

THE PETRI DISH

Trent Biology Department



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Congratulations to Sarah West on her appointment as the new Dean of Science!

We still consider Sarah as one of our own, since she started at Trent in 2015 in the Biology Department when we shared her with the School of Nursing. After tenure was granted, Sarah turned out to be too good at Administration for her own good. She became the inaugural chair of Kinesiology, for which much of her hard work went into launching the 4-year program that we now have at Trent.

That was followed by appointments as the associate Dean of Science (2023-2024) and interim Dean of Science (2024-2025). Things went a little too well and now Sarah has the full term and mandate as Dean of Science. Moreover, her biology-based background with diverse research interests that span multiple disciplines (exercise and chronic disease, student mental well-being, pedagogy) will stand her in good stead for a broad understanding of the sciences at Trent.



In the end, too, I would highlight that Sarah technically remains part of the Biology Department with a 0.0 assignment. So even as a non-Home department we still have our hooks into her. We wish you well, Dean West, and look forward to working with you.

Tracy Ross: Provost's Award for Support Staff



The Provost's Award for Support Staff is Awarded annually to a support staff member who plays a key role in student engagement and retention and who makes a difference through their performance at Trent. This was awarded to Tracy Ross in the spring of 2024. We are delighted to congratulate Tracy, who as the previous Department Coordinator and Advisor in the Biology Department was so much a part of the Biology students' success at Trent.

Standing Strong: Supporting Equity, Diversity, and Inclusion in Science

By The Biology EDI Committee

Equity-diversity-inclusion (EDI) is under increasing attack in the United States. For example, even inclusion of words such as “diversity” in grant applications is triggering a secondary review of the grant content ([See These 197 Terms May Trigger Reviews Of Your NIH, NSF Grant Proposals](#)). Trent University is committed to EDI initiatives and has signed the Dimensions: Equity, Diversity, and inclusion Canada Charter (<https://www.trentu.ca/ori/home/equity-diversity-inclusion>). The Biology Department’s EDI Committee wanted to reiterate our commitment and continued support for EDI initiatives within the Trent scientific community.

One recent example that underscores the importance of EDI (e.g. diverse voices) in science and discovery is the work and experiences of Dr. Meghan Azad (PhD), Professor, Pediatrics and Child Health, University of Manitoba; Research Scientist, Children’s Hospital Research Institute of Manitoba. Dr. Azad was recently awarded the 2024 Peter Gilgan Canada Gairdner

Momentum Award* for her research on understanding how human breast milk contributes to shaping the infant microbiome and lifelong health. In her acceptance speech she outlined how the field “struggled to gain recognition and funding; viewed as unimportant or just a woman’s issue” and some criticism from grant reviewers who told her that “it is highly unlikely that any magic component in breast milk would ever be found”.

*The Canada Gairdner Awards celebrate the world’s best biomedical and global health researchers through annual prestigious awards. Nearly one quarter of Gairdner award winners have gone on to become Nobel laureates.

Learn more about her work: [Meghan Azad- Canada Gairdner Momentum Award Winner](#)

Watch her acceptance speech here: <https://www.youtube.com/watch?v=n7BwISwcvGY>

Inclusion in Science Publishing: Maggie Xenopoulos Receives the William Kaula Award

In December, several of Maggie Xenopoulos’ students traveled to Washington, D.C., to join her at a banquet celebration attended by 500 people, where she received the prestigious William Kaula Award. Trent University previously highlighted this achievement in their article, [Trent Canada Research Chair Receives International Recognition for Efforts to Improve Inclusion in Science Publishing](#).



From top left going clockwise: Sherryann Prowell (PhD student), James Kelley (PhD student), Sasindu Gunawardana (PhD student), Yue Zheng (PhD student), Carolina Koebel (MSc student)

From Trent University to Medical School: A Journey of Growth and Discovery

Meet Tovan Lew: Biomedical Science to Medicine

Graduating from Trent University with a degree in Biomedical Science in the summer of 2024, Tovan Lew is now pursuing his medical studies at the Schulich School of Medicine and Dentistry, Western University. Reflecting on his journey, he shares insights into life as a medical student and how his time at Trent prepared him for the rigorous path ahead.

