

**DEPARTMENT OF PHYSICAL AND  
ENVIRONMENTAL SCIENCES**

# DPES

## DIGEST

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**Editor:  
Harry Xu**



**Cover Photo:** Port Colborne

Harry Xu

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**Editor:**

Harry Xu

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Callie Andersen

Renate Mathu

Aneesah Rahaman

Mackenzie Wilson

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**Read our latest Issue:**

[uoft.me/dpesdigest](https://uoft.me/dpesdigest)



*“I (we) wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and most recently, the Mississaugas of the Credit River. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.”*

- University of Toronto,  
Land Acknowledgement





# UTSC Astronomy Events Mailing List

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DEPARTMENT OF PHYSICAL  
& ENVIRONMENTAL SCIENCES

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# MASTER OF ENVIRONMENTAL SCIENCE

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in  
**5 Years**

Dear readers:

The DPES Digest Newsletter has been quiet for quite some time. Please accept our sincere apology.

Our team has been growing and changing since the Newsletter was established in 2017, both due to the nature that we rely on tremendous support from our lovely students.

I want to recognise the proactive efforts from my previous colleagues Tajreen Ahmed and Mackenzie Wilson, as we volunteered on the Digest for 4 Issues together. They have been the most robust backbones of the Digest for a very long time.

This year, our previous Editors, Yao Yan Huang and Dr. Shadi Dalili, have both retired from the Digest. I had the privilege of following their step-by-step guidance since November 2022. I admire their dedicated work, and I hope to collaborate with them again.

I welcome Callie Andersen, Renate Mathu, and Aneesah Rahaman to the team. This Volume of the Digest would not have been possible without their consistent help. I look forward to continuing our collaboration in the future.

Many thanks for the support we have received from the DPES community, especially the SMU! Thank you for sharing your great stories and smiling faces with us.

I would also express my gratitude to our Department Chair, Professor George Arhonditsis and my Manager Mr Scott Ballantyne for trusting me with this important position. I hope to stay with the Digest team as long as I can.

Kindest regards,  
Harry (Kaitai) Xu  
Editor, DPES Digest Newsletter

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# EMANCIPATION DAY

*by Mackenzie Wilson*

August 1st is recognized in Canada as Emancipation Day. The Slavery Abolition Act of 1833 was made effective across the British Empire on the same date in 1834. Historians estimate that over 3000 enslaved people of African descent were brought into British North America before the Act was made effective. The Act freed children under six years of age, but full liberation was not achieved until 1838.

Emancipation Day is an opportunity to learn more about the history of slavery in Canada and recognize the historic and ongoing resilience of Black communities. Even after emancipation, African Canadians continued to face anti-Black racism and violence via segregation and systemic poverty. As we reflect upon the historical enslavement of African Canadians and their freedom, we should also use Emancipation Day to actively combat persisting anti-Black hate and discrimination. Recognizing the history of enslaved Black communities can help us develop action plans and the awareness to identify ongoing forms of anti-Black discrimination. This day is a reminder to continue to learn about and reflect on the enslavement from Canada's history and use our learnings to take action.



Sources:

<https://www.canada.ca/en/canadian-heritage/campaigns/emancipation-day.html>

<https://bcblackhistory.ca/emancipation-day-in-canada-past-present-and-future/>



# NATIONAL DAY FOR TRUTH AND RECONCILIATION

by Aneesah Rahaman

September 30th 2023 marks the third **National day for Truth and Reconciliation**, a day to acknowledge, reflect and learn about the grave injustices experienced by the indigenous communities of Canada and how the harrowing legacy of residential schools continue to affect Indigenous people today. This day coincides with Orange Shirt Day, a movement commenced by the residential school survivor Phyllis Webstad - who wore her new orange shirt gifted by her grandmother on the first day of school. Her shirt was stolen from her and replaced with the schools' institutional uniform. Webstad's story became a symbol for horrific experiences of the survivors of the residential school system.

The Truth and Reconciliation commission of Canada was formed through a legal settlement between residential school survivors, the Assembly of First Nations, Inuit representatives, the federal government and church bodies. The mandate of the TRC is to inform all Canadians of what happened at residential schools and to document the stories and experiences of the survivors, their families, communities and anyone personally affected by the residential schools. To redress the horrific legacy of residential schools and to push forward reconciliation in Canada, the TRC formulated 94 calls to action for the federal government. The establishment of the National Day for Truth and Reconciliation is just one the 13 completed calls to action out of the 94.

The University of Toronto's response to the TRC's calls to action includes a mandate to identify and name spaces on the three campuses using Indigenous languages. The UTSC Advisory Committee for Indigenous Place-making pursues this mandate in collaboration with Indigenous communities. Additionally, UTSC is planning to build an Indigenous House on its campus, a place that symbolises UTSC's responsibility in repairing and strengthening its relationship with Indigenous Peoples. It will bring together indigenous and non-indigenous people to support and celebrate the diverse indigenous ways of knowing.

For this National Day of Truth and Reconciliation, take some time to learn and reflect on the stories and injustices that indigenous peoples experienced at the hands of residential schools on their own soil, and remember to wear your orange shirt on September 30th to show your solidarity and support for them and the path toward Truth and Reconciliation.

