written by profs, **profQUOTES**, research papers, terrible puns, and passive-aggressive complaints about profs and courses.

At the end of the issue we have our crossword puzzle, the **gridWORD**, occasionally joined by another puzzle called the **haltingPROBLEM**. On the back there is the **lookAHEAD**, a two week calendar of upcoming events that mathies might be interested in. The publication date of the next **mathNEWS** issue is the highlight, of course.

That about wraps it up. We hope you enjoy this issue, and don't just shred it for your hamster's bedding. Best of luck with your new university career, try to resist the urge to read **mathNEWS** instead of going to class. I know it's tempting.

Have a great orientation week!

clarifiED
Editor, **mathNEWS**

TABLE OF CONTENTS

This space is usually reserved for the **mastHEAD**: *A place for writers to give the wittiest/longest/most profound answer to a casual question.*

1 | *O-Team Sez*
1 | *Math Endowment Fund Sez*
1 | math**NEWS** *Navigation Challenges*
2 | *MathSoc Sez*
3 | *Welcome From MathSoc Cartoons!*
4 | *12 Rules for First Year*
4 | *Find Time Find Time Find Time*
5 | *A How-To Guide for the Advanced Courses*
5 | *Why You Should Take the Advanced Math Courses*
6 | *Course Selection: What You've Seen and What's to Come*
8 | *N Subjective Notes for International Students*
9 | *Places to Go*
9 | *Not So "Straight and Narrow"?*
9 | math**NEWS** *Navigation Challenges #2*
9 | *One of My Biggest Fears About Coming to University*
10 | *A Guide to Course Planning*
11 | *Waterloo Bubble Tea Places Ranked by a Not-UWaterloo Student*
12 | *How to Succeed in Your Math Courses*
13 | *Taking a Minor*
13 | math**NEWS** *Navigation Challenges #3*
13 | *M = 10 Ways to Give Up*
14 | *How to Change the University*
15 | *Taking a Miner*
16 | *Anyone Can Make Friends. Especially You!*
17 | *The Waterloo Food Guide*
18 | *Feelings and Fears of a First-Year*
18 | *8 Alternative Uses for Textbooks*
19 | *Finally, an Article That Explains What* math**NEWS** *is!*
19 | math**NEWS** *Navigation Challenges: Finale*

Welcome to Waterloo Math!

CLARA XI, math**NEWS** EDITOR FOR FALL 2022
ALONG WITH TERRY CHEN, DANIEL MATLIN, AND NICHOLAS PRIEBE

O-TEAM SEZ

Thank you for coming to Orientation!

We thank all of our Math Orientation Leaders and those at Waterloo Orientation who have worked really hard to bring back our traditions and show-off our faculty pride to make this week awesome for you! We hope you enjoy the activities, learn something new about the campus and admire the plentiful (and loving) geese. Most importantly, we hope through O-Week you will meet a ton of new people and make lasting connections.

Best of luck to you for the coming term and the years that follow.

Krishna, Abhiraj, Daniel, and Curtis
Fall 2022 Math O-Team

MATH ENDOWMENT FUND SEZ

Hey Mathies!

Welcome to Waterloo! We hope you will have an enriching and enjoyable orientation and first year.

WHAT DOES MEF DO?

MEF is an $9 million fund working to enrich the experiences of Math undergrads at Waterloo. Throughout your time at Waterloo, you may notice our logo everywhere, from hackathons, to club events, to design teams; in fact, MEF's logo is probably on your Orientation kit. This is because MEF allocates hundreds of thousands of dollars each year to sponsor and support student-led initiatives.

TYPES OF FUNDING AVAILABLE

MEF allocates two major types of funding: Group funding and Professional Development Funding (PDF). Group funding is used towards initiatives involving multiple Math students, such as sponsoring conferences (ASNA, Grace Hopper, etc.), design teams (Midnight Sun, VEX U Robotics, etc.), and student clubs and societies (MathSoc, UW Finance Association, etc.). PDFs are for individual initiatives; if you would like to attend an event, publish a paper, or take extra-curricular courses online, PDF can reimburse part or all the cost.

HOW TO GET INVOLVED?

The easiest and best way to get involved is to join the Funding Council. You will have a direct say in how MEF allocates its money each term; you will also get free food and learn about the different extracurricular opportunities for Math undergrads.

After Council, there is an opportunity to join the MEF Board of Directors; the BoD is a multi-term commitment that sets MEF's long-term strategic direction. After BoD, there is an opportunity to be elected as the Executive Director, where you oversee MEF's operations for a term.

Please visit MEF's website (mef.uwaterloo.ca) to view details on funding and how to get involved. Please feel free to email us if you have any questions or concerns (mefcom@uwaterloo.ca)!

Math Endowment Fund

mathNEWS NAVIGATION CHALLENGES

GETTING LOST TO LEARN HOW NOT TO

Rule 1: you will get lost. However, if you get intentionally lost before you actually need to get anywhere, you'll soon find that when you *do* need to get somewhere, you can chart a course without even having to think about it.

To help in your navigational awakening, I have prepared a selection of navigational challenges for you to take on. These challenges have only two rules:

1. You must not use any electronic maps. No Google Maps for you, and definitely no WATisRain, excellent as it may be.
2. You must find a complete path indoors. This is Waterloo, and we praise the sun from afar. That said, you can scout out your path from outdoors if you like.

The reward for completing any of these challenges is a deep sense of pride and accomplishment. There's nothing at the start points or destinations; once you've found the destination by navigating solely indoors, the challenge is complete.

Your first challenge is below, the rest are scattered throughout the issue. You must find an entirely-indoors path from the start to the destination. No WATIsRain. No Google Maps.

- **Start:** Earth Sciences Museum.
- **Destination**: The Centre, Needles Hall (NH).
- **Hint:** (Reverse): Building museum Sciences Earth the from reach can you which, (DC) Centre Davis the through cut to need You'll.
- **Difficulty:** 2/7.

This first challenge can only be done when Needles Hall is open, during working hours on weekdays. Some of the other challenges can be done at night though, if that's more your style. Good luck!

molasses

MATHSOC SEZ

Hello first-year Mathies!

Welcome to the Faculty of Mathematics! Congratulations on finally making it here. The Mathematics Society (or MathSoc, for short) is the student government for the undergraduate math student body at the University of Waterloo. Given that you are a math student, you are already a member! The MathSoc office is located on the third floor of Mathematics & Computer Building (MC 3038). The third floor is also home to the MC Comfy Lounge, the Coffee and Donut Shop (C&D), and MathSoc club offices.

WHAT CAN MATHSOC DO FOR YOU?

Here's a small snippet of what MathSoc provides you:

- Academic advocacy to faculty and administration
- Math t-shirts, sweatpants, ties and more
- Inexpensive printing and photocopying
- Board game rentals
- Free candy!
- A free textbook library
- Events like Pi Day (when you get to pie the MathSoc execs and willing profs), Board Game Nights, Party with Profs, résumé critiques, and more.

HOW CAN I GET INVOLVED WITH MATHSOC?

As a volunteer-run organisation, MathSoc has plenty of volunteer opportunities. If you're interested in student governance and advocacy, you can join our Council or Board of Directors. There are usually 4–5 first year representative seats on Council, so look out for the election at the beginning of the term! Aside from that, you can volunteer to help maintain our website, organize events, advertise events, manage our office, maintain our finances, and much more! Check out mathsoc.uwaterloo.ca/volunteer-at-mathsoc/ for details.

WANT TO CONTACT US?

You can find a lot of information on our website at mathsoc.uwaterloo.ca. You can direct general inquiries to info@mathsoc.uwaterloo.ca. We're also happy to answer any questions on Instagram (instagram.com/uwmathsoc). If you have more specific questions, you can contact the following individuals:

President (president@mathsoc.uwaterloo.ca)

- Questions about MathSoc as an organisation, its operation, and some advocacy

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

- Advocacy; academic and co-op-related questions, concerns, and feedback
- Suggestions for the exam bank, textbook library, and academic events

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

- Questions and feedback regarding the MathSoc office and the services we provide

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

- Questions about refunds, cheque reimbursements and club budgets

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

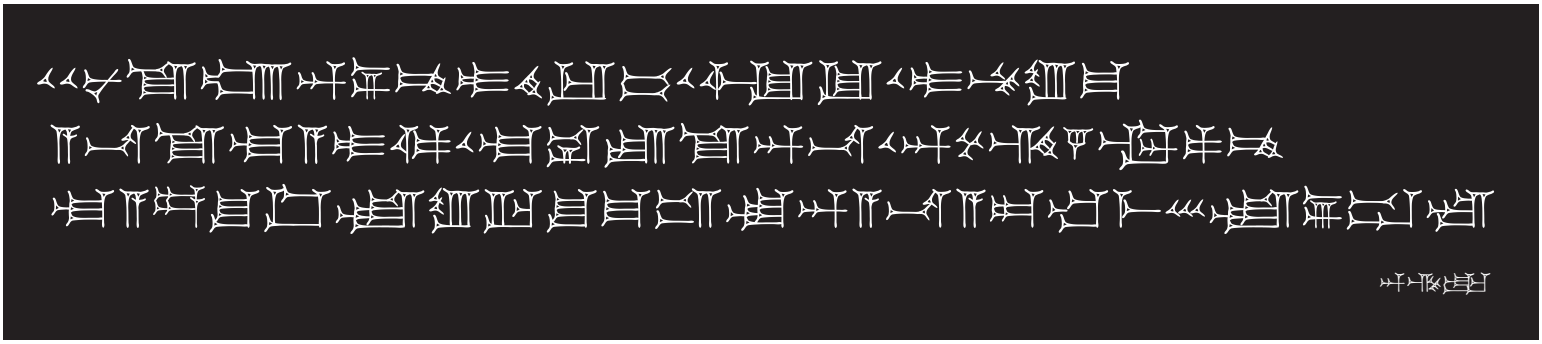
- Questions and feedback regarding MathSoc events and MathSoc clubs

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

- Marketing requests, poster approval, etc.

With this being the first in-person Fall term since 2019, we're looking forward to making it as great as it can be. We hope you learn lots, meet some amazing people, and have lots of exciting experiences. Please don't hesitate to stop by the office or contact us for anything — we're all here to help.

Evan Girardin (President)
Fall 2022 MathSoc Executive



WELCOME FROM MATHSOC CARTOONS!

Hey incoming Mathies, welcome to the University of Waterloo! We are MathSoc Cartoons, a project run under MathSoc's Vice President Academic with the goal of creating engaging cartoons that simplify difficult Math and CS concepts for UW students like you! We print our comics in **mathNEWS**—the newspaper you're reading right now!—as well as post them to our and MathSoc's socials. As you'll see later on, we also post our comics to various Piazza/LEARN forums.

BUT WHY?

Often, we find that students understand difficult concepts better when they are presented in a visually appealing, engaging and relatable way—and cartoons are the perfect medium for this. If you want to get a taste of what we do, here are some examples of past comics for courses you will learn in your first term here:

- MATH 135: Chinese Remainder Theorem: https://mathsoc.uwaterloo.ca/math135-comics/#chinese-remainder-theorem
- MATH 137: Mean Value Theorem: https://mathsoc.uwaterloo.ca/math137-comics/#mean-value-theorem
- CS 135: Abstract List Functions: https://mathsoc.uwaterloo.ca/cs135-comics/#abstract-list-functions

You can find a full list of our comics at https://mathsoc.uwaterloo.ca/comics-archive.

