A research breakthrough means warp speed 'Unruh effect' can finally be tested in lab settings.

Let's Get Thrifty
WUSA's student-run thrift store is officially open for business.

Summer Events
A guide to what's happening in Kitchener-Waterloo this summer.

Flixbus
A new bus service is connecting Waterloo to major cities across the province.

WARRIORS HIGHLIGHTS
COURTESY UW ATHLETICS
New bus service connecting Waterloo to major cities

Suhani Saigal
Editorial Assistant

FlixBus, a German company based in Munich, has expanded to Canada and launched bus services connecting major cities across Ontario.

Since April 7, 2022, the service has been operating daily, connecting the University of Waterloo to Guelph, Kitchener, and Toronto. Bus stops for FlixBus include the University of Waterloo, Downtown Kitchener, Guelph Central Station, Harbourfront, Niagara Falls and Ottawa.

The UW stop is opposite UW Place, the same as the GRT stop for 30R.

“Ontario is a dream bus market with some of North America’s most vibrant cities and we are immensely happy to begin building connections here,” said Pierre Gourdain, managing director of the North American division of FlixBus, in a statement.

FlixBus’ confidence in expanding may stem from the fact that bookings on existing services, including Europe and the U.S., have now risen above pre-pandemic levels. The pandemic has continued to be a major determining factor in the viability of such transportation companies, as Greyhound Canada, another intercity bus service, was forced to permanently shut down domestic services due to the pandemic’s detrimental impact on revenue.

Though GO Transit offers almost hourly services, compared to FlixBus’ less frequent trips, FlixBus’ direct intercity transportation — without the transfers that GO Transit sometimes requires — has proven more convenient for certain students.

Tickets from UW to Toronto range from $11.99 to $18.99 and can be booked online through the FlixBus website.

GO Transit ticket prices change depending on the length of the journey, with a two-and-a-half-hour-long journey from Union Station to UW costing roughly $19.40, but an hour-long journey from Guelph Central GO to UW costing roughly $9.50.

“While GO trains are faster, FlixBus is the best economical option for long routes. I think the price is right, it is affordable and student-friendly. A great alternative for students who travel in and out of Waterloo frequently,” said Tanya Panesar, an ARBUS student. “I have not had a chance to take the FlixBus but I plan to use it very soon.”

FlixBus is planning to offer cross-border services from Ontario to the United States later in the summer.

In October 2021, FlixBus’ parent company FlixMobility acquired Greyhound for $46 million, and FlixMobility’s existing business model, which has been described as Uber-esque — sub-contracting bus services themselves to other companies while retaining a portion of the ticket profits — has been speculated to be their saving grace due to the flexibility this affords them.
The WUSA Thrift store is officially open for business.

The store, whose opening was delayed due to the pandemic, is located on the lower level of the SLC, with all items (including but not limited to clothing, bedding, and household items) priced at $10 or less.

Store manager Ashita Saxena emphasized the accessibility of the store to students.

“It’s definitely a really good deal for students and that’s what we aim for, that students can get everything at affordable prices while we accomplish our goal of being sustainable,” she said. “We did not really want to go high on the profits because we wanted to be not-for-profit, so people can take part in our initiative and not burn holes in their pockets as well.”

The store accepts donations from students and tries to ensure that all the items, even those that don’t end up on the floor, are used sustainably.

“It has always been our goal to reduce whatever waste we make,” Saxena said. “We’re just trying to ensure that whatever we do, even the waste that comes from the store, is going somewhere sustainable; it’s either recycled or donated.”

Despite the bumps in the road and the lower number of students on campus during the spring term, Saxena described a very positive and involved reaction to the store’s opening.

“I would say [the reception] was so overwhelming, it was beyond our expectations. The first day of our soft launch we had some promotional campaigns going on, and we had somewhere around 60 or 70 people come in with 89 or 90 transactions, and that was when we were only open for two hours,” she said. “Yesterday the turnkey [desk] told me that they had many people asking about the store, so there are many inquiries coming in and not just to us, but to other departments, other societies, and clubs as well.”

Saxena also noted the store’s attempts to increase sustainability on campus by collaborating with other clubs and organizations to continue contributing to the cause.