## Resources

<https://nctr.ca/>

[https://indigenousfoundations.arts.ubc.ca/the\\_residential\\_school\\_system/](https://indigenousfoundations.arts.ubc.ca/the_residential_school_system/)

<https://www.utsc.utoronto.ca/home/indigenous-house>



# JEWISH HIGH HOLY DAYS

by Harry Xu



Rosh Hashanah marks **the Jewish New Year**, a significant religious holiday in Judaism, commencing on the first day of Tishrei, the seventh month of the Hebrew calendar. This year, it starts at sunset on September 15th, ending on the evening of September 17th.

**Yom Kippur**, observed on the 10th day of Tishrei, is a time for global Jewish self-reflection and atonement for past wrongdoings. It's an occasion to consider kindness and helpfulness towards others. This year's Yom Kippur starts at sunset on September 24th, ending on the evening of September 25th.

Throughout Rosh Hashanah and Yom Kippur, the **shofar**, a horn made from animals like goats or sheep, plays a central role. It's a symbol of the holiday and traditionally heralds the new year with 100 distinctive notes. Yom Kippur concludes with a long, resonant shofar blast.

These holidays are an opportunity for **family gatherings and special meals**. Traditional foods include challah bread, pomegranates, apples dipped in honey, and tzimmes, a sweet dish of carrots, pineapple, honey, and brown sugar. Apples in honey symbolize a sweet and healthy new year.

**White attire** is commonly worn by Jewish people for Yom Kippur, signifying purity and a commitment to self-improvement. Torah scrolls, from which prayers are read, are covered in white. The leading rabbi would also wear a white robe, symbolizing a collective aspiration to be their best selves.

**Shanah tovah to those who celebrate!**

Sources:

[https://en.wikipedia.org/wiki/Rosh\\_Hashanah](https://en.wikipedia.org/wiki/Rosh_Hashanah)

<https://www.cbc.ca/kids/articles/whats-the-story-rosh-hashanah>

Image source: <https://www.history.com/topics/holidays/rosh-hashanah-history>

# CARIBBEAN HISTORY MONTH

*by Aneesah Rahaman*

This October, Canada commemorated **Caribbean Heritage Month**. In 2019, Bill 134 was passed to pay homage to Canada's vibrant Caribbean-Canadian community, who have made vast contributions to all fields and industries. Over 800,000 Canadians of Caribbean descent reside in Canada, with half of them in Ontario. Improvements to the Canadian Immigration Act in October 1967 and the introduction of the Multiculturalism Policy in October 1971 rendered October a significant month for the Caribbean-Canadian community, where those policy changes opened doors for Caribbeans to establish a home in Canada.

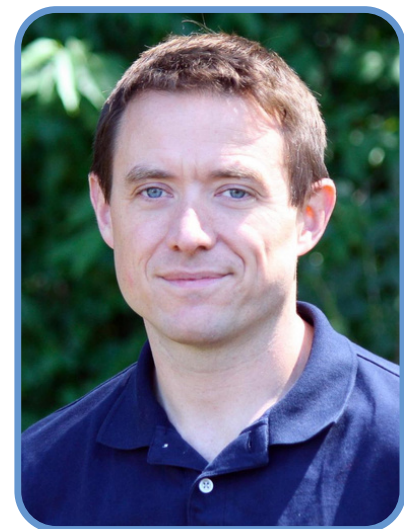
The influence of Caribbean culture is embedded into Canada's diverse mosaic of cultures, and this can be seen from the food, festivities and legacies that the Caribbean community has imprinted in Canada. For example, there are a multitude of festivals held across Canada celebrating Caribbean culture, including the annual Toronto Caribbean Carnival, which is deemed the most significant cultural festival in North America. The Caribbean-Canadian community also has a presence in radio, TV and newspaper outlets in Canada.

There are a number of Caribbean Islands that remain dependent on colonial powers, such as France, The UK, the Netherlands, and the United States. These islands include Anguilla (UK), Aruba (NL), British Virgin Islands (UK), Caribbean Netherlands (Bonaire, Sint Eustatius and Saba), Cayman Islands (UK), Curaçao (NL), Guadeloupe (France), Martinique (France), Montserrat (UK), Puerto Rico (US), Saint Barthélemy (France), Sint Maarten (France/NL), Turks and Caicos (UK), and the US Virgin Islands. Although Bermuda and Guyana are not geographically tied to the region, they have similar historical and cultural connections to the Caribbean and are frequently grouped as Caribbean countries.



# FACULTY PROFILE: DR TERRENCE BELL

**Dr Terrence Bell** is a soil microbiologist and ecologist. His first faculty appointment was at The Pennsylvania State University from 2017-2022, after working as a postdoctoral fellow at l'Université de Montréal and Cornell University. He earned his B.Sc.H. from Queen's University, his M.Sc. from Western University, and his Ph.D. from McGill University.