I'M INTERESTED, HOW CAN I GET INVOLVED?

The easiest way for you to get involved is to sign up to be a reviewer, where you would be filling out surveys in order to provide feedback on the rough sketches and final works produced by our writers and artists. You can see the benefits in the attached poster, and you can sign up here:

https://bit.ly/cartoons-reviewer-join

Additionally, keep an eye out for writer and artist applications, which should open around the last two months of the term—so make sure to follow us on all our social media platforms to get notified when that happens :D

FIND US!

Facebook: https://www.facebook.com/mathsoccartoons

Instagram: https://www.instagram.com/mathsoccartoons

Webpage: https://mathsoc.uwaterloo.ca/mathsoc-cartoons-main-page/

Email: cartoons@mathsoc.uwaterloo.ca

MathSoc Cartoons

12 RULES FOR FIRST YEAR

People ask me for university advice sometimes. My advice is usually 'show up to lectures' and 'make time to study,' because to be honest, I think the minutiae are unimportant.

But after a lot of thinking, here's some more specific advice. I've tried to make it snappy.

1. Show up to your lectures and take notes.
2. Join clubs, show up to events.
3. Figure out what you need from a study spot and select accordingly. Sunlight? Environment. Group study? DC. Snacks? SLC. An awful, smelly, dark place to motivate you to finish work faster so you can leave? MC.
4. Nobody can tell you whether or not you'll get x coop, whether you'll succeed in y course, or if z is a worthwhile major. If someone thinks they can tell you any of those things, they're pushing something or otherwise don't have their head on straight.
5. At the beginning of each term, set aside one hour for scheduling. This is overkill but will ensure you get it done. Physically print out your syllabi, and input relevant dates into a calendar.
6. Get your sleep, eat your vegetables, take advantage of the student gyms. It's not cute, quirky, or admirable to run yourself into the ground for academics. Keep up with your dental health.
7. Call your loved ones twice a week. Send pictures of what goes on in your life.
8. Live as many non-sedentary, sober, daylight hours as you can. Bonus points if you spend some of this time taking a break from stimuli like your phone, computer, music, etc. Get bored. Have some thoughts.
9. Be kind to people, affording them the benefit of the doubt that people will hopefully extend to you when you inevitably do something stupid.
10. Be prepared for what you want to do with your life to change. The vast majority of people I know (although it's likely my sample pool is more susceptible to this than average) realize they didn't get it 100% right when they guessed what they'd want to do with their life in high school. This is normal.
11. Unfollow annoying people from high school. It's time to let go.
12. Making friends awkwardly is better than not trying at all. I sometimes go for the firm handshake and first name introduction. People get confused when you greet them like this in a casual setting, so it's a good conversation starter. If you're not too much of a handshaker, here are some of the other things I've done to start conversations: wearing a funny shirt; asking questions related to a course; sitting near someone in the food court; following student accounts on social media; going to clubs/events; asking for help at the gym.

juniperrice

FIND TIME FIND TIME FIND TIME

THE ONE WEIRD TIME MANAGEMENT TRICK THAT NINE OUT OF TEN DENTISTS QUIETLY RESENT YOU FOR KNOWING

I quit one of the school's bands at the end of my first term — it wasn't something that I wanted to continue. When my second term started, I suddenly found myself with two extra free hours a week.

It would have been easy to spend them doing assignments. However, I knew that I wanted to continue making music, so I decided that every Friday, from 12AM to 2AM, I would have Dedicated Music Time. Nothing would get in the way of Dedicated Music Time: sleep could wait till after, and assignments could wait till the morning.

To properly commit to it, I even went out and bought a new MIDI keyboard, replacing the one I got on my eleventh birthday. This made the Omicron lockdown a lot more bearable.

It was my first time managing my time like this. I wasn't perfect — halfway through the term, I pushed Friday back to Sunday, and when exam season hit, I decided to take the extra two hours of sleep — but generally, I stuck to it a lot better than I expected. It felt good having those quiet midnight hours to myself every week, free from all responsibility. It was my sacred little ritual. Maybe I could have benefited from it during exam season.

Find time! There's always time! If there's a hobby you're afraid you won't have time to continue when classes start, carve out a few hours a week to do it. Even if it isn't a club activity, treat it as if it was — as if there were other people in the club that depend on your presence every week.

Assignments are greedy. They take every hour you let them. Often, they will win, and you have to give them the time that they deserve. But once in a while, *you* can win, and you can take back some time for yourself.

If you spend five percent less time every week on coursework, there's a good chance you'll learn to work five percent more efficiently. You'll be ten percent happier for it.

χ

A HOW-TO GUIDE FOR THE ADVANCED COURSES

AND WHY THEY'RE NOT QUITE AS SCARY AS YOU THINK THEY ARE

Do you remember choosing your courses this past summer, and reading about MATH 145 / 147 and CS 145? These are the so-called "advanced" level math and computer science classes that you can take in your first term in math at UWaterloo. This is an article intending to clarify the role of the courses, and emphasize why you should consider them.

The advanced math courses are called "advanced" not primarily because of a difference in difficulty level, but because of a difference in approach. The advanced math courses focus on teaching you theory and proofs, as opposed to applications. In the advanced math classes, you will see definitions of mathematical objects and properties, as well as statements and proofs of general mathematical statements. On your assignments, you will be expected to use these results to prove (or decide the truth of) other statements. The focus is on a theoretical understanding of math in the abstract case, as opposed to how to use math to compute things in concrete cases.

Doing assignments in advanced math courses is a lot like solving puzzles. You are given all the pieces of the proof, all the ideas, terms, definitions, and theorems you will need, and you just need to figure out how they fit together to complete the proof. Admittedly, these puzzles will sometimes be significantly more challenging than the similar ones that you would see in the regular honours level courses, but it tends to be the case that if you participate in the course and put effort into it, you'll gain the tools to succeed.

The advanced level computer science course, CS 145, is a faster-paced version of CS 135, where you jump right in to high-level abstraction and algorithms. In much the same way as the math courses, CS 145 does emphasize the theoretical aspect of programming, but it also challenges you to work on how to code effectively and efficiently. This, and the follow-up course CS 146, can be great starting blocks for a successful CS degree and career.

Note that it is indeed true that the advanced courses are not for everyone. Not everyone appreciates or needs to know the theoretical aspects of algebra or calculus or computer science, and that's just fine. However, if you are interested in what the advanced courses are all about, there is no reason you should be wary of trying to take them.

There is theoretically (hah!) no downside to enrolling in the advanced courses—you can drop from the advanced courses to the corresponding regular level course at no penalty, right up until the end of the drop WD period. *[Editor's note: Except for CS 145, where the deadline is six weeks into the term.]* This is a special policy that is designed to give you the opportunity to succeed. Practically, this is a bit of an issue if you actually do drop down very late in the term, because you will probably have not had the same amount of practice as the students in the regular level course at some of the more computationally heavy portions of the course. Talk to your professor and advisor as soon as possible if you end up contemplating this option.

Now that you know a bit more about the advanced courses, and are hopefully intrigued by them, you should learn how to enroll in them! Email the Math Undergraduate Office at mathuo@uwaterloo.ca asking to enroll, and they'll help you out. *[Editor's note: Again, except for CS 145, where you have to email the prof.]*

If you are trying to transfer courses, and you haven't yet, try to at least sit in on the lectures of the target class. Keeping up on the material in the advanced courses is highly important, especially early on.

Once you're in an advanced course, be sure to put effort in! They are usually more challenging, if not by design, but they are very rewarding, both epistemologically and grade-wise, since the idea is that if you are in the advanced courses, you'd probably do very well in the regular level courses. This is dependent on the work put in, of course. Note that your class is much smaller than a usual first-year math course, and so it's not only easier to meet others in the class, but establishing relationships with them and with your professor will be much more fruitful, as you can work on problems together or get help. The advanced math community tends to be close and supportive, so you'll never be alone in any struggles you might have.

Best of luck!

Scythe Marshall and TheIdentity

WHY YOU SHOULD TAKE THE ADVANCED MATH COURSES

Man, just f**king do it. If you're insecure and indecisive enough that you're still reading this, you are the *perfect* candidate for the advanced courses. Go in there and have the inspiring character arc you were born for already.

A cool pen name

Being a mathematician requires imagination.

PROF. BARBARA CSIMA

COURSE SELECTION: WHAT YOU'VE SEEN AND WHAT'S TO COME

Ickle firsties! I remember my first issue of **mathNEWS**, printed on paper and stuffed into my orientation bag—the start of something new and beautiful. In time, you too will start idly picking up copies of **mathNEWS** sitting on stands in MC, enjoying the lovely variety of shitposts, stories, math, news, and other things we talk about here, and eventually coming to your first prod night and starting to write for **mathNEWS**. But that is the future and this is now — now, you're a brand new student in the Faculty of Mathematics, with a bright academic career ahead of you. Congratulations!

Now, one of the most important things you need to do as a student at UW is choose your courses. Now, while most of you have a fairly amazing amount of choice as to what courses you can take, there are some requirements that you need to check off according to your chosen (or to-be-chosen) major. Some courses are mandatory, others are more like "do any x courses out of this list of n, for some $x \leq n$", and yet others are like, "these are completely unnecessary and you'll be completely fine without them but *you can if you want to*". All this can seem a bit daunting and intimidating at first, but I have here a couple of tricks that make the whole thing a lot easier to manage.

STEP 0: EASY WAY OUT FOR CS STUDENTS — SUGGESTED COURSE SEQUENCES

SUGGESTED COURSE SEQUENCES FOR CS STUDENTS: https://cs.uwaterloo.ca/suggested-sequences

If you want a really structured plan that takes care of a lot of the thinking and planning for you (and you are a BCS or BMath CS student), then the above website gives you a pretty great starting point for how to plan your courses. You still need the knowledge in the sections below, but knowing this stuff really helped planning my courses out for me. There are a couple of caveats (most notably that it doesn't account for you wanting to take enriched second year courses, or specific 3rd/4th year courses), but in general it's a good place to start.

STEP 1: OTHERWISE, FIGURE OUT WHAT YOU NEED TO DO

UNDERGRADUATE CALENDAR: http://ugradcalendar.uwaterloo.ca/

Bachelor of Computer Science

Students in this plan must fulfil all the requirements in Table I and the following:

One of

CS 115 Introduction to Computer Science 1
CS 135 Designing Functional Programs
CS 145 Designing Functional Programs (Advanced Level)

One of

CS 136 Elementary Algorithm Design and Data Abstraction
CS 146 Elementary Algorithm Design and Data Abstraction (Advanced Level)

The University of Waterloo undergraduate calendar is *the definitive source* of what exactly you need to do to graduate. It lists how many units you need (most courses are 0.5 units), how many units you need from certain disciplines (for example, CS students need one unit [so two courses] each from humanities, social sciences, and sciences), how many units you can fail, what exact course codes you need to take, and more.