“Surplus from the W Store that may have been discarded or may have just been seasonal or promotional get handed over to us and then we sell them again.

Even with other clubs and societies, we’re trying to make sure that their waste is reduced in some way as well.

I think it’s the overall goal of the University of Waterloo to be able to reduce waste, and as part of WUSA are just trying to help them accomplish that with little steps,” she said.

The university has previously participated in several sustainability initiatives, one of which is the UNFCC Race to Zero, where it has committed to be net-zero by 2050.

Another initiative is the university’s founding of the Sustainable Development Solutions Network, a group aiming to build, among other things, a more sustainable world by 2030.

In accordance with such goals, the university has set milestones for itself such as achieving a 60 per cent waste diversion rate by 2025. To achieve this milestone, UW has implemented efforts such as starting a PPE recycling program and conducting preliminary tracking of construction and demolition waste. Regarding the future of the thrift store, Saxena listed several current and potential collaborations and ideas. “We want to run a sustainable fashion show, to be able to collaborate with a fashion society.

[In] the lost and found department, if they have stuff they think is in good condition, we have taken that stuff too and put it up for sale in our store so that doesn’t go to waste too. And of course encouraging the students from the residences to donate their clothes, like exchange students who are here for just one term or one year and don’t have [enough] space to take all their items [when they move out].”

To readers who may not have heard about the shop, Saxena has a few words.

“We have a variety of products at our store ranging for all genders, all ages, and all sizes — we have accessories, we have shoes, we have...all the essential items that people need in their daily lives. It is going to be a one-stop shop for every university student!”
Researchers replicate the cosmic ‘Unruh effect’ in lab

For years, physicists have faced challenges in replicating cosmic phenomena in a laboratory setting. However, a team of researchers at the University of Waterloo has overcome this challenge to observe the ‘Unruh effect.’

The ‘Unruh effect,’ which was first identified by Canadian physicist Bill Unruh, proposes that an accelerating observer in space will perceive a thermal glow around the objects they view, while a stationary observer will not.

The ‘Unruh effect’ relates closely to Stephen Hawking’s prediction of black holes emitting radiation. Barbara Soda, a Ph.D. student in physics at UW and part of the research team that studied the Unruh effect, explained this phenomenon.

“Black holes are believed to be not entirely black,” she told WaterlooNews. “Instead, as Stephen Hawking discovered, black holes should emit radiation. This is because, while nothing else can escape a black hole, quantum fluctuations of radiation can.”

While it was previously difficult to recreate the acceleration needed to observe the Unruh effect in a lab, the researchers were able to amplify the effect using high-intensity lasers. By hitting an accelerated particle with the laser, the Unruh effect could be measured.

Another key finding of the research revealed that when acceleration and deceleration were balanced, the accelerated particle appeared transparent.

The outcome of observing these phenomena in the lab helps link the theory of general relativity proposed by Einstein and the theory of quantum mechanics proposed by Bohr and Planck.

“The theory of general relativity states that the gravitational effect of a mass is a result of a distortion in spacetime, while the theory of quantum mechanics studies the particle-wave nature of objects on a subatomic scale,” said co-researcher Achim Kempf, a professor and member of the Institute for Quantum Computing at UW. “We’ve been looking for a way to unite these two big theories, and this work is helping to move us closer by opening up opportunities for testing new theories against experiments.”

“We have here a viable option to explore this interface in a laboratory setting. If we can figure out some of these big questions, it could change everything,” said co-researcher Vivishek Sudhir.

The team’s paper on this research, titled “Acceleration-Induced Effects in Stimulated Light-Matter Interactions,” has been published in the scientific journal Physical Review Letters.
We’re calling the flock!

WUSA Special General Meeting

We’re ready to ratify the new governance structure by-laws, and we need you to have your say!