**When did you officially join the DPES?**

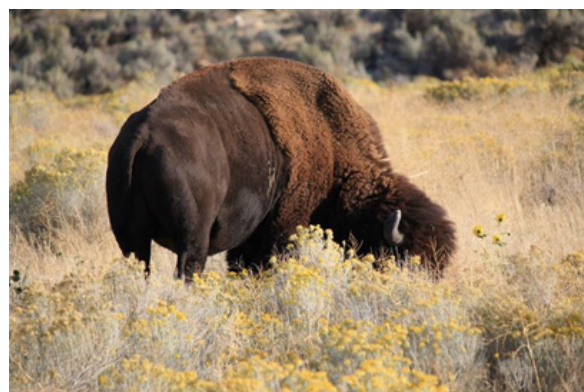
January 2023.

**What's the field of your research?**

The broad field would be environmental microbiology. And mostly we work in soil and plant related microbiology. A lot of my work now is focused on agricultural systems, but pretty much any human managed systems, things like contaminated soils as well.

**What's your favorite pastime?**

My favourite pastime used to be backcountry camping and wildlife photography. We've done that for a long time. Now that we have a son, it's sort of more like trying to give him those experiences. And like when it was just me and my wife, we'd go and like do canoe trips in the Everglades and things. But now I'm worried about him, so we tone it back a little bit.



*Wildlife photo by Dr Bell*

**And if you don't mind, what was your undergrad background?**

I started my first year in English, but I also took some science-based courses and then decided in my second year to switch over to biology. So, I ended up with that, and it was a massive transition from English to biology.

# FACULTY PROFILE:

## DR TERRENCE BELL

**Can you share any exciting occurrences that have taken place in your career as a scientist?**

When I was in my Ph.D., I used to work in the Arctic. And there's one year when I went up there trying to benefit from the fact that it's light all day. So I was like, I'm just going to keep working, even though everybody was entering the station. And you usually work outside when everybody else is out there, and there is like a pack of wolves that would like come through the station. But people say, "You know, you don't need to worry about them unless they're like staring you in the eyes or whatever". But you can't see anything up there. It's weird. You look out, and you feel like you can see around 20 kilometres, but there are always little creatures hiding somewhere. You can't tell. At one point, I was working outside by myself; **I looked up, and there was a wolf**, almost a foot away from my face, baring its teeth, staring at me. I got pretty freaked out. I didn't want to hit it, but waved the shovel through some rocks. But as soon as it started going away, I grabbed my camera and tried to take pictures. And then it started running away with my coat, took my coat about 200 meters away. And yeah, that was an exciting one and a very cool place I've been.

**Did you get your coat back?**

I **did** get my coat. It was about 200 meters away, and then it got caught on the rocks, or the wolf might have left it.

**Were there any regrets you had in your career?**

Not really. At any point, including now, I don't look at it as if this is the only thing I could ever have done, and I can't imagine my life without it. It's a great career, a great path. But I also was comfortable picturing lots of options at any point. And that, for me, has been a healthy way to look at it, so I never felt like, you know, if this doesn't work out, my life is over. It's like, this would be great, and other things would be great, too.

**Thank you very much Dr Bell! And welcome to the DPES family!**

# UTSC'S 2ND ANNUAL HOMECOMING!

**UTSC held its second Homecoming this September!** Homecoming at UTSC offers opportunities to make memories and have fun across campus, with a whole day of free activities for all ages! Homecoming's welcoming nature makes it a comfortable place for everyone, whether they're friends, family, or colleagues.



UTSC's second annual homecoming featured a variety of activities across campus, such as a Ferris wheel, on-stage performances, the Family Zone, a bonfire with s'mores, and Academic Zones for North and South Campus!

DPES enthusiastically hosted the Science Engagement Activities of North Campus. Family-friendly stations around EV guided attendees through features of environmental science, physics/astrophysics and chemistry! Some stars of the show were slime-making, liquid nitrogen demonstrations, static electricity activities, and the drone demonstration. EPSA also received some spotlight with their DPES-themed button-making station, which has a very popular rainbow "I ♥ science" design!





# UTSC'S 2ND ANNUAL HOMECOMING

Throughout all of this excitement, we also celebrated hitting the milestone of over 1,000 MEnvSc Alumni worldwide! If you happened to stroll into the catalyst centre, the smell of freshly popped popcorn would welcome you, followed by some pretty cool swag (t-shirts and tote bags!), our reunited MEnvSc alumni, and new MEnvSc cohort to mingle with.

This reunion allowed alumni, faculty, and staff to connect with familiar faces as well as another opportunity for new MEnvSc students to take in all the information and wisdom they can from their generous predecessors.



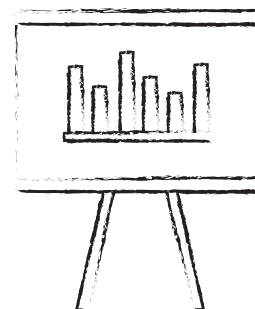
We're looking forward to seeing you again at homecoming next year! Sending best wishes to the over 1,000 MEnvSc Alumni worldwide, along all the different paths they have travelled! It is just the beginning of UTSC Homecoming, and we can't wait to see what more DPES can offer and showcase for years to come!