You want to, at least once an academic year, open up the Academic Plans and Requirements section under the Faculty of Mathematics, find your major, and see what courses you need to do in the coming year, and get an outline for what would be coming in the years ahead.

STEP 2: FIGURE OUT HOW TO DO IT

UW FLOW: https://uwflow.com

SCHEDULE OF CLASSES: https://classes.uwaterloo.ca/under.html

UNDERSTANDING THE SCHEDULE OF CLASSES: https://uwaterloo.ca/registrar/registering-courses/understanding-schedule-classes

UW Flow is a brilliant website. It can tell you nearly everything about a course—timings, professors, prerequisites, student reviews… you name it, it's probably there. The only drawback is that technically UW Flow is *not a University of Waterloo official site*. It draws from official sources though, and it can be helpful to know what these sources are and check them out directly.

Subject	Catalog#	Units	Title
CS	241E	0.5	Found of Seq Prog Enriched

Notes: ALL in-person TUT attendance is not mandatory.

Class	Comp Sec	Camp Loc	Assoc. Class	Rel 1	Rel 2	Enrl Cap	Enrl Tot	Wait Cap	Wait Tot	Time Days/Date	Bldg Room	Instructor
6791	LEC 001	BLND ONLINE	1	101		40	40	0	0	02:30-03:50Th	Online	Lee,Edward
Reserve: CS (No SE) students						20	20					Kierstead,Caroline
Reserve: Software Engineering Students						20	20					
Held With: CS 241E LEC 002												
6792	TUT 101	BLND U	1			40	40	0	0	02:30-03:50T	MC 2066	Lee,Edward
Held With: CS 241E TUT 102												
10723	LEC 002	ONLN ONLINE	2	102		40	40	0	0	02:30-03:50Th	Online	Lee,Edward
Reserve: CS (No SE) students						20	20					Kierstead,Caroline
Reserve: Software Engineering Students						20	20					
Held With: CS 241E LEC 001												
6793	TUT 102	ONLN ONLINE	2			40	40	0	0	02:30-03:50T	Online	Lee,Edward
Held With: CS 241E TUT 101												

The general details of a course that don't change over time, like the course description, title, prerequisites and all, are pulled from the undergraduate calendar. The things that change term to term—how many classes are offered, which professors are offering them, and so on, are pulled from the Schedule of Classes.

Now, the Schedule of Classes is a really weird thing. You go there, and you select what course code you want to look up,

and you select what term you want to look it up for, and it will tell you everything you need to know in a weird, scary-looking table.

There's a lot to unpack here, but a few things you should know:

Comp Sec: These are the different sections for a given class. Common values you may see here are LEC (lecture), TUT (tutorial), and TST (test). Most often you'll have to choose one of each — so if a course has lectures and tutorials (like above), you'll have to pick one lecture and one tutorial. Sometimes picking one will automatically decide the other, and sometimes you'll get a choice.

Different sections differ in the day/time at which they're offered, the room in which they are held (Bldg Room), and the instructor. If you have a preference for particular values of any of these, you might want to try to go for that section.

Camp Loc: This tells you where exactly your course will be held, and is composed of two words — the *camp*us and the *loc*ation.

The main campuses to keep track of here are the campuses "UW", "BLND", and "ONLN" — they mean that your class will be on the main UW campus, blended (ie. with parts on campus and parts online), or fully online, respectively. The main locations are "U" and "ONLINE" — they mean that this particular class will be delivered on campus or online.

So in the above example, BLND ONLINE means that this is the online part of a blended course, and BLND U means that this is the in-person part. ONLN ONLINE means this course is only online, and UW U means this course is only in-person.

Instructor: This is the name of the lecturer/professor who will be teaching the course.

Enrl Cap: This is the maximum number of students that can be enrolled in a class or a reserve. For in-person classes, this was generally determined by fire safety regulations — you couldn't have more than a certain number of people in a room, legally. For online courses I think it's determined by how many students the professors can mark assignments/hold office hours/do other stuff for, but I'm not sure.

Enrl Tot: This is the number of students currently enrolled. It is possible this number is greater than the maximum — sometimes (but rarely), a professor might give you an *override code* to join the class despite the enroll cap. 99% of the time, once this hits the cap, you can't enroll — see the reasons outlined above.

Reserve: X students: A certain number of seats in every course are reserved for students that meet some specific criteria. This is to make sure that these students are on track for their degree requirements — for example, to prevent ECON 101 from being filled by math majors looking to fulfill breadth requirements, a certain number of seats may be reserved for Economics majors. That said, a few days into the term, reserves will generally be lifted, so you can enroll into "reserved" seats if they are not full by then.

Most of this information is available in a more accessible format on UW Flow, but it's updated more frequently on the Schedule of Classes, and UW Flow doesn't (yet) handle reserve information. So if you see free seats on UW Flow but can't enroll, check the Schedule of Classes to see if they've filled up since then, or if they're reserved. Also, if you don't see some information on UW Flow, check the Schedule of Classes as well — sometimes UW Flow takes a while to update.

STEP 3: FIGURE OUT WHEN TO DO IT

IMPORTANT DATES CALENDAR, REGISTRAR'S OFFICE: https://uwaterloo.ca/registrar/important-dates/calendar

There are a few main dates that you need to be familiar with:

Course selection period: Generally happens at the end of the first month of the previous term. Here, you choose which courses you would like to have next term. This period is *not* first-come first-served.

View next term's schedule and appointments: You learn at this point what courses from step 1 you got into. If you got into all of them, great, you're done! If you didn't get into some courses or if you'd like to change your schedule, read on. You also get the date and time for when step 3 starts for you.

Drop and Add periods: These two periods start at the same time for you (though the starting time differs for every student), but end at different times. During the Add period, you can add new courses. During the Drop period, you can remove courses you are enrolled in. These periods *are* first-come first-served — if you need to add a popular course, you need to hurry! When both of them are happening, you can "swap" courses (essentially drop one course and add another in a single atomic action — you don't get dropped if you were unable to add) as well.

The Add period ends before the Drop period, because the university lets you drop a course a pretty long time into the term with a full fee refund — long enough that having the Add period open that long doesn't make sense.

Reserves lifted: This typically happens a few days after the term starts, and close to the end of the Add period. At this point, if you wanted to enroll into a course but you were previously stopped by a reserve, you should be able to enroll now. You'll have missed a few days of work, but that's easy to catch up on.

For more details on these dates, and for generally a good idea of when academically important stuff is happening, it's a good idea to keep an eye on the Important Dates calendar. That said, generally the university will shoot you an email reminding

you of the correct dates if you didn't check the calendar for whatever reason (maybe you didn't read this article?).

Side note: the Important Dates calendar will also have other, well, important dates—like university holidays, the days when classes start/end for a term, the days when exams start/end for a term… it's generally a good idea to keep an eye on it.

STEP 4: DO IT

QUEST: https://uwaterloo.ca/quest

COURSE SELECTION PERIOD, REGISTRAR'S OFFICE: https://uwaterloo.ca/registrar/registering-courses/course-selection-period

DROP/ADD PERIOD, REGISTRAR'S OFFICE: https://uwaterloo.ca/registrar/registering-courses/dropadd-period

You may remember Quest from the pre-admission trauma it inflicted on you. Good news, it never goes away! All of the above steps were just us hunting-gathering information. The actual enrollment process for every course happens on Quest. The Registrar's Office has some pretty detailed guides on how to do nearly everything you might need to do on Quest during course selection and drop/add, so here I will just refer you to the links above and wish you luck!

STEP 5: GETTING HELP

ACADEMIC ADVISING, FACULTY OF MATHEMATICS: https://uwaterloo.ca/math/current-undergraduates/academic-advisors

MATH ADVISORS EMAIL: mathadvisor@uwaterloo.ca

If you get stuck anywhere or have any questions, don't worry! There's always an academic advisor here to help you out. They can help you with understanding enrolling in courses, but also course requirements, declaring your major, and much more. You can email the advisors for the entire Faculty of Math, or (recommended) open the link above and find out how to get in touch with the advisors of your specific program.

Cool tip: in certain departments, if you want to get into an advanced/enriched/upper year course but don't meet the requirements, you'll have a better shot emailing the professor rather than advisors.

CONCLUSION

And that's it! That's basically everything I know about selecting courses, and I've enrolled in eight terms worth of courses with no major problems with this information. Now go forth and enroll in courses hither and thither and yon, because that's how one gets out of this ~~hell~~ lovely place known as UW Math!

tendstofortytwo

N SUBJECTIVE NOTES FOR INTERNATIONAL STUDENTS

- Be cautious when renting in Waterloo. Think twice before leasing with student apartments on Phillip/Lester/Sunview/Albert. The lease you sign is for 3 years, and you are only able to cancel it after the 10th month. Houses like Rez-one also mandate a record of your credit card information, and charge 4 months rent for deposit if you can't find a guarantor in Canada. Keep an eye out on Facebook/places4students.com/campus housing and try to find an individually managed place. The rents are 30–40% cheaper than corporate high-rises, usually with much less annoying paperwork to do as well.
- Read about the necessary conditions for a PGWP on the IRCC website. Schedule a meeting with the immigration consultants at UW, and ask them about everything you find confusing. For example, ask how many hours you can work on/off campus for a full-time/part-time job, and how to do your tax claim/returns by the end of April.
- Book a G1 driver's license test after you arrive in Waterloo. On your exam day, make sure to arrive **30 minutes** before the opening time of the Test Centre. You have no idea how many people are going to line up out there, and how slow the line will move once it's built up. If you already have a full driver's licence from your home country, you may be able to fast forward the process. (I found out after $50 in translation fees that my driver's license doesn't mean anything in Ontario. Sad face.)
- Being new to Canada is OK, if you can find your social groups here on campus. MathSoc has termly events and weekly game nights. Sit in and say hello to the club people in MC 303x. **mathNEWS** has biweekly prod nights where you get free pizza if you can write something for them. There are also countless WUSA clubs, where you can meet people outside the Math Faculty.

Welcome to Canada!

loop

You guys are all nerds, but don't worry: I am the biggest nerd here.

ROB HACKMAN

PLACES TO GO

WHERE TO USE THE RESTROOM AS A MATH STUDENT

Welcome to UWaterloo! I'm sure you have one thing on mind as you file into the auditoriums for your first lectures, and, of course, that is where you're going to use the washroom! Well, don't worry, this article's got you covered, with some tips to using the washrooms around the math buildings at UWaterloo.

First off, something that's kind of obvious but still worth saying; older buildings tend to correlate with worse washrooms. If you're in a building that looks like it was built fifty years ago, the bathrooms are likely to be dingy and not very modern. It's a good rule of thumb if you want to look for a good bathroom, go newer.

If you're in the main math building, MC, the bathrooms just generally suck. There's one basin for a sink operated by a foot pedal, it's often too hot, it wastes a lot of water, and it's annoying. Would not recommend. If you want you can go up to the fifth or sixth floor for actually decent sinks, but it's probably actually worth heading to a different building.