Wednesday, May 25
5:00 PM via Microsoft Teams

Learn more:
What to do in Waterloo this summer

Erin Fround
Assistant Arts & Life Editor

Whether or not your workload decreases in the summer, warm weather and sunshine tend to make people want to get out of the house. Taking a long walk or throwing a frisbee in the park, followed by dinner on a patio or some ice cream, is a great way to spend a summer evening. However, if you are looking for some more structured activities, there are plenty of events being hosted in town for you, your friends, and your loved ones to enjoy:

**Kitchener Market**
300 King St. E, Kitchener, ON
Saturdays 7 a.m. to 2 p.m.

Dating back over 150 years, Kitchener Market’s weekly farmers’ market is a great way to spend a Saturday morning. While it is open year-round, fresh and affordable produce combined with warm weather makes grocery shopping a fun activity rather than a chore during the summer. The market’s vendors sell a wide variety of products, from cheeses, eggs, and meat to produce, baked goods and ready-made prepared foods. In addition to its weekly market, the Kitchener Market also offers other events such as cooking classes, live entertainment, and workshops. The dates for these events can be found on the Kitchener Market calendar.

**St. Jacob's Farmers Market**
878 Weber St. N, Waterloo, ON, N2J 4A9
Tuesdays (June 14–Aug. 30) 8 a.m. to 3 p.m.
Thursdays (year-round) 8 a.m. to 3 p.m.
Saturdays (year-round) 7 a.m. to 3:30 p.m.

If you prefer to stay in Waterloo or want to shop for some vintage items and crafts while picking up produce, check out St. Jacob's Farmers’ Market. St. Jacob's Market, originally called The Stockyard Farmers’ Market until July 1999, opened in 1952 and has been a staple of the Waterloo community ever since. Hosting a wide variety of vendors, St. Jacob's offers produce, prepared food, arts and crafts, vintage and collectibles, meat and dairy, and much more.

**Art Market**
Waterloo Public Square
May 27 5 p.m. to 9 p.m.
June 24 5 p.m. to 9 p.m.
July 29 5 p.m. to 9 p.m.
Aug. 26 5 p.m. to 9 p.m.

The City of Waterloo’s Art Market will feature “artists, crafters, and makers from Waterloo and the surrounding area.” There will also be two additional markets at the Open Streets event, which “celebrates the livable cities movement” and takes place on Willis Way in uptown Waterloo on June 11, and on Canada Day, July 1.

**Campfire**
Waterloo Public Square
June 8 7 p.m. to 9 p.m.
July 13 7 p.m. to 9 p.m.
Aug. 10 7 p.m. to 9 p.m.

“Bring a blanket or your favourite hoodie and head uptown!” On the second Wednesday of every month from May to August (plus an extra Halloween edition in October), these campfires will offer local music, games, and more — not to mention a warm fire to gather around. The artists who will be playing these events are currently unannounced.

**Movies in the Park**
June 3
July 7
July 21
Aug. 4
Aug. 18

Hosted in partnership with Create Waterloo and located in Waterloo Park near the Bandshell, the City of Waterloo will be playing movies on the big outdoor screen throughout the summer. Movie titles are yet to be announced. No seating will be provided, so remember to bring a blanket as well as some friends and some snacks — just be sure to clean up after yourself before you leave!
May is when the flowers bloom and the animals awake from hibernation. Spring happens to be another new term for the University of Waterloo. The start of the season also marks the arrival of new books, films, and shows. Here are some recent and upcoming titles you do not want to miss.

Books

Book of Night (Holly Black) – Charlie Hall has spent most of her life working for gloamists — magicians that can cast shadows to peer into locked rooms, strangle people in their sleep, and do even worse things. She attempts to distance herself from her past mistakes, but it is not easy. When a haunting figure from her past reappears, Charlie is thrown into a whirlwind of murder and deception. To protect herself, she takes a stand against those trying to steal a secret that will grant them supernaturally powers as a weapon of mass destruction. Her father taught her how to control them, but she is having difficulties as time goes on. A mysterious operative then locates the family and attempts to detain Charlie once and for all. However, she has other plans. Based on the novel by Stephen King, this shocking tale will evoke strong emotions and deliver spectacular special effects.

This Time Tomorrow (Emma Straub) – Alice has the perfect life. She’s getting close to her 40th birthday and she’s content with her apartment, her love life, and her independence. However, Alice’s father is ill and she has the impression that something is missing, when, suddenly, she wakes up in 1996, reliving her 16th birthday. Events from the past take on new meaning now that she has a different perspective on her own life.