Sources:

<https://www.utsc.utoronto.ca/homecoming>

# MENVSC INTERNSHIP POSTER DAY

**Warmest congratulations to 2022-2023 MEnvSc Students!**



As a celebratory closure to their 12-month program, outgoing MEnvSc students presented their internship experiences at the Internship Poster Day. These annual poster presentations give outgoing MEnvSc students a chance to share and reflect on their experiences with faculty, staff, peers, and employers while sharing valuable workplace knowledge and experience with the incoming students following in their footsteps. Featuring the three streams offered through the program: Conservation Biology, Terrestrial and Aquatic Systems, and Climate Change Impacts and Adaptation, Poster Day spans a wide range of interests, cultivating a key feature of the event: Poster Day is for everyone! Internships come in various experiences, from office work to being in the field or a mix of both. Across the diversity of internship experiences, anyone could find an appealing environmental science role. The sharing of academic and professional growth is not the extent of Internship Poster Day; community connections bloom because of the openness and positivity that radiate from the event.



Thank you to all attendees, the Internship Team staff, and our students who make Poster Day possible every year. Once again, warmest congratulations to all of the outgoing MEnvSc students! Your hard work has paid off, and you should be incredibly proud.

**Keep your eyes out for next September for another MEnvSc Internship Poster Day!**

Sources: <https://www.uts.utoronto.ca/physsci/internship-poster-presentation>





# UN INTERNATIONAL EXPERIENCE

By: Callie Andersen

In partnership with UNA-Canada, The University of Toronto Scarborough (UTSC) provides an International Internship Programme for Students (IIPS) through which, students have the opportunity to complete a 6-month internship abroad while working for United Nations, earning the title of Junior Consulting Professionals (JPCs). Speaking to the magnitude of this experience's value, an internship with UNA Canada is the only international and the only unpaid internship that is available to the Department of Physical and Environmental Sciences (DPES)'s Master of Environmental Science (MEnvSc) students to apply for. MEnvSc students can work across the globe, with teams such as the International Organization for Migration (IOM), UN-Habitat, UN Industrial Development Organization (UNIDO), and the Food and Agriculture Organization (FAO) to name a few!

Previous MEnvSc students have completed their internships in Switzerland and Vietnam, with other JPCs commonly working all across continental Asia and Africa. This international opportunity is made possible by the dedication of students, scholarship awards, and guidance from the UNA Canada team every step of the way.

The DPES Graduate Internship Team is anticipating sending 2-3 MEnvSc internship students abroad for the 6-month Summer 2024 roles and hopes to continue doing so through UTSC's partnership with UNA-Canada for many years to come. The MEnvSc Internship team would like to highlight two students who just graduated November 2023 who participated in this international UNA Canada experience! In this issue of the DPES Digest, we will be sharing Evan V's story. Tune in to the next DPES Digest issue to hear about Anannya's experience too!



Evan's personal travel around Switzerland. Photo by Evan V.



UNDP-Viet Nam 45th anniversary. Photo from Anannya (sixth from the left).



# UN INTERNATIONAL EXPERIENCE: EVAN VAN DER VOORT

By: Callie Andersen

Meet Evan van der Voort, a Master of Environmental Science (MEnvSc) student who has just completed his internship in Geneva, Switzerland. Evan will be graduating from the University of Toronto Scarborough (UTSC) - Department of Physical & Environmental Sciences (DPES) MEnvSc program, specializing in Climate Change Impacts and Adaptation (CCIA) in November 2023. The MEnvSc program is a 12-month course-based graduate program in which students complete an internship work term typically in the summer semester. Since 2019, UTSC DPES has established a partnership, exclusive for MEnvSc students, with the United Nations Association in Canada (UNA-Canada) through the IDDIPs - University Division: International Internship Programme For Students (IIPS). Through IIPS, MEnvSc students, such as Evan, can vie for competitive Junior Professional Consultant (JPC) internship positions at various United Nations entities around the globe.

Each year, only 2-3 students from each MEnvSc cohort are selected to participate in IIPS, and Evan was one of two students awarded with this experience in the 2022-23 cohort! As a Junior Professional Consultant (JPC) for UNA-Canada, Evan began work in May 2023 as an intern at the International Organization for Migration (IOM) in Geneva, Switzerland. At IOM, Evan works in the space that explores connections between climate change and labour mobility (LM). This includes how LM can act as a climate change adaptation strategy and how labour migrants can support the green transition in both the origin and destination countries in times of global skill and knowledge shortages. Collaboration with all relevant stakeholders, including governments, the private sector, and migrants themselves, is key to maximize the benefits of labour migration for all involved parties while minimizing associated risks. For these topics, Evan's day-to-day tasks include the development of information sheets and policy briefs, as well as providing input for international conferences and partnerships with external stakeholders.



Evan's personal travel around Switzerland.  
Photo by Evan V.

Evan also gave us insight into his experiences, and advice that he can draw from them. "For me, when I started my degree at UTSC, I was not sure in which field I wanted to work long-term. For students that are also struggling to determine their longer-term career, I would advise to go back to your values to find what is important to you. Based on this, you can start to look at jobs or companies that fit with them." Evan also recommends finding a mentor, who he credits for this advice. Evan found his mentor, Nicholas LeBlanc through UTSC's Partners in Leadership (PIL) program.