A Day in the Life of a Medical Student

"Medical school is a whole different world compared to undergrad!" Tovan explains. A typical day involves a combination of large group lectures, small group discussions, anatomy labs, and clinical skills sessions, where students practice physical exams on standardized patients. With four hours of class per day and approximately eight hours of asynchronous lectures per week, he manages to balance academics with extracurricular activities and social events. Of course, plenty of time is also dedicated to studying.

“Don't lose sight of what makes you, you! Pursuing non-health-related passions will not only enhance your well-being but also help you stand out in applications and interviews.”



How Trent University Paved the Way

The Department of Biology at Trent University played a key role in Tovan's career journey. "The biology faculty did an incredible job of offering students opportunities to explore diverse areas." A standout experience was the year-long experiential learning course with the Peterborough AIDS Resource Network. Working alongside infectious disease specialists and engaging with the community proved invaluable.

Small class sizes at Trent fostered closer relationships with faculty, leading to meaningful mentorship and opportunities like the thesis course, which was both educational and rewarding. These experiences offered a strong foundation for medical school.

Getting Involved: Tips for Students

For those looking to dive into extracurricular activities, Tovan suggests attending the clubs fair in the fall to discover active groups. Social media is another excellent resource for keeping up with events.

"Once you find clubs that interest you, dive in! Joining an executive team is a fantastic way to build connections and contribute meaningfully." He also emphasizes the importance of embracing your unique background, adding, "Every space is enriched by your diverse experiences."

Advice for Aspiring Medical Students

"Congratulations! Figuring out your path is one of the hardest steps," Tovan says. For those interested in medicine or health sciences, researching the requirements of medical schools early on is crucial. Gaining experience through thesis projects, research opportunities, or volunteering in healthcare settings can help build a strong foundation.

However, Tovan also encourages students to maintain balance. "Don't lose sight of what makes you, you! Pursuing non-health-related passions will not only enhance your well-being but also help you stand out in applications and interviews." Seeking a mentor can also be incredibly beneficial. Faculty members and professionals in the community can offer valuable guidance.

Final Thoughts

With so much ahead, it's easy to become fixated on the future. But Tovan offers one last piece of advice: "Stay present. The experiences and opportunities available to you now are incredible—take the time to enjoy them." Tovan Lew's journey from Trent University to medical school highlights the power of experiential learning, mentorship, and pursuing one's passions. His story serves as inspiration for those exploring possibilities and pursuing their own academic and professional goals.



Biology Department Awards Ceremony, February 7, 2025

The Biology Department Awards Ceremony was well attended, with faculty, staff, community members, and students coming together to celebrate the outstanding achievements of this year's award recipients. Guests enjoyed snacks and refreshments as they recognized the dedication and hard work of the students. It was a wonderful opportunity to honour their accomplishments and contributions.

Biology Department Awards Ceremony Winners 2024/25

- **Roy L. Edwards Scholarship:** Emily Colautti, Lucy Van Haaften
- **Dr. Charles Omole Medical Scholarship:** Jocelyn O'Brien, Karthik Satheesh Rao
- **Biology Department First-Year Prize:** Madeline Suska
- **Biology Department Second-Year Prize:** Kyleah Laita
- **Biochemistry Second-Year Prize:** Shelby Bryan
- **Biology Conservation Prize:** Taylor Allen
- **Biomedical Prize:** Pakin Pongpaiboon
- **Jean McKerracher Scholarship in Biology:** Noah Fiorucci, Logan Findlay
- **Biology Department Scholarship:** Edie Levine-Barnoff
- **Joseph Ernest Goodhead Prize:** Hanna Anaïs Aymé
- **Powles Prize:** Adam Seabrook
- **Peterborough Field Naturalists Research Project Grants:** Britt Petersen, Lucy Van Haaften, Jackson Paul



BIOL/SAFS3240 Agricultural Entomology looking at habitat - March 19.



BIOL/SAFS3240 Agricultural Entomology field trip - March 26

Spotlight on Department Publications

David Beresford

David Beresford is pleased to share a paper from an undergraduate thesis by Hope E. Freiburger. For her field study, Hope conducted research at David's farm in Dummer Township, shaping various ground surface profiles to examine their effect on maggot wandering distances.

Freidburger, H.E., Kyle, C.J., Beresford, D.V. 2025. The effect of flat and undulating terrain on the post-feeding dispersal distance from carcasses of blow fly maggots (Calliphoridae: *Lucilia illustris*). Canadian Society of