Movies

Doctor Strange and the Multiverse of Madness (May 6) – Dr. Stephen Strange cast a forbidden spell opening the door to the multiverse. To restore a changing world, he seeks assistance from his ally, Wong, and Avengers member Wanda Maximoff. However, a terrible threat looms over humanity and the entire multiverse, which cannot be dealt with using their powers. Multiverse of Madness will be the first-ever film in the Marvel Cinematic Universe that incorporates horror elements and is directed by Sam Raimi, who previously directed the Spider-Man trilogy in the 2000s.

Firestarter (May 13) – A couple desperately tries to keep their daughter, Charlie, safe from a federal agency that wants to use her supernatural powers as a weapon of mass destruction. Her father taught her how to control them, but she is having difficulties as time goes on. A mysterious operative then locates the family and attempts to detain Charlie once and for all. However, she has other plans. Based on the novel by Stephen King, this shocking tale will evoke strong emotions and deliver spectacular special effects.

Top Gun: Maverick (May 27) – Pete “Maverick” Mitchell is where he belongs after more than three decades of service as one of the Navy’s top aviators. Now, he must confront his deepest fears while training a detachment of graduates for a new assignment. This all culminates in a mission that demands the ultimate sacrifice from those who choose to fly it. It has been thirty-three years since the 80s classic hit the big screen, and most of the original crew, including Tom Cruise and Harold Faltermeyer, returns with genuine and stellar action scenes.

Series

Stranger Things 4 (Netflix) – Six months have passed since the Battle of Starcourt and the group is struggling with the aftermath while navigating the complexities of high school. Meanwhile, a new and terrifying threat emerges, presenting a gruesome mystery that, if solved, could finally put an end to the horrors once and for all. The popular Netflix series returns with new characters and a darker tone that will amaze fans and binge-watchers alike.

Obi-Wan Kenobi (Disney+) – A Jedi Master is dealing with the fallout from the demise and corruption of his one-time friend and apprentice, Anakin Skywalker. During his exile on planet Tatooine, he watches over young Luke Skywalker while avoiding the Empire’s elite Jedi hunters. The series takes place between Revenge of the Sith and A New Hope, with Ewan McGregor and Hayden Christensen reprising their roles as Obi-Wan and Anakin (now Darth Vader).

Night Sky (Amazon Prime) – Franklin and Irene York are a couple who discovered a portal buried in their backyard that leads to a strange and deserted planet. This sci-fi series stars academy-nominated actress Sissy Spacek and academy-award winner J.K. Simmons in a story that focuses on love, discovery, and a mystery that needs solving.
The Successful TA: A Practical Approach to Effective Teaching

A book review and other thoughts

josué kurke
reporter

so, you’re about to TA your first course. I don’t know about you, but when I was hired for my first course, I had only one thought: “I have no idea what I’m doing.”

I hadn’t reviewed the material at all, I didn’t feel qualified, and, worst of all, it required programming in DrRacket. Oh, how Racket still haunts me. But luckily for me, I was not alone. I was surrounded by knowledgeable professionals that passed down their wisdom through training and books like *The Successful TA* by Nomme and Pollock.

To summarize 100 pages in just one sentence: ask for help. If you don’t feel confident, the best way to gain confidence is to prepare and learn from others. Part of the beauty of a university, and certainly the fine institution we attend, is that there are thousands of qualified people with years of experience from whom you can seek guidance. The book hammers home the idea that, when in doubt, turn to your professors or your peers who are more knowledgeable and experienced for advice.

That may mean watching other people teach or delivering a sample lecture and asking for feedback. Hell, giving a lecture to your stuffed animal collection can be a great way to practice. For the record, I don’t have a stuffed animal collection… just a few teddy bears. TAing is hard work, and it requires a great amount of practice and support to perfect. No one gets it right on their own.

One limitation of this manual is that it overly focuses on teaching duties for TAs. Unfortunately, most TA work does not involve teaching time but rather marking and office hours. Sometimes you get asked to do random things — I got asked to deliver a bike to my boss’s daughter once. Although these responsibilities do not require as much attention as teaching, they are still important, and should be explored further. Luckily, the same overarching lesson applies in these situations: ask for help. And now, I will offer my unsolicited help in these areas.