# UN INTERNATIONAL EXPERIENCE: EVAN VAN DER VOORT

By: Callie Andersen

Alongside this mentorship and guidance, there was a multitude of resources at UTSC that helped Evan get to where he is today. Evan found that the technical climate change education and training provided through the CCIA coursework, led by Program Director Dr. Karen Smith, provided exactly what he needed to be successful in his role with IOM. For those wondering, the courses Evan highlights are EES1117H Climate Change Impact Assessment, EES1134H Climate Change Policy, and EES1136 Climate Change Adaptation. Evan also developed lifelong skills through the Advanced Seminar in Environmental Science EES1100H, which provides career exploration and career skills training supported through peer-to-peer facilitated learning, guest speakers, and experiential learning opportunities.

Another way that Evan was supported to secure his experience with the UN is through UTSC's diverse community and the comradery he experienced while studying in the MEnvSc program with like-minded peers. As an international student from the Netherlands, the global and diverse atmosphere of UTSC and Toronto inspired Evan to explore an internship opportunity abroad. This was also further complimented by the inclusive environment in Geneva at IOM, "where many cultures across the world come together."

Following attaining the JPC position, Evan also received generous financial support from UTSC Department of Physical & Environmental Sciences, which included a MEnvSc Relocation Assistance Award to help off-set the cost of international travel, and a MEnvSc Internship Award. While completing his JPC 6-month term, he was also the recipient of the 2023 Choquette Scholarship for IDDIPS-IIPS from UNA-Canada.

Upon arrival to IOM in Geneva, Switzerland, Evan had to quickly adapt a new environment and culture, along with a fast-paced workplace. While there are challenges to being a JPC at IOM, such as the UN's use of a multitude of acronyms and the need to quickly pivot to new projects as well as being able to adjust focus and work hours that accommodate international projects/priorities, the rewards have been worth the learning curve for Evan. "The overall programming of the IOM has been shown to positively impact the lives of millions of migrants. Being part of such an organization where everyone is willing to give so much of their time and energy to help others is truly inspiring and rewarding," Evan described.

Evan sets a wonderful example of adopting a growth mindset with one's career journey, "If you would have asked me a year ago where I would be now, I never would have answered that I would be working where I am now. By being open to new opportunities and willing to go the extra mile, I have experienced so much more in the last year than I possibly could have imagined." When we asked Evan where he sees himself career-wise in ten years, he told us:



Evan in front of the UN's International Organization for Migration (IOM) Head Office in Geneva, Switzerland. Photo by Evan V.

**"At this point I am not even sure where I will be in 3 months, so I do not see the point of worrying where I will end up in a decade from now. I am not saying that it is bad to have long-term plans and goals, and I do have some idea of what I would like to do in the longer-term. But if there is anything I have learned the last year, it is that things more often than not end up going differently than I plan them." Although letting go of strict long-term goals may be challenging, it opens the door "for new opportunities that I otherwise would not have had."**

Now, Evan has excitedly updated us that he has been offered a 4-month Consultancy contract as an extension to his IOM internship in Geneva! The UTSC DPES Family is very excited for Evan's next steps. This is an incredible achievement, and we cannot wait to see what Evan's future has in store for him!

# ENVIRONMENTAL AND PHYSICAL SCIENCES STUDENTS ASSOCIATION (EPSA)

Material provided by EPSA:

## Who Are We



## Other Services

### Lab Coat Rental

Forgot your lab coat at home?  
Never fear, EPSA is here - come by our office.



### Chemistry Aid Center

We offer free tutoring for  
CHMA10/11, CHMB41/42, and more!



### Physics Aid Center

We offer free tutoring for  
PHYA10/11 and PHYA21/22!



### Environmental Aid Center

Coming soon!



# ENVIRONMENTAL AND PHYSICAL SCIENCES STUDENTS ASSOCIATION (EPSA)

## *Material provided by EPSA:*

FROSH- what an amazing opportunity to be able to connect and meet a lot of incoming first year students! We're also in the process of hiring for two first year representatives to act as a liaison and share with their peers all that EPSA has to offer.

On a larger scale, we are also gearing up for our DPES Mix and Mingle on Wednesday November 1st from 5-7PM in the EV atrium. This annual event has proved to be a pivotal community building activity and a great way to learn more about our DPES professors, staff, and graduate students (you'll never guess who plays the drums, has the voice of an angel, etc - but come and find out more!).

We appreciate all the support we've received in the past from students and DPES faculty, and can't wait for another outstanding year together!

## Who Are We

As a Departmental Student Association representing the Department of Physical and Environmental Sciences here at UTSC, EPSA aims to foster meaningful connections between students and faculty through services like lab coat/goggle rentals, and both academic and social events.

We also provide resources like our Chemistry, Physics, and -brand new- Environmental Science Aid Centres. Here you will find upper year tutors that are available to help with questions and explaining key concepts.

This year, EPSA hopes to continue carrying out this goal, as well as reestablishing their presence on campus with new and exciting events for all students. And now... meet our new executive team!