If you walk across the bridge on the northwest side of MC you'll get to SLC. There are some decent bathrooms there in the expansion that was only completed last year, not too far from where you enter the building across the bridge. Not only that, there are some non-gendered washrooms there too for people who might not feel comfortable within either one of the traditionally gendered washrooms.

There's also the building with the math library, the Davis Centre, only a short walk across the bridge on the northeast side of MC. Its most well-used bathroom, the one on the first floor outside the library, is honestly just kind of dirty. I'd recommend the bathrooms within the actual library, which are actually pretty new, or the ones on the north side of the second floor, which have a nice window over the street.

Some other buildings with decent washrooms you might want to check out while walking across campus include STC, EIT, and QNC. All of these were built relatively recently, as mentioned previously, and all include at least some non-gendered washrooms.

I write an ongoing series reviewing the bathrooms of UW for **mathNEWS**, so check those out in other issues if you're interested!

Predap

Proof: it's obvious.

PROF. STEVE FURINO

NOT SO "STRAIGHT AND NARROW"?

Hey mathies (and anyone else fortunate enough to be reading this awesome publication)! If you are gay, lesbian, bisexual, transsexual, pansexual, queer, questioning, or stray in any other way from the "straight and narrow" path of cisgender heterosexuality, you are not alone! The Glow Centre For Sexual and Gender Diversity, located on campus at the Student Life Centre, room 3103, is a safe space where you can meet similar people and/or seek support. Glow offers discussion groups, social events (including an annual trip to Pride Toronto), awareness campaigns, and other resources. For more information, visit www.wusa.ca/glow or email glow@wusa.ca.

TheUndecided

mathNEWS NAVIGATION CHALLENGES #2

WRONG PRINTER

You must find an entirely-indoors path from the start to the destination. No WATIsRain. No Google Maps.

- **Start: mathNEWS** office, Mathematics and Computer (MC) third floor.
- **Destination**: Carl A. Pollock Hall (CPH) 1325.
- **Additional considerations**: none.
- **Difficulty:** 3/5.

Picture this: you're me, trying to print off your lecture notes at an MC printer. Unfortunately, that's not working, so out of desperation, you click on a random printer you can supposedly access at 8 PM at night, and press print. It works. Unfortunately, the CPH doors were locked that night, so the bridges are your only option to rescue your poor notes from Carl Pollock's clutches. Be brave, noble warrior.

molasses

ONE OF MY BIGGEST FEARS ABOUT COMING TO UNIVERSITY

Was not being able to find a quiet place to shit once I'd left home. Don't worry. MC 6th floor is pretty empty after work hours.

Proving for pussy

A GUIDE TO COURSE PLANNING

BECAUSE WATERLOO NEVER MAKES ANYTHING EASY

Your first term seems like a lot of fun, right? You're a self-respecting math-enjoyer and the thought of doing calculus, algebra and computer science full-time sounds like a pretty sweet deal. You're not terribly excited for your mandatory communication course, but no program is perfect. However, there is a fifth course. One single, shiny, precious elective that *you* get to choose. Whether it be physics, poetry, psychology, philosophy, or peace, *you* get to pick a course to which you'll devote a loving amount of cursing throughout the term.

That single choice of elective in your first term is practice for the fine art of *course selection*. For the rest of your degree you'll be able to take any courses in any order with very little direction other than what's specified in the undergraduate calendar for your major.

In order to get the most bang for your buck, you want to go in with a plan. Boot up your favourite spreadsheet editor and list all of the terms from the beginning of your degree until graduation. Then populate each term with the courses you'd like to take while cross-referencing with the undergraduate course calendar to make sure that your chosen courses are available when you want them to be.

How do you know which courses you need to take? Your best bet is to check out the undergraduate calendar. The Undergraduate Studies Academic Calendar has the course requirements for majors, joint majors, and minors. It also has the Table 1 and Table 2 requirements. Table 2 is the list of courses that all math majors must take: calculus, algebra, computer science, and statistics. The main takeaways from Table 1 are that you need to take two communications courses and 10 non-math courses. Communications courses and transfer credits (to non-math departments) count towards the 10 non-math course requirement. If you're in CS, there are restrictions on how your 10 non-math courses need to be structured.

Creating a 5-year course plan is not something that you have to do. With a couple exceptions, see Math/Phys below for example, it is possible to graduate from any major with any sequence. It also might be a waste of time if you don't care about squeezing every last drop of value out of your degree. It could be a waste of time since inevitably your course times will conflict and you'll be forced to restructure your whole plan. The most compelling reason not to plan too far ahead is that your interests will change over the course of your degree. Discarding old academic interests and picking up new ones is a healthy sign that you're figuring out what you like to do.

However, there are some snazzy reasons that you should create such a spreadsheet. Firstly, it will give you something to look forward to. On the other hand, if you look at your class schedule spreadsheet and see nothing that excites you, it's probably a sign that you should reconsider your major. Secondly, the process of creating such a document will show you if you need to change your co op sequence. I needed to switch a summer study term into a winter study term so that I could take all of the PMATH and PHYS courses that I wanted. Finally, it's fun. Nothing like a good spreadsheet and some colour coordination to lighten the mood.

❦

How do I know when a course is offered? If you look at the undergraduate calendar, you might get lucky enough to spy the terms during which the course will be running enclosed in square brackets.

Sometimes the undergraduate calendar lies. I've been told that the undergraduate calendar is a difficult document to edit. As a result, much of the information is out of date. If you use the undergraduate calendar make sure that you're using the most up-to-date version. You can change the year and the course code in the URL to navigate to the most up-to-date version.

A course might be offered more frequently than advertised in the undergraduate calendar. Since Fall 2018, CO 255 has been offered in the Fall and the Winter consistently. However, the undergraduate calendar has listed CO 255 as a winter only course since its introduction in 2012. To see a more honest prediction for CO courses, check the projected offerings on Odyssey.

A course might be offered less frequently than advertised in the undergraduate calendar. PHYS 467 has only been offered in the Winter since 2007. However there was a fall offering in 2005. The past decade of undergraduate calendar entries have it listed as a course offered in *both* the fall and the winter.

Sometimes there are not any indicators. For example, courses under the PMATH label don't have any information about when they're offered. Some departments manage their projected course offerings on their own websites. The PMATH course offerings are stored in a PDF that gives an approximate prediction for the next five years.

The undergraduate schedule of classes can tell you a lot about how courses have been offered in the past. The class schedule is kind of a silver bullet for *past* class offerings. It's a record of what courses have been offered in the past that's available from 2001 to 2023. You can use this information to see what professors have taught courses in the past and whether sections have been full.

However, one should use caution when extrapolating from the past class schedules. ENGL 208B was offered in the Fall during 2019 and 2020, but switched to being offered in the Winter for 2021 and 2022. English course offerings for the upcoming year can be found on the English department website.

❦

Course override forms will let you enroll in courses that you wouldn't normally be allowed to enroll in. They will let you take courses without completing the prerequisites as well as courses with conflicting time slots. For example, Quest will not let you into a course if there is a time collision, including a time collision with a midterm (called a test-slot, or TST, in quest) or tutorial. Most course overrides only require instructor consent, however consent of the department or your academic advisor may also be required. Overriding into courses is not as painful as I made it out to sound and almost always worth it.

If you *really* want to get into it you can keep a shortlist of classes that you would like to take, that are not on your spreadsheet. This can be useful if a time conflict causes you to have an open spot in your schedule. You can also enroll for 6 courses with the intention to drop one. If you desperately want to take certain courses, but don't think that there's a way, you may just have to get creative with sequence changes and overrides.

A couple more course planning ideas. Some courses that are not hard sciences can be fun and healthy for your degree. In shameless self-promotion, the jazz ensemble is a bananas way to get an extra 0.25 units of non-math courses on top of your regular course load. If you get to the end of the course chain on a particular topic and want to learn more, you might want to consider asking a professor for permission to take a graduate course on that topic.

Emails are back in style. The Mathematics Undergrad Office, your academic advisor, and the advisors of other departments will be able to answer any questions you have about courses.

A note for Mathematical Physics students in co-op: there is a special co-op/study schedule that will make it easier for you to graduate on time. This is typically very poorly advertised since the school doesn't know that you need to have this information until you declare your major. It matches the Science Faculty Math/Phys student's co-op sequence, except with a co-op during your first summer instead of taking the summer off. Gotta love the Math Faculty work ethic.

edgar allan hoe

Links for online readers:

1. Undergraduate Calendar: https://ugradcalendar.uwaterloo.ca/group/u-Waterloo-Faculty-of-Mathematics.
2. Schedule of classes: https://cs.uwaterloo.ca/cscf/teaching/schedule/expert.
3. Pure Math course offerings: https://uwaterloo.ca/pure-mathematics/programs-and-courses (You'll have to click through to "Future course offerings" since they update the location of this link periodically).
4. Projected course offerings: https://odyssey.uwaterloo.ca/ofcourse/app/.
5. Math co-op sequences: https://uwaterloo.ca/new-math-students/co-op/sequence-charts.
6. Math/Phys co-op sequence: https://uwaterloo.ca/applied-mathematics/current-undergraduates/majors-minors-and-specializations/mathematical-physics-plan-schedules.
7. Co-op sequences for Science students: https://uwaterloo.ca/science/undergraduate/experiential-learning/co-op.
8. English course offerings: https://uwaterloo.ca/english/undergrad-this-years-courses.

WATERLOO BUBBLE TEA PLACES RANKED BY A NOT-UWATERLOO STUDENT

I KNOW YOU LOVE BUBBLE TEA, SO LET ME HELP YOU PICK THE RIGHT ONE, SUBJECTIVELY

I didn't rank it myself, because my taste buds are destroyed by Campus Pizza. So I had to get someone else to do it for me.

7. SWEET DREAMS

Quality is decent. The possibility of ordering a chocolate slush "bubble tea" with strawberry jelly is nightmare inducing.

6. CHATIME

It exists I guess?! ¯_(ツ)_/¯

5. COCOS

Cheap, as far as bubble tea goes. Close to campus. A lot of options to choose from. Only a select few are good.

4. NOW TEA

Fruit tea is alright (I know, not bbt, but whatever). Bubble tea is OK. Have to pay extra for boba — or pearl if you're fancy like me.

3. YI FANG

Good fruit tea. Too far from campus, if you can call T&T plaza too far that is. Have to pay extra for boba as well.

2. GONG CHA

Solid line of products. Good croffles. Has ice cream too.

1. THE ALLEY

Solid line of products. Simple aesthetics. Literally right next to campus. Best passion fruit green tea, subjectively. Also have leashes for sale.

Ary

HOW TO SUCCEED IN YOUR MATH COURSES

ADVICE FROM AN UPPER YEAR WHO FAILED FIRST YEAR

I hope that subtitle grabbed your attention. It's a little bit dramatized, but I did actually fail two courses in my 1A term, and I averaged a 59.8, I was forced to change sequences, and was threatened with being removed from my program. I'm now excelling in 4th year and graduate level math courses, and doing original research in the pure math department. I also tutor lots of students, and I've seen people struggle and succeed in a huge variety of courses. Studying in high school is very different from studying in university, and in this article, I'm hoping to give an idea of some of the changes you should be making.

First and foremost, before we get to the practical, **if you want to succeed you need to take care of yourself**. This means eating enough, sleeping enough, hydrating regularly, getting time outside, socializing, taking breaks, being physically active, and doing whatever else you need to take care of your mental health. All of these points are non-negotiable.

The fundamental struggle of university math courses is that they start asking *why* and *how,* not just *what*. Most of high school math is rote, in that you are given a formula or technique, and asked to apply it. Most problems are directly from the textbook, maybe with the numbers changed, but you can fundamentally get by just practicing a bunch of practice problems and memorizing a few algorithms.

In university, you will be asked questions you have never seen before on exams. You will be given problems that genuinely require new problem solving skills, that take insight and understanding, that require you understand *why* something works, not just *that* it works. Because this approach is fundamentally different, your studying will also probably need to change.

Your courses will now start proving propositions in lectures. You will be given rigorous, precise definitions of terms, and formal, detailed proofs. You should aim to understand all of these proofs completely, and to understand why things are defined the way they are. When you see a new definition, theorem or proof, you should always *immediately* ask yourself:

1. What is the intuition behind this? Why does this make sense? If it's a definition, why does this capture the idea the definition is about?
2. Does this look like anything I've seen before? Is that a coincidence or is there a connection?

It's OK if you can't answer these questions right away, and it's OK if you need to ask outside sources, but these want to be understood. Again, unlike high school, it doesn't just matter *that* things are true, it matters *why* they are true, because you will be expected to create similar arguments on your exams and assignments, and the "why" of the truth can often inform you of where you'll need to use it.

When going through a proof, first read it through completely, and try to capture the general idea. Sort of figure out overall what it is saying. Then, go through it slowly and carefully, at each sentence, ask yourself the same basic questions:

1. Why was this sentence valid?
2. Which hypotheses are we using? In math, a hypothesis of a theorem is a condition you're assuming true. For example, if I say "If x is odd, then x + 1 is even," my hypothesis would be "x is odd."
3. Why might someone think to do this?

Question 3 is especially crucial here, because that helps you practice for your own problem solving. You will often get to a point in a problem where you have no idea what to do next, but any example or theorem you already have is a template! You won't be able to directly copy anymore, but you can learn from the given examples and solutions by asking yourself *why*. Once you have a general idea of why something works and the ability to explain why every individual step works, you will be able to prove it on your own, and you will be able to work through similar problems. Again, if you're having trouble with these steps, ask your professors, classmates, TA's, tutors, upper year friends, or anyone else who can help. Once you're done that, I would recommend asking the following questions:

1. Is this proof like anything I've seen before? Why are they connected?
2. Can I lose hypotheses or generalize this theorem?

These aren't questions that need to be answered, but they're good to ask, because they get you thinking on a deeper level, and again encourage problem solving.

Speaking of problem solving, this is the one area where I think excessive help will hurt. In order to practice solving problems, you need to… solve problems. It is completely OK to get hints and guidance, but I would strongly recommend that you almost never look at solutions to problems you haven't solved yourself. The reason for this is that, if you are given a hint and you solve the problem on your own, you have learned something and practiced problem solving. If you just look at the solution, you've learned something, but you've left a crucial skill undeveloped, which will really come back to bite you in the a** when exams come around.

When doing assignment questions, often finding the answer comes down to asking yourself a good question. "What is the definition of everything involved," "What is the intuition here," and "does this look like anything I've seen before" will almost always be shockingly good starts. Sometimes there is no intuition, sometimes it doesn't look like anything you've seen before, and sometimes the definitions don't help, but these three basic ideas solve a ton of problems. If you try

something that almost works, ask yourself how it can be modified or why it failed; if you try something that seems really tedious, ask yourself why it's tedious, and if that can be avoided.

That's all for now. Good luck in your first year. You're really in for an incredible experience, and remember — supports exist for a reason! Take advantage of them :)

Golden

TAKING A MINOR

One smart thing to do with your degree is stick more words on it. There are two common ways of doing this at UWaterloo — heh, well, maybe three, but this column is far too short to discuss taking a joint. You can do the double major thing, or you can just throw a minor onto your degree. So what kind of minors are there? Well, there are those in math and those not. For mathie minors, you need a bunch of courses, but frequently they just overlap the ones you're taking so it turns out to be like four or five courses, perfect for filling up your math-course requirement without taking all STATs or something foolish. Now, for outside of math minors — perfect for those thinking of becoming teachers who want a non-math "teachable" — these take around ten courses, so plan ahead. It gives some structure to your electives, but they require you to take specific stuff that is only available in certain terms — hey, like why I can't finish my English minor on time. So, in conclusion, think about one, but try to plan early.

Allen MacLeon

mathNEWS NAVIGATION CHALLENGES #3

FASTER THAN WAITING IN LINE?

You must find an entirely-indoors path from the start to the destination. No WATIsRain. No Google Maps.

- **Start:** Student Life Centre (SLC), Shawarma Hub.
- **Destination**: Engineering 7 (E7), first floor.
- **Hint:** (reverse) E5 to E3 bridge the Use.
- **Difficulty:** ⅕.

Some would argue that shawarma is the peak UW experience. Specifically, the experience of waiting in line at Shawarma Hub, zoning out, and finding yourself having already ordered Lazeez on the rocks, 10 lines.

molasses

M = 10 WAYS TO GIVE UP

N = 1 REASONS TO KEEP GOING

- Quite simply do not course select.
- Actively commit egregious policy 71 violations.
- Quite simply do not add any courses after you quite simply did not course select.
- Decide not to do any of the assignments in your courses.
- Conveniently forget to pay tuition for the term.
- Get trapped at Pearson airport. Forever.
- Get trapped in MC's fourth floor. Forever.
- Submit a request to be relieved of doing all of your exams on the basis of "I don't want to."
- Attempt a long-term sabbatical living with the llamas of Eby farm.
- Flee to the other university down the road and don't look back.

Before doing any of the above however, consider:

When you accepted your offer, you became a Waterloo Warrior. The university selected you out of thousands of other candidates, judging that your particular skills and qualities make you worthy of the title, Warrior.

Warrior against what? Other universities' sports teams? Possibly, but sports matches hardly need "Warriors." Our nemeses in #general, showers, and daylight? Perhaps for some, but many Warriors give up that fight, to their peers' great joy. I argue that the opponent of a Waterloo Warrior is in the name.

Waterloo Warrior. Warrior of Waterloo.

A Waterloo Warrior is one who does not back down from the onslaught of assignments; of midterms, group projects, and Marmoset submission results. We alone do not break under the pressures the coming years will send against us; we alone have the dedication to pass through the forge of this university to emerge better, stronger people on the other side. We alone fight this fight, but we fight it not alone; our success is fought together, looking out for one another in clubs, student organizations, teams, and bonds forged between bleary eyes in the DC basement under moonlit nights. We will fight it tirelessly, but not without tiring; we take care of ourselves by resting where we can and must to survive the next stretch, to make it through together. When the nightmare feels endless, we smile and keep fighting, for in being here we choose every morning to test ourselves one more day, to fight for one more day, to postpone defeat one more day; Waterloo doesn't deserve to beat us. Waterloo doesn't deserve to beat you. You're a Warrior. No assignments, exams, or oppression of the sometimes-endless grind can make you give in.

We are Warriors. We never give up the fight.

Welcome home, Warrior.

molasses

HOW TO CHANGE THE UNIVERSITY

A GUIDE ON HOW TO GET INVOLVED AND BE A SUCCESSFUL STUDENT ADVOCATE

Sometime during your time in undergrad you will likely encounter something in the University that you don't like and wish could be changed. The good news is, you have the power to change things! The bad news is, it can be a lot of work. But I'll guide you through how to do it in this article.

My name is Vincent Macri, and I've served in various positions in student government for over 2 years. The highest position I held was Vice President, Academic (VPA) of MathSoc in Winter 2022. The MathSoc VPA is in charge of advocating for the interests of the entire undergraduate student body in the Math Faculty. While I served as VPA, I led a successful push to put in place a ban on invasive proctoring software in the Math Faculty. I also worked to ensure that the removal of work term reports passed, something I had been advocating for about a year at that point.

If you're willing to work hard and do your homework, you can bring attention to an issue. I initially got involved in student politics because I was upset that the Math Endowment Fund was investing in fossil fuels. With the help of **mathNEWS**, I filed a Freedom of Information request for financial records of the University's investment portfolio and reported on it in **mathNEWS**. Writing that article took me about five months of work. I used the information I gained in that reporting to convince Math students to formally ask the Math Endowment Fund to divest from fossil fuels. The motion passed, making the Math Endowment Fund the second faculty endowment fund (Environment was first in 2015) to request the University divest its holdings from fossil fuels. It's hard to say for sure, but I like to think that this at least played a part in when the University eventually did officially committing to divesting from fossil fuels. However I do know that my journalism here did bring attention to the issue and got people paying attention. What I learned here is that one person can expose new information about what the University is doing and draw a lot of attention to it.

The University administration can be complicated, and it takes time and experience to learn how it all works. About midway through looking into the University's fossil fuel investments, I decided to run for MathSoc Council. I served on MathSoc Council for a while, and I wrote several advocacy stance while I was there. Eventually I was elected to WUSA Council as well, where I continued to work on various advocacy items. WUSA is the student government for all undergraduates at the University of Waterloo. MathSoc is a part of WUSA that exists to serve Math students. While I did all this, I learned a lot about how the University functions and what successful advocacy looks like. I also learned that change is complicated, and it can take a long time to see things come to fruition.

Big changes can take time and involve many people working to get changes adopted. For example, I started a push to have MathSoc advocate to reform work term reports. I put forward two motions at a MathSoc General Meeting, which all undergraduate math students are allowed to attend and vote at. One motion was to advocate to get rid of the work term report requirement, and the other was to simply reform the requirement to have students meet it in a different way. The motion to reform the requirement passed, as it was the more reasonable motion that we could actually accomplish. The many students who attended the meeting all had an opportunity to voice their concerns, express their opinions, and come to an agreement. It then took several terms of MathSoc advocacy from multiple VPAs, and mainly by luck I was the VPA right when the decision to change work term reports was going to be made. I worked with the Faculty and WUSA to conduct a survey of students, and over one thousand students responded, the vast majority expressing the need to reform the work term report system. I brought this evidence to the Undergraduate Affairs Committee of the Math Faculty which I sat on as VPA and used it to help convince Faculty members to adopt a proposal from the Associate Dean, Co-op to reform work term reports in a way that effectively got rid of them. I learned from this experience that change can take time, but students can do important work to speed up those changes. I've heard from students who attended that General Meeting that got the process started how great it felt to be part of making a positive change at the University.

While change can take a long time and involve many people, if you're extremely determined (and a bit stubborn) and have the support of the student body you can get something changed and changed quickly. The biggest piece of advocacy work I did was advocating to ban proctoring software in the Math Faculty. In Winter 2022 just as I was starting as VPA, I found out that the online sections of STAT 230 and STAT 231 were using the software. I immediately sprang into action. I explained to students the risks of using proctoring software and encourage them to exercise their right to request an alternative (much to the annoyance of the instructors who decided to use the software without knowing that students had the right to request alternatives). After learning that the software interfered with students having a fair midterm examination, I led a big push to advocate for a complete ban on proctoring software in the Math Faculty. I organized a petition through MathSoc and with the help of other faculty societies, we got over one thousand signatures from members of the University of Waterloo community. With the help of my volunteers, I created a detailed (I think it was 17 pages) explanation of the risks and harms of allowing the use of proctoring software. I put forward a motion at the Undergraduate Affairs Committee and convinced the professors there to recommend the ban (with some minor amendments) be adopted by Faculty Council. Faculty Council is the highest governing body in the Math Faculty, and every professor holds a voting seat on it. The motion to ban proctoring software passed overwhelmingly in Faculty Council, and the ban came in to force in Spring 2022. From this advocacy, I learned that while the University sometimes works slow, and sometimes is doing the opposite of what you want, if you are sufficiently determined and have sufficient support from the student body, one person

can get a big change passed that causes the University to change direction.

But I'm not the only student who has been able to make changes at the University. WUSA works with provincial and federal groups to lobby the various levels of government on behalf of students, and some of the friends I've made in WUSA have meetings with elected officials to convince them to help students. Some of my friends work more on the finances and operations side of student government. One friend of mine had the responsibility of deciding what drugs the WUSA Health Plan would cover and not cover. Other students oversee WUSA's multi-million-dollar annual budget (WUSA basically runs all of student life on campus). I know people who have been in charge of overseeing all of student life within the Faculty or even across campus! No matter what it is that you're passionate about, there is something that you can do within your new student government. And the earlier you start, the more time you have to see your changes get implemented. Also, the earlier you start, the more time you have to learn how everything works so that you can advocate effectively. While some of this may sound complicated, if you start from a low level position like a MathSoc Councillor and work your way up the ranks you'll quickly learn how things work.

So where do you start if you want to make a change?

If you have an issue that's just related to the Math Faculty, you should go to MathSoc. If it's an academic issue, you should go to the Representative for your major and/or the VPA depending on if it's an issue specific to just your major or if it's an issue relevant to students in many programs. If you see that the position for your program Representative is vacant, consider running to fill it in the next election! MathSoc has general elections every term to elect people for the following term, and if there are vacant seats left a byelection is held towards the start of the term that there are vacancies for. If you have an issue with student life in the Faculty, you should contact the MathSoc Vice President, Internal (VPI). If you have an issue that is not specific to just your program or just the Math Faculty, you can contact a member of the WUSA Board of Directors for help. Know that all these people then have to work within the complex structures of the University (also, WUSA is a separate legal entity from the University) so while they will try to help you, it's not always within your control. Of course, there is always the option of running for a position yourself and trying to get change passed yourself. I highly encourage you to run and apply for any positions that interest you. If you don't have the time to get involved yourself, please at least talk to your elected student representatives so that they can know what issues students like you are facing and take action to address it.

Vincent Macri

TAKING A MINER

One smart thing you can do with your free time is kidnapping. There are two common ways of taking a miner at UWaterloo — heh, well, maybe three, but this column is far too short for such interpretations. One involves kidnapping, while the other, umm, also involves kidnapping. It's really all about who you kidnap. I am not a big fan of kidnapping the young, so I'm going to recommend you take a grown-up miner. Of these, there are several kinds available for the taking. Uranium miners tend to have radiation issues, so try to keep your distance. Coal miners are typically less biologically dangerous; however, there is the mess issue. Those who work in sepulchres or open-pit mines don't usually get covered with as much murk and mess, so I find them the best after the act of taking a miner, but getting them is awkward. Miners who work in shafts can be taken from their shafts a lot easier than kidnapping open-pit workers. So, in conclusion, kidnap guys who work in clean shafts. Or Shaft.

Davey R. Adams

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

mathNEWS is a normally fortnightly publication, funded by and responsible to the undergraduate math students of the University of Waterloo, as represented by the Mathematics Society of the University of Waterloo, hereafter referred to as MathSoc. **mathNEWS** is editorially independent of MathSoc. Content is the responsibility of the **mathNEWS** editors; however, any opinions expressed herein are those of the authors and not necessarily those of MathSoc or **mathNEWS**. Current and back issues of **mathNEWS** are available electronically via the World Wide Web at https://mathnews.uwaterloo.ca. Send your correspondence to: **mathNEWS**, MC3030, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1, or to userid mathnews@gmail.com on the Internet.

mathNEWS is overseen by the Board of Publications, an autonomous board of the Federation of Students, University of Waterloo, hereafter referred to as Feds. **mathNEWS** is editorially independent of Feds and the Board of Publications. **mathNEWS** has never been requested to withhold Improper Content as defined under Feds Policy 71.

ANYONE CAN MAKE FRIENDS. ESPECIALLY YOU!

SOME ADVICE FROM AN EXTROVERT

I *love* people. I spend almost all of my free time socializing, when I'm at events I make an active effort to chat with strangers, I say hi to people in class and in cafeterias, and it makes my week when I run into an old friend. I am at my most energetic, brightest, and happiest when I am socializing, To facilitate that, I make a lot of friends. I have a pretty large group of people who I regularly hang out with, and an even larger group who I would consider friends on some level. I know people from class, parties, club events, random encounters, through mutual friends, the gym, rock climbing, and dozens of other situations. This means that I've had a chance to practice socializing a ton, and so I've developed it as a skill. The goal of this article is to share some of what I've learned, and hopefully make it a little easier.

No matter what anyone tells you, socialization is a skill. You do not need to be born naturally charming and charismatic to make friends easily. People aren't a monolith obviously, but there are baselines for any interaction, and the more you practice socializing, the better you will get at it. This article is meant to be a starting point, and it probably won't work for you right away! You won't be perfect, and that's OK — I still consistently screw up basic socialization, but I try enough, and I've practiced enough that I can still make new friends.

The first step is to find people to talk to. Luckily, this is really really easy. Waterloo has a reputation for being antisocial, but this is completely inaccurate. Most people here like socializing, want friends, and are generally normal people. However, most people are also f**king awful at approaching others. If you want to reliably make friends, you will have to take the initiative. Say hi to someone after class! Ask them if they want to study together! Go to club events and talk to people, ask them how they heard about the club! Rock climb or swim or do dance and chat with the other people there! Don't bother people who have their headphones in, and don't bother people who are deeply focused on something, but in public spaces, chatting with people is completely OK. If someone is showing absolutely no interest in talking to you, leave them alone, and don't take it personally! There could be a million reasons; some people want to focus on what's at hand, some people might be having a bad day, some people might just want some alone time.

Now, once you're talking with someone, what can you actually say to have a meaningful and enjoyable conversation?

In my experience, the most consistent way to get someone else talking is to show sincere curiosity about or interest in them. Asking questions is a fantastic way to do this. The thing is, if you just consecutively ask someone about everything in their life, it can end up feeling a lot more like an interrogation than a conversation — and that's why the goal of questions should be to find out what the person enjoys talking about. Questions inform you of what direction to take the conversation, they aren't the point of the conversation. Generally, questions directly related to the context you're in are the best starting point, since they're the least likely to come across as creepy, and the most likely to create common ground for conversation. If you're in class, asking someone if they understood the lecture is much more likely to lead to a conversation than walking up and asking them if they have any pets.

As you chat with people, gauge how they're reacting. If you ask some people about their family, they will gush about a wonderful mom or complain about fights with siblings; others won't have much to say. Hobbies are something that you can get almost anyone talking about, but some people will be embarrassed or just *shy*. The best way to make someone comfortable is to really care. Look at where they care, what they're focusing their conversational effort on, and invite them to share more. Most people are absolutely fascinating, and just don't feel fully comfortable opening up, and by giving them the space to, you'll not only make them feel heard, you'll get to learn about something new and exciting!!

One of the worst feelings in a conversation is sharing something personal or important and having it glossed over, dismissed, or simply not acknowledged. By asking questions, by following up and *caring*, you can create a really positive environment for whoever you're talking to, and that is the basis for any connection.

When sharing about yourself, I think the single most important piece of advice I can give is to be authentic and unabashed. Someone asks you your hobbies, and you like painting models of trains built between 1908 and 1912? F**king *own it*. You might be embarrassed, but here's the thing — if you care about something, and you let that passion and excitement shine through, you can get people invested in something they normally wouldn't care about at all. An excited teacher can make a "boring" class fun, and an excited person can make a "boring" conversation interesting. Don't lecture people unless they ask for it, because you don't want to launch into the minutiae of right wood grain for a 1910 vs 1908 locomotive right off the bat — instead share broad overviews, and leave rooms for questions and conversations. You don't want a 20 minute monologue, you want a few key tidbits that lead to a longer back and forth conversation where you still get to share everything you would have said during the monologue — this builds connection and makes the other person actually engage.

If you enjoy the artistry of painting the models, mention that, and then if they have any artistic hobbies they have a chance to bring them up. In general, an emotional side will be much easier to connect with than a practical side, especially if it's a niche hobby.

This level of openness might get you judged, but the thing is, if a hobby or idea or interest is important to you, the kind of person who will judge it is not the kind of person you want to be friends with. Authenticity finds you the people who

actually get along with *you*, and that is the space in which friendship can happen.

Next time you're out, talk to someone new, and show some interest in them. You'll be surprised how well it works :)

Golden

THE WATERLOO FOOD GUIDE

Have you ever heard of the Michelin Guide? It's basically the most prestigious food guide for the world's major cities. Getting your restaurant featured in it is something most chefs can only dream of. This guide is like that, except it's for Waterloo instead of the world's culinary capitals, and it's written by a random CS student instead of a bunch of professional food critics. But it's basically the same thing. If your favourite restaurant's not on it, then it's probably a bad restaurant and you should go to one of these instead.

SHAWERMA PLUS (PLAZA)

Shawarma is probably the most popular food at UW, and this is the best shawarma in the Plaza (cope harder Lazeez fans). For those who are new here, the Plaza is the group of shops of questionable quality next to the university where most students get food. Shawerma Plus might be a bit more expensive than some other shawarma options, but it's worth it. You can get a better deal by ordering online (every 6th order is free), coming with a group and getting a platter, coming with a friend and getting the two wrap special (in person only), using a promo code from their texting list, or using a promo from Wealthsimple, if they ever recover financially.

Go-to order: Chicken Shawarma Wrap, English style ($11.99).

CAMPUS PIZZA (PLAZA)

Probably the second most controversial Plaza establishment after Lazeez (which you will note is not on this guide). The pizza is kinda greasy and not great, but it's cheap and they're open until 4 AM. I would never go here during the day, but there's something special about it when it's past midnight and you just finished a rough CS assignment (and it's the only place still open). It's also a UW institution, so you kinda have to try it. They have a massive size you can get if you're in a group but strangely it's a worse deal than ordering a bunch of smaller pizzas.

Go-to order: Large 3 Topping Special ($11.99).

GOL'S LANZHOU NOODLE (BASICALLY PLAZA)

Probably the best quality restaurant in the GPA (Greater Plaza Area). You can get these massive Chinese noodle bowls and they're really good. You can even watch them make their own noodles and choose your noodle size. It's honestly kinda hard to finish an XL bowl in one sitting but they make for good leftovers. The ambience is nice too if you need somewhere to bring your significant other or academic advisor.

Go-to order: N1 Beef Noodle Bowl, XL ($14.99).

KEN SUSHI (BASICALLY PLAZA)

I have yet to meet someone who doesn't like sushi. It can be kinda expensive, but Ken Sushi is really good sushi. It's way better than the garbage they sell at International News in SLC (which isn't worth it even with the 11 PM discount). If you come with a group you can get one of their huge sushi boats and argue about who gets to eat the sashimi.

Go-to order: Dynamite Roll ($11.99).

BANH MI GIVRAL DELI (KITCHENER)

Kitchener is pretty far but luckily this place is right by the ION so it's not too bad. For those who are new here, the ION is the light rail that passes next to the university. Your WatCard lets you ride it for free (if you don't count the thousands of dollars in tuition). This is the best banh mi in the city (confirmed by a Vietnamese friend), and also the best value food in the city that I know of. Their banh mi and other foods are delicious and well worth the trip. They don't take credit and only take debit if your order is over $7, so bring cash and keep it on the down low with the CRA. The place is really small so prepare to eat standing on the sidewalk. Call ahead to make sure they're open and not out of bread too (once I biked all the way there and they were out).

Go-to order: BBQ Pork Banh Mi ($4.50).

KINKAKU IZAKAYA (KITCHENER)

Also a bit far, but also near the ION and worth the trip. They have great all-you-can-eat sushi. I recommend coming in a group and fasting for a few meals beforehand to make the most of it. They have some really tasty deep fried stuff but it can fill you up quickly, so resist the urge to order that until the end. I recommend pacing yourself and drinking some water since I find it makes you feel less full. For lunch you get a 90 minute time limit, and the deadline for your last order is 75 minutes in. They're pretty chill about this in my experience, but be careful not to overshoot when ordering near the end since they can charge you for leftover food. They have a mandatory 15% tip for groups of 4+ but once you see the chaos of ordering hundreds of pieces of sushi you'll understand. Lunch also has most of the same core items as dinner for way less money, and weekdays are cheaper. If you play your cards right you won't need dinner afterwards, or breakfast the next day.

Go-to order: Weekday Lunch ($25.99).

SC

FEELINGS AND FEARS OF A FIRST-YEAR

As an incoming first-year like you all, I've been so overwhelmed as of late, and I thought I'd write this article to tell others who feel the same way that they are not alone. It's a strange, humbling feeling to wrap up your life and put it into a few suitcases. Everything I've ever done in the past 18 or so years – all the *stuff* I've owned, earned, been gifted, sentimentalized, maybe even fought over – and *this* is all I'm allowed to take with me according to my airline.

Moving is hard. Yet it's a reality for many of us who are coming from far away places. Whether you're coming from across the province, across the continent, or – like me – from across the world, we all go through the same things. Being bombarded with a strange mix of emotions, coupled with this nervous excitement and this inability to look at anything without a bittersweet lens. Not really processing the endeavour that you're about to undertake and being stuck on "Wow, this is really happening, huh." All the while, your brain keeps asking: "Will I fit in?", "Will I be safe?", "Will my peers accept me?", and "Will I feel at home?".

I personally have spent the past few weeks with this strange sense of worry. I've looked at things and wondered if it's the last time I'll see them. I've met my friends for what is likely the last time we'll all be together for the next few years, as they're all moving away too. These are people I've spent my life with and owe my life to and soon they'll be scattered across the globe. I've eaten at my favourite local restaurant one last time and wondered if it'll even be around when I come back. I've stared at the tree outside my window, as it flails in the wind and wondered when I'll see the view again. I've met my close relatives and realized how much I'll miss them. During packing, I've picked up items in my bedroom that hold so much value to me and have wondered whether they'll still be where I leave them when I come back. Small things such as the several souvenirs from events long past that scatter my drawers. Most of these items have no monetary value at all. *Yet leaving them here feels like I'm leaving a part of myself.*

I'm also terrified of starting my courses. I keep asking myself whether I'll be able to handle my course load. In our Waterloo Ready sessions, we've all been told over and over how university will be a stark change from high school, and I'm worried I won't be able to adapt. Or that I'll be left behind and be unable to catch up. I'm scared of failing a midterm or spending entire lectures without understanding anything. I'm scared of just how hard it'll get. I'm scared of my mental health worsening in the middle of the term. And losing the motivation to go on. And I am most scared of the realisation that I have to rebuild a social safety net around me.

But, as I've talked with other fellow first years and seniors, I've realized that many of us have gone through similar experiences. We all worry about the same things and we are all here for similar reasons. In many ways, despite us coming from across the world, we aren't all that different and that's a comforting thought. A lot awaits us in the future. Both good times and hard times. So I want to remind you all and myself a few things. Don't be afraid to feel homesick and don't be afraid to let it out by crying. Support your peers and don't be afraid of reaching out for help. And above all, don't be a stranger to one another. If everything goes well, I'll hopefully see you all at our graduation one day <3

aaqsr

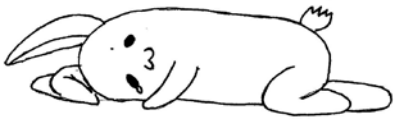
Don't hesitate to message me if you'd like. You can find me on most MathSoc Discord servers (which you should definitely join) with my pseudonym. See you around campus!

8 ALTERNATIVE USES FOR TEXTBOOKS

So you were all excited and bought all your textbooks during Orientation Week. Now, the day of the exam, you say to yourself "I spent $150 on that book, I really should open it at least once." So here's a list of some things you can do with textbooks:

1. **Weapon**: Some textbooks weigh several kilograms and are easily thrown.
2. **Weight training**: Books are heavy, weighing quite a few pounds each, and are easily lifted.
3. **Look smart**: Books are a means to show off the fact that you are educated and usually weigh less than a stone.
4. **Fly swatter**: Once, during a lecture, Prof. Jackson took his backpack and threw it at a wasp on the ceiling. Do you really think that it would have killed the wasp without a textbook in it which weighed more than twenty Newtons? Really?
5. **Building cardhouses**: Textbooks are sort of like big cards. So you can make really big cardhouses. Since most people won't have enough books to make a really kickass cardhouse, get your entire class involved. You know you have enough books when you are counting the books by the ton.
6. **Hammer**: Textbooks can bang things just like a hammer. They may even weigh many carats more.
7. **Screwdriver**: To put a screw in the wall, line it up where you want it and bash away. Works better if textbook exceeds 12 troy ounces.
8. **Lullabies**: The best way to fall asleep at night is to attempt to read a textbook. Or perhaps have someone bash you over the head with a textbook.

Dave Nicholson



FINALLY, AN ARTICLE THAT EXPLAINS WHAT mathNEWS IS!

Allow me to introduce myself. The (writer) name's Finchey. Compared to you fresh-faced first-years, I'm a whole fossil — I've been at this place for four years and I've only got eight months left to go. It been a long way since I was in your shoes, but don't be mistaken — I'm still vigorous enough to chase the metaphorical kids off my metaphorical lawn. Luckily, at least for the duration of this article, that doesn't include you.

You see, whenever this time of year hits, I find myself filling the role of **mathNEWS** tour guide, door-to-door salesman, outreach worker. On my own volition of course — the editors aren't that tyrannical yet. *Why do you do this,* you ask? It's simple: I like it when people like **mathNEWS**. Follow along with me and I'll explain.

We'll begin by answering the premise posed in the title to this article: according to Wikipedia, **mathNEWS** is a "free-form publication." In the publishing world, that's shorthand for "anything goes." For realsies. Pick out any old issue from the wall-mounted display outside the **mathNEWS** office or from the online archive on `mathnews.uwaterloo.ca` and you'll see. Despite having "news" in the name, and often being referenced as the Math Faculty's student newspaper (*not* MathSoc's — ever heard of something called editorial independence?), **mathNEWS** has very little *actual* news, and maybe less math than you'd expect (there is still some though, since a lot of the writers here are nerds, and I say that with nothing but affection in my heart). We have comics. We have poems. We have surreal serial fiction. We have **profQUOTES**. We have whatever written form and genre you could ever wish for within our pages.

Maybe after perusing this orientation issue and some backissues, you'll find that you really like reading **mathNEWS**. (Like, who wouldn't?) You can keep up with new issues this term as they get distributed biweekly to various racks in MC, DC, and SLC. Paper issues sometimes have a tendency to get snatched up like hotcakes, but if you find yourself stranded without a copy, don't fret — issues get uploaded to the afore-mentioned website every other week as well.

There's lots to love and lots of history to find out about this paper. (Did you know **mathNEWS** will be celebrating its 50th anniversary next term?) Sure, I may be biased as a veteran writer, but I love gobbling up an issue the moment it hits the stands. I like reading about what's on the minds of my fellow peers in math. Sometimes it's thought-provoking. Sometimes it's poignant. Most of the time, it's just plain fun.

Eventually, you may end up liking reading **mathNEWS** so much that you want to become a contributor yourself. It's a pretty sweet gig. You can write about whatever you want and your words will be immortalized in Dana Porter and the Library and Archives Canada building in Ottawa. You get to answer **mastHEAD** questions with your wittiest one-liners and ask professors where their favourite bathroom on campus is for the **mathASKS** column. You may even achieve fame; ah, pseudonymous notoriety: a dream come true! Speaking from experience.

And that's my piece. **mathNEWS** is hard to describe, given it's wide-open, constantly evolving nature. It's a very special thing that you'd be hard-pressed to find elsewhere at UW. Hell, at other universities! So why not enjoy it while you're here? Here's to an exciting Fall term, fledgling firsties 🐣!

Finchey

mathNEWS NAVIGATION CHALLENGES: FINALE

RING ROAD: NEW AND IMPROVED

You must find an entirely-indoors path from the start to the destination, *except that you may go outside to travel between Douglas Wright Engineering Building (DWE) and South Campus Hall (SCH)*. No WATIsRain. No Google Maps.

This challenge is only possible 9–5 on weekdays, as far as we know.

- **Start:** Starbucks in the Science Teaching Complex (STC).
- **Destination**: Tim Hortons in Modern Languages (ML).
- **Difficulty:** very.

This challenge is theoretically very easy, since these buildings are so close. Unfortunately, we want to stay indoors, which is likely to lead you on a wild goose chase around campus to find the route to your destination. Good luck!

molasses

Western is known for its relatively wealthy students — and relatively vacuous brains.

PROF. ROSS WILLARD

WELCOME TO WATERLOO!

gridCOMMENT *150.0*

Dear math students,
If you're so smart,
what's 9+10?

ANONYMOUS ENGINEER

Hello incoming UWaterloo prospects!

Welcome to your first week on campus, and congruently, your first undergraduate **mathNEWS** experience. What an honour I have to round out the articles of this edition. I'm supposed to yammer on about the joke competition attached to this article, but in true UW style, the question, answer, and conveniently located QNC submission locale are left as an exercise to the reader. Use your engineering judgment, or whatever the nearest equivalent is to a CS nerd.

A lot has happened on campus since the heyday of your parents' attendance, with notables like the mismanagement and loss of both Federation Hall and the Bombshelter pub, a testament to neoliberal fiscal management at its finest. Other irregularities include the absolute dominance of **mathNEWS** over inferior competitors, notably Imprint and their… stretching of facts. As the composer of this edition's **gridWORD**, it bemoans me to mention that their crossword exists, having seen its sorry state devolve over my years on campus.

Putting negativity aside, WUSA pulled off a total rewrite of the constitution in the past short months, and accompanying this change will be the inductance of a new Board of Councillors, or whatever name sticks. The respective faculty societies are braced to see whether or not this was a wise decision. The graduate students are in the midst of a union drive; research is falling behind; the province refuses to increase funding, and keeps stealing from OSAP[1]. What a time to be alive!

And we're back to the negativity again! It's hard to feel far from the stresses of campus life at UWaterloo, but through a support structure of classmates becoming fast friends, dons, counselling services, clubs, and campus at large, you'll make it through with only nicks and bruises.

To commemorate such an occasion as your entrance to the university, I paraphrase the words of the Dean's address as delivered by the late Pearl Sullivan:

> *You worked hard to get into this school, now you'll have to work even harder to get out.*

Best of luck in the coming months, years, and decades ahead,

sqrt(cause)

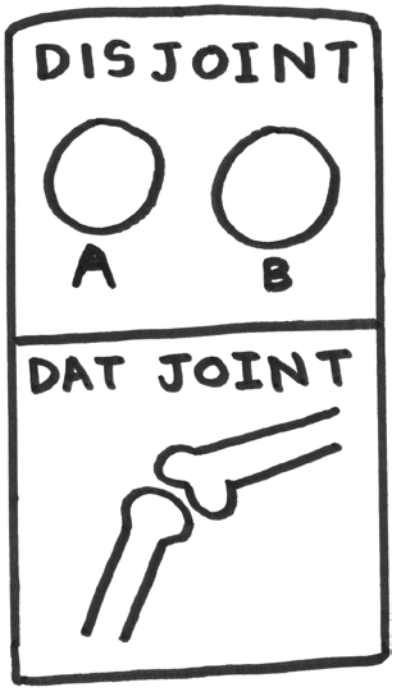
1. s. (cause), *WHERE'D OSAP ABOUT TO HAVE BEEN GONE, BUT LIKE NOT NOW, LATER, ALSO ALREADY HAPPENED, AND WOULD HAVE BEEN BAD TO HAVE HAPPEN AGAIN AND STILL WOULD?*, **mathNEWS**, vol. 147, i. 6, pp. 8–9, Dec. 2021. issn: 0705–0410. [Online]. Available: https://mathnews.uwaterloo.ca/i/v147i6

ACROSS

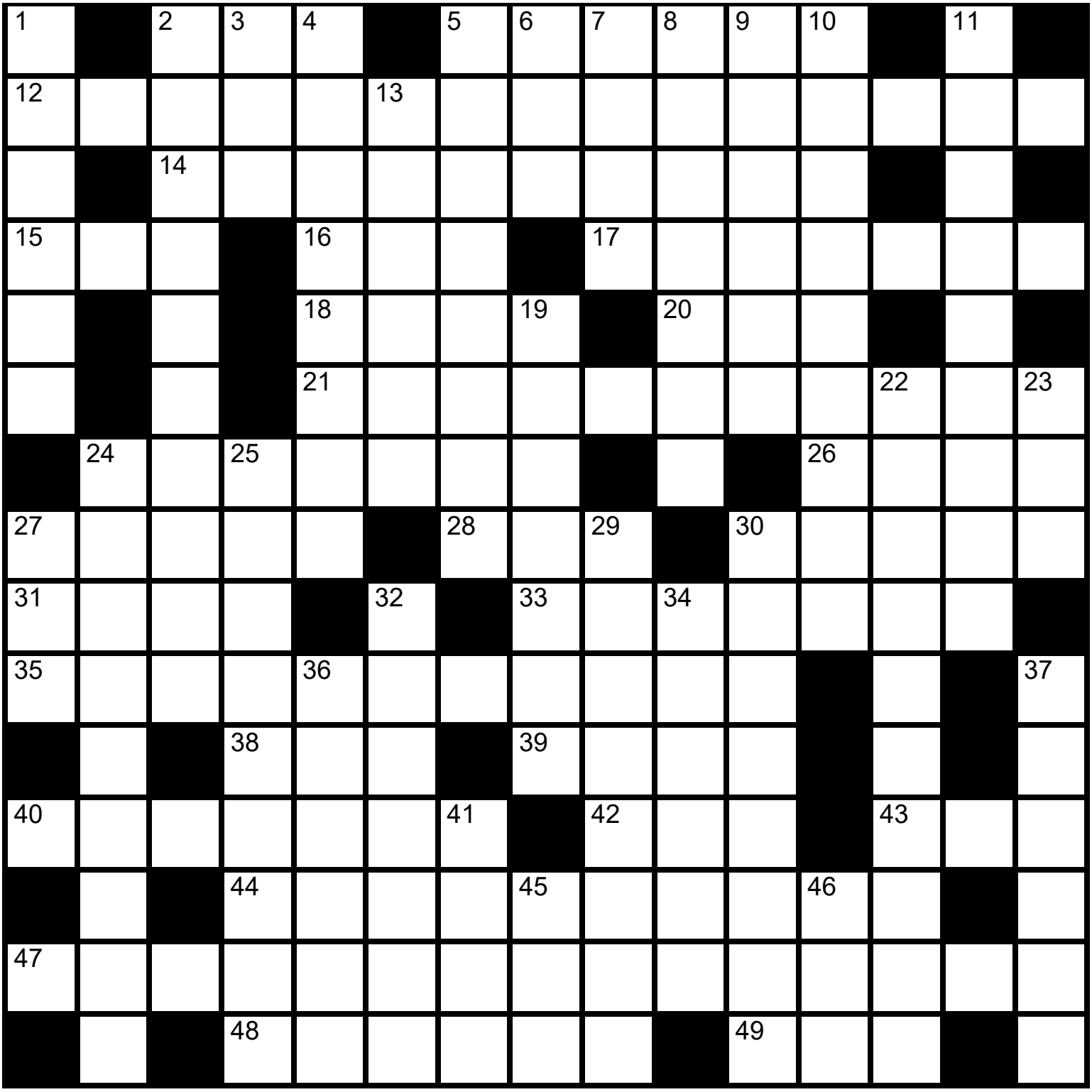
2. State of rest, (3)
5. Rachel's death in 'Tower of God', (2,4)
12. Moss growers, (15)
14. Cloud watcher, (10)
15. Bringer of rain to the Andes, (3)
16. Blunt end, (3)
17. Reason for lack of music, (3,4)
18. Syrup to whet appetite, (4)
20. Blown from behind, (3)
21. Ancient city, (5,6)
24. False European mountain climber, (7)
26. Sacred extinct bird from New Zealand, (4)
27. Approach, (5)
28. Narc. , (3)
30. Topological continuous functions, (5)
31. 2008 hurricane resulting in one death :c , (4)
33. Visiting Ecuador, (2,5)
35. Pond, (8,3)
38. Space shuttle: abbr., (3)
39. One hundred cubits, or self-horror,(4//2,2)
40. The Hadean and its consequences, (4,3)
42. Refreshing lemon suffix, (3)
43. Sleep away from home, (3)
44. Creatures of 12-Across, 24-Down, and 29-Down, (10)
47. Pacific resident with pompous paddles, (10,5)
48. Fashion faux-pas, (6)
49. Chaebol sponsor of LOL team, (3)

DOWN

1. Navier's equation for fluid dynamics, (6)
2. Lead Oxide or 240V Power, (6,4)
3. Levied expense, (3)
4. Plants with seeds, (4,4)
5. Silk maker, (8)
6. A yelp of concurrence, (3)
7. Right handed helix, (4)
8. Cut design from block of marble, (1,6)
9. Opposition leader Nalvany, (6)
10. Richler and Rigby, alt. spelling, (9)
11. Pirate's order, (5,4)
13. Constellation and cereal mascot, (6)
19. Condition of duskywing lepidopterans, (7)
22. Alexander takes a shortcut, (3,3,4)
23. Drone used by CIA, (3)
24. Little armoured one, (9)
25. Head scratcher, (9)
27. Comprehend, (3)
29. Myrmecophage, (8)
30. Hops, (3,5)
32. "Continues to this day", (4,3)
34. Crisp picture, (6)
36. Reluctant feminist painter, (6)
37. Yellow fruit, (6)
41. Subject of Taiga series 'Tenchijin' , (4)
45. What to know before finding a place in Ont, (3)
46. "Straight chillin' ", (3)



GRIDXCARD GRIDXCARD



lookAHEAD

SUN SEPT 11	MON SEPT 12	TUE SEPT 13	WED SEPT 14	THU SEPT 15	FRI SEPT 16	SAT SEPT 17
	mathNEWS disorganizational meeting (location TBD) WUSA Welcome Week begins Co-op postings open	Standing decisions and official grades are available in Quest	Course reserves removed		WUSA Welcome Week ends	Time to get working on your assignments!

SUN SEPT 18	MON SEPT 19	TUE SEPT 20	WED SEPT 21	THU SEPT 22	FRI SEPT 23	SAT SEPT 24
	mathNEWS 150.1 production night International Talk Like a Pirate Day	Add period ends Co-op applications for Cycle #1 Posting #1 due at 9AM	Not Fees Arranged (NFA) holds applied		**mathNEWS** 150.1 released Course selection period Co-op interview period begins	

CONTRIBUTING TO mathNEWS

mathNEWS is like an old friend. It shows up, pretty regularly, every other Friday; makes you laugh, cry, and scratch your head trying to solve puzzles; and then says, "See you in two weeks!"

Now, **mathNEWS** doesn't just appear magically; it is put together by a very tight-knit group of writers, artists, proofreaders, and ~~glorious~~ humble editors. All of us here at **mathNEWS** love having enthusiastic new writers, proofreaders, artists, puzzle-writers, and general what-have-yous.

At the start of every term we have what is known as a disorganizational meeting (or "disorg" for short) to introduce **mathNEWS**'s workings for those who are interested in becoming part of this ~~hot mess~~ well-oiled machine. Check out the **lookAHEAD** calendar right above to find out when it is!

The bulk of our writing gets done during production nights, which take place every other Monday. During production nights, we all gather together to chat, brainstorm ideas, and bash out articles for that Friday's issue. If you've paid your MathSoc fee, we'll even reward you with pizza for your week's contributions!

The main way we keep in contact with our contributors is through our mailing list, which you can sign up for at `mathnews.uwaterloo.ca/mailing-list` if you're up to it. If you're interested in becoming a contributor, it's extremely important to be on the mailing list, since that's how we deliver information about where production nights will take place (pesky midterm exams make booking rooms so complicated…).

Oh, and before I go, make sure to check us out on Twitter and Instagram (@uwmathnews), just in case a biweekly **mathNEWS** fix isn't enough.

Have a great first term!

clarifiED