Marking, specifically, is a difficult skill to develop. At the beginning, expect not to be very efficient as you work out the little time saving tricks. A good one I learned for Crowmark specifically is to memorize all the keyboard shortcuts — they really help. This is a great time to remind you to go and seek help from experienced markers. After a while, you’ll start to get the rhythm and flow of it all, and then you’ll be a marking machine.

Office hours, on the other hand, are a little more complicated. You will constantly be walking the fine line of giving away enough information to be helpful while not giving away too much. When in doubt, less is more. A successful office hour visit is one where the student leaves having learned enough that they can continue to work on their problem. Give a student the answer, and they solve one problem. Teach a student how to find answers on their own, and they can solve any problem — like the proverb about how if you give a man a fish, you’ll feed him for a day, whereas if you teach a man to fish, you’ve fed him for a lifetime. Everyone wins!

To the book’s credit, a nice touch is that there are little exercises scattered throughout that ask the reader to consider how they would handle a specific situation, such as students being disrespectful during your teaching time. This helps hammer home some of the ideas presented in each section. At the end of each section, the authors provide their response or advice for how to manage each scenario. This principle should carry forward during your work: if you are unsure how to solve a problem, ask for input from other people. They may offer a perspective you have not considered, which is invaluable when it comes to teaching.

One problem the book does not address at all is TAing in a remote-learning setting. Knock on wood that this won’t be as frequent as it has been for the past two years, but there are still some classes which are taught in an exclusively online format.

It’s worth mentioning that TAing online is quite different from TAing in person. Certain things don’t change — for example, marking is more or less the same online — but virtual interaction with students is a whole other ball game. We’ve all struggled to connect online and you may find it more challenging to convey ideas over Zoom than in person. So be prepared and patient when engaging students online, because you will find it much more difficult.

At the end of the day, all of the responsibilities a TA could have are learned skills. They will take time to develop and will require dedication on their part, but they will come with time. With each term and each course, you are improving and learning. After a while, you will find your own style and the techniques that work well for you.

Just keep in mind that education is an ever-growing field and people are constantly coming up with new ways to help students learn, so it’s important to talk to other people about teaching and learn what you can from them. This book is one such resource that you can use as a gentle introduction to some good practices you can carry forward with you. Now go forth and teach!
sports & health

Want to go to UW games for Imprint? You’ll be able to talk to players, coaches, and fans!

For more info, email sports@uwimprint.ca.

Waterloo Warriors: Winter 2022 highlights

Andres Fuentes
Publications Manager

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inter might have had most people snuggling in their blankets, but the sports teams at the University of Waterloo had a busy season. Here are some of the Waterloo Warriors’ highlights from the first season of the year.

Football

A team that has been on the ascendancy for the last couple of years was looking to reach the next level this year. They had a strong start to the season before falling into a mid-season slump and ended up needing a last game win to make it into the postseason. In the playoffs they faced Western and after an explosive start they were unfortunately beaten, going out in the first round.

Off the field there’s been a lot of action for the team with several players being invited to scouting combines and training camps. Tre Ford won the Warriors Male Athlete of the Year, the 2022 OUA Male Athlete of the Year, and the 2021 Hec Crighton trophy for the most outstanding player in U SPORTS. He was drafted eighth overall by the Edmonton Elks while his twin brother Tyrell was drafted in the second round by the Winnipeg Blue Bombers in the 2022 CFL draft.

Women’s Hockey

The women’s hockey team had a dominant season finishing with 13 wins in the regular season and only two losses. That was despite having their season interrupted by an extra long Christmas break due to COVID-19 restrictions.

Unfortunately in the one-off style playoff games that this season prescribed, they fell to Western 1-2 despite playing at home and having a 3-1 record against the Mustangs during the regular season.

Women’s Curling

The women’s curling team hosted the OUA tournament after a delayed season due to pandemic restrictions. The team made good use of the home ice advantage and went 5-1 to make it to the finals. In the end, they faced cross town rivals Laurier and came up just short with the Golden Hawks taking the 5-4 win. An OUA silver was a very worthy result for such a strong performance.