# ENVIRONMENTAL AND PHYSICAL SCIENCES STUDENTS ASSOCIATION (EPSA)

*Material provided by EPSA:*

## Contact Us

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[www.myepsa.com](http://www.myepsa.com)



Environmental and Physical  
Science Students' Association

# GRADUATION STUDENTS' ASSOCIATION AT SCARBOROUGH

The Graduate Students' Association at Scarborough is a campus-wide association that aims to draw on the diverse backgrounds of U of T Scarborough graduate students in all departments. The non-profit organization works to enhance the student life and create a vibrant graduate student community through their various initiatives and events. The association also provides graduate students with financial and professional development support. Jeffery Kates is a 4th year PhD Student working at the Rutsuko Ito lab where he studies the neurobiology of approach avoidance behaviour in animal models. As the previous president of the Graduate Students' Association at Scarborough (GSAS), he shared his personal mission for being involved with GSAS at a high level.

"I started grad school during the pandemic, so there were very few people on campus and everything was on Zoom. I never felt that sense of community during my grad life, so I wanted to rebuild that community...even other people in my lab said that they felt isolated and cut off from the other graduate students".

One notable event that GSAS is involved with is the annual interdisciplinary Graduate Research and Discovery Conference (iGRAD). This multi-day conference gives graduate students from any discipline the chance to present their research and network with other graduate students and professors. As GSAS aims to increase the vibrancy of the UTSC grad community, they hold numerous social events. Some events that GSAS holds are holiday socials, graduate orientations, and monthly coffee and tea breaks. All of these events boosted the graduate student camaraderie and a more enjoyable grad life experience.

Jeffery's hopes for GSAS this year is to hold more social events and to bring into effect financial assistance for graduate students including transit grants and conference grants. Additionally, he is excited for GSAS to provide more learning resources for grad students during their studies. Jeff leaves off with a positive note of support for the UTSC grad student community: " Graduate school is tough, but hang in there, we're all in this together! "

To keep up with GSAS, follow them on Instagram at @gsas\_utsc, their Facebook: Graduate Student Association at Scarborough (GSAS) and email: [gsas.utsc@utoronto.ca](mailto:gsas.utsc@utoronto.ca)



# REGENESIS UTSC FREESTORE



**The RegenesiS UTSC Freestore** is a gem of the campus that many students may not know about. The name is self-explanatory - A store where everything is free! Located behind the UTSC Student Residence Centre, the Freestore is a unique place for students to obtain gently used household items, clothing, stationary, and hygienic supplies free of cost. Run by the student-led sustainability organization **Regenesis Scarborough** and supported by the **UTSC Student Housing and Residence Life Office** and the **Sustainability Office**, the FreeStore is a multi-faceted initiative. Its goal is to contribute to a more sustainable campus. By contributing to a circular economy - a mode of production and consumption that involves reusing and sharing existing products, less consumer waste is produced.

The Freestore receives the majority of donations from UTSC students who previously lived in residence - those of whom leave behind and donate an abundance of household and other useful items. These items are given a new life and passed on to future students who can find great utility in them rather than being thrown out. "I'm hoping it brings more awareness about waste and the way we use items in our day-to-day lives. There's a lot of excess in our culture," says Yao Yan Huang, the previous president of RegenesiS.

## Resources

Follow RegenesiS Scarborough on Instagram: @regenesisscarborough

Email: [utsc@regenesis.eco](mailto:utsc@regenesis.eco) for donation inquiries and more information

<https://utsc.utoronto.ca/news-events/university-news/scannable-trees-and-new-free-store-coming-u-t-scarborough>

<https://www.utsc.utoronto.ca/sustainability/contact>

# Waste Reduction Week at UTSC

**November 6 to 10**

**With UTSC SUSTAINABILITY OFFICE**

Waste Reduction Week is an annual week hosted by the Sustainability Office and reserved for our community to focus on the way we use our resources and reflect on how to cut down on waste. This year we focus on household waste, plastics and packaging, and food. With events like the free store pop-up, a litter cleanup, decorating reusable tumblers, and crocheting a grocery market bag - the week opens students up to the different ways to cut down on waste on and off campus.

\*events are posted on CLNx\*

- Monday Nov 6: Regenesis Scarborough Free Store pop-up at BV Hallway 10 am to 3 pm (no registration needed)
- Tuesday Nov 7: Litter clean up at Morningside Park 10 am to 12 pm
- Wednesday Nov 8: Crochet your own grocery market bag 2 to 4 pm AC 227
- Thursday Nov 9: tumbler decorating 2 to 4 pm AC 227
- Friday Nov 10: To be determined, please refer to the Sustainability Office



# FROM THE TRACES CENTRE

## THE NEXT ADDITIONS TOWARDS THE FUTURE

The Department of Physical & Environmental Sciences (DPES) joined forces with UTSC, Agilent, Bruker and Thermo-Scientific to embark on a lab-oriented project to bring a state-of-the-art instrument facility to the campus.

TRACES (Teaching and Research in Analytical & Environmental Sciences) was commissioned in 2012. The laboratory included the addition of several badly need instruments that were not available on campus; HPLC, LC-MS, GC-MS, EA, FLD, XRF, TOC, Raman and Flame AAS. TRACES' compliment included over 20 new instruments for use by research and undergraduate and external users.

### TRACES SNAPSHOT 2016

FTIR Spectroscopy	Spectroscopy	Chromatography	Elemental & Other
Reflectance Mode	UV-Vis	HPLC - DAD/RI	CHN Analyzer
ATR Mode	Fluorescence	LCMS (single quad)	TOC Analyzer
Transmittance Mode	Raman	QToF LCMS	NMR
Far IR	Flame AA	GC - FID/TCD	MALDI
VCD	X-Ray Fluorescence	GCMS	
	HHXRF		
	Diffractionmeter		

U of T Scarborough in collaboration with other institutions began work in 2019 and established the **EaRTH District** – an initiative aimed at advancing the clean tech sector through research, academic programming and commercialization.

EaRTH is short for Environmental and Related Technologies Hub. EaRTH will be located at U of T Scarborough and will be a knowledge and training hub in the Eastern GTA around the development of clean technologies. TRACES is at the forefront of this new initiative.





# FROM THE TRACES CENTRE

## THE NEXT ADDITIONS TOWARDS THE FUTURE

In 2019 we began by expanding the investment in instrumentation. The purchase of an Ion Chromatograph that would expand our ability to analyze anions, cations, carbohydrates and weak acids in water. In 2021 we began by expanding the investment in personnel. Pasquale (Pat) Benvenuto began in 2021.

To meet our current and future goals of DPES and to support new campus initiatives, TRACES has been securing investments over the years to expand its analytical capabilities and modernize declining equipment. In 2022, TRACES was awarded over \$1.2 million in total investments thanks to the efforts of the TRACES Staff, Scott Ballantyne, George Arhonditsis and Irena Creed.

The instrumentation was divided as Upgrades and Additions

### **INSTRUMENTATION UPGRADES:**

#### **LC/MS/MS:**

Current LCMS system was built in 1998, and it was no longer capable of meeting the departmental requirements. The new Agilent 6470B is a triple quadrupole system LC/MS/MS system interfaced to an existing Agilent 1290 uHPLC system to produce a fully integrated LC-MS/MS. The new instrument will be used for quantitative chemical analysis of low-level contaminants and various biomarkers.

Applications: PFAS, pesticides, emerging contaminants, drugs of abuse



Several databases available to reduce method development time: Forensic Toxicology, PFAS, Pesticides

# FROM THE TRACES CENTRE

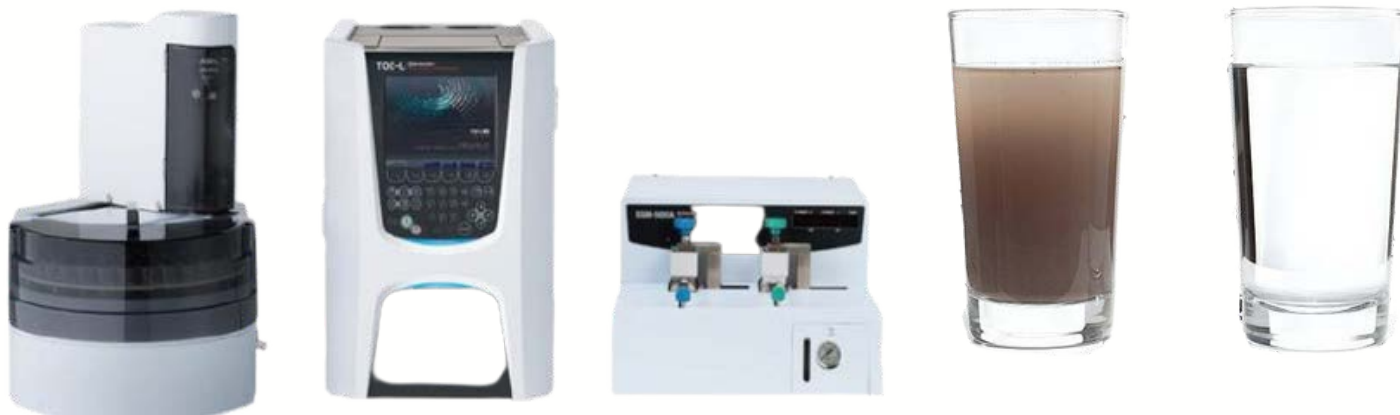
## THE NEXT ADDITIONS TOWARDS THE FUTURE

### **INSTRUMENTATION UPGRADES:**

#### **TOC:**

Current system was built in 2003. It is no longer capable of meeting the departmental requirements, as the TOC detector is failing and the TN detector requires replacement.

The new TOC augments the existing TOC's ability to monitor NPOC, TOC (TC-IC), TN, TC, IC, and POC. The new instrument will allow expansion into applications and various areas of interest that were not previously available, such as: Sea water analysis, drinking water analysis, solid sample analysis, EPA 415.1, Std Mth 5310B, and ASTM 2579.



#### **HANDHELD XRF:**

Must measure and identify all elements from Mg-U down to ppm or ppb levels. Calibration Available for Accurately Measuring: Soils (contaminants and nutrients), plastics, alloys, Pb in paint, mining, and environmental testing.



# FROM THE TRACES CENTRE

## THE NEXT ADDITIONS TOWARDS THE FUTURE

### INSTRUMENTATION ADDITIONS:

#### **ICP-MS: Agilent 7900 ICP-MS**

The ICP-MS provides needed coverage in the area of trace metal analysis that was lacking with the current TRACES instrument lineup. Elemental determinations of heavy metal contaminants in drinking water or soil, and HMI mode for samples suffering from high matrix effects.

The ICP-MS will cater to users requiring low level analysis of various metals simultaneously. It is capable of multi element scans (>15) in a single run.

The ICP-MS is to afford users the ability to meet specific regulatory requirements when dealing with water and soil samples (EPA 200.8, EPA 60320, ASTM 5673-05)



### TRACES NEAR-FUTURE GOALS:

#### ACCREDITATION

- Capitalize on instrument investment to generate external revenue via testing services
- Most external users of environmental testing services require testing to be accredited
- Accreditation provides confidence in results
- ISO/IEC 17025 is the standard
- TRACES is preparing for accreditation
- CALA is the accrediting body have joined





# FROM THE TRACES CENTRE

## THE NEXT ADDITIONS TOWARDS THE FUTURE

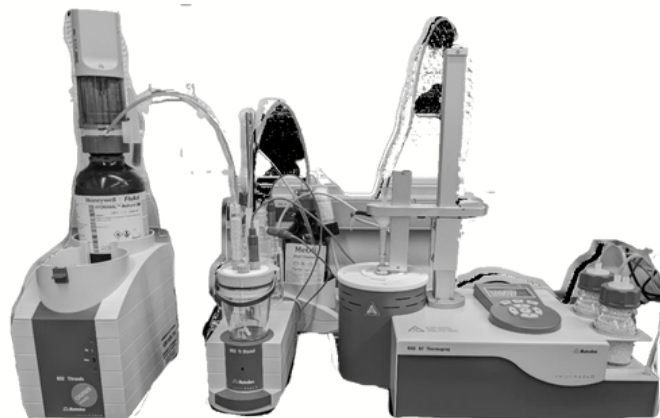
### INSTRUMENTATION ADDITIONS:

#### **Karl Fisher Titrator:**

Metrohm Titrando with 860 KF Thermoprep Oven. Used for the quantification of water in various products. KF titrations are water selective for accurate, low-level determinations

Titration available: volumetric or coulometric. Volumetric: samples with water b/w 1-100%, Coulometric: samples with water b/w 0.001-1%. Oven allows volumetric & coulometric analysis of solids.

Applications: biodiesel fuels, petroleum products, pharmaceuticals, foods



#### **GC/MS/MS: THE AGILENT 7010B IS A TRIPLE QUADRUPOLE SYSTEM**

GC/MS/MS will augment the resident GC-MS ability to monitor:

- MS/MS allows for more complex, low-level analyses not possible with the single quad GCMS
- Performs qualitative and targeted quantitative analyses (several databases and libraries are available)
- Continue to offer liquid, head-space and SPME analysis capability
- Food, beverage, flavor and fragrance
- Biological and pesticides detections
- Petrochemical and hydrocarbons analysis.



# DPES PROGRAMS SUMMARY

## UNDERGRADUATE PROGRAMS: 18

### CHEMISTRY

Chemistry (Specialist)  
Environmental Chemistry (Specialist)  
Medicinal and Biological Chemistry  
(Specialist)  
Biochemistry (Major)  
Chemistry (Major)  
Environmental Chemistry (Major)

## CERTIFICATE PROGRAM: 1

### PHYSICS AND ASTROPHYSICS

Environmental Physics (Specialist)  
Physical and Mathematical Sciences  
(Specialist)  
Physics and Astrophysics (Specialist)  
Physical Sciences (Major)  
Physics and Astrophysics (Major)  
Astronomy and Astrophysics (Minor)

### ENVIRONMENTAL STUDIES

Environmental Studies (Major)  
Certificate in Sustainability

### ENVIRONMENTAL SCIENCE

Global Environmental Change (formerly  
known as Environmental Biology)  
(Specialist)  
Environmental Geoscience (Specialist)  
Environmental Science (Major)  
Applied Climatology (Minor)  
Environmental Science (Minor)  
Natural Sciences and Environmental  
Management (Minor)

### CO-OP

Chemistry (Specialist - Coop)  
Environmental Chemistry (Specialist - Coop)  
Medicinal and Biological Chemistry  
(Specialist - Coop)  
Biochemistry (Major - Coop)  
Chemistry (Major - Coop)  
Environmental Chemistry (Major - Coop)  
Global Environmental Change (formerly known as  
Environmental Biology) (Specialist - Coop)  
Environmental Geoscience (Specialist - Coop)  
Environmental Physics (Specialist - Coop)  
Environmental Science (Major - Coop)

## COMBINED DEGREE PROGRAMS: 3

## COOP PROGRAMS: 10

### COMBINED DEGREE PROGRAMS

HONOURS BACHELOR OF SCIENCE / MASTER OF ENGINEERING

HONOURS BACHELOR OF SCIENCE / MASTER OF ENVIRONMENTAL SCIENCE

HONOURS BACHELOR OF SCIENCE OR HONOURS BACHELOR OF ARTS / MASTER  
OF TEACHING



UNIVERSITY OF  
**TORONTO**  
SCARBOROUGH

# DPES DIGEST IS LOOKING FOR YOU!

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Interested in assisting with the DPES newsletter?  
Have any great ideas you want to see come to light?  
Send us your resume!

Email:

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