Track and Field

The Track and Field team had two standout performances at the national level this year. Both Hannah Blair and Immanuel Onyemah won gold medals in their respective events at the OUA finals. At the national level, Blair managed to win a silver medal in the pentathlon and a bronze in the high jump. Onyemah took silver in the 60 metre sprint.

Stay up to date with Warrior Rec programs, events, job opportunities, tips and tricks on how to stay well, facility information and more.

Visit gowarriorsgo.ca/warriorsinsider to sign up for our newsletter.
Ontario is holding a provincial election on Thursday, June 2, 2022. This guide is a breakdown of everything you need to know before heading to the polls.

### Voting

#### Register to vote
You can register to vote online through the Election Ontario eRegistration system. You will need one piece of ID and proof of your current residential address (e.g., a utility bill or lease) to register. Early registration simplifies the voting process by reducing what you need to bring to the polls on election day, but it is not required.

#### Voting on election day
Ontario residents can vote in person on election day (June 2) from 9 a.m. to 9 p.m. EDT at their assigned polling station. To find your assigned polling station, enter your postal code on the Elections Ontario website. If you are eligible to vote in Ontario and live away from home for school or co-op, you can still vote. If you are studying or working in the province, you have two options for where to vote:

1. In the electoral district for your permanent residential address (your home address).
2. In the electoral district for your address while attending school or co-op.

Voters who register ahead of time must bring one piece of ID with their name to the polling station. Voters who are not on the registered voters list will need to bring ID that shows their current residential address.

If you do not currently live in Ontario but your permanent address is in the province, you can still apply to vote by mail or you can add yourself to the Register of Absentee Voters (see below).

#### Advance voting
If you want to vote before June 2, you can do so at any advance voting location in your electoral district from May 19 to 28 between 10 a.m. and 8 p.m. EDT. You can also vote at your returning office until 6 p.m. on June 1.

#### Voting by Mail
To apply to vote by mail, you can use the online Vote by Mail application or you can download and an application from the Elections Ontario website that can be sent in by email or regular mail. The deadline to apply is 6 p.m. EDT on May 27, 2022. Once your application is submitted, you will receive a voting kit in the mail. The kit must be filled out and submitted by 6 p.m. EDT on June 2 for your vote to be counted.

If you would prefer to vote in your home riding, rather than in Waterloo, this is likely the easiest option to do so. Otherwise you would need to return to your home riding either on election day or during the advance polling period.

For more information about voting and the election, download the Elections Ontario app.

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Waterloo Candidate: Jennifer Tuck
Green Party — “New solutions to old problems.”
Party Leader: Mike Schreiner, who has served as the leader of the Ontario Green Party since 2009.
Waterloo Candidate: Shefaza Esmail

You can find your local candidates on the Elections Ontario Website.

### Party Platforms

The Globe and Mail’s Ontario election platform guide outlines where each of the four parties stand on major issues including health care, education, the economy, housing, the environment, and more. For more in-depth information about each party’s promises, you can visit each party’s website and read their party platform documents.

If you’re still unsure of who to vote for, check out CBC’s Vote Compass, a tool that helps you determine which candidates and parties most closely align with your beliefs.

### The Debates

The first debate of the 2022 Ontario election was held in North Bay on May 10. The second debate was held in Toronto on May 16.

### Predictions

There are several popular election forecasts that predict the most likely outcomes leading up to June 2.

Follow the Ontario Votes 2022 Poll Tracker, Vox Pop Up Labs Provincial Election Forecast, and 358Canada’s Ontario Projection to get a sense of each candidate’s chances.

### Work for Elections Ontario

Elections Ontario has many paid roles available to students. Visit jobs.elections.on.ca to learn more about the different opportunities.
THROW PINK DISK GOLF EVENT

» Thursday, June 16
4:00 - 7:00pm
» Disc Golf Course
(North Campus)

UWaterloo Students $5 (25 spots available)
Community Guests $12 (15 spots available)
No experience necessary
Open to all female identifying members of the community!

Register now
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Q: What did the earth say to flatter the sun?
A: You're my sol-mate!

Welcome To Spring
WARRIORS

LAST ISSUE'S ANSWERS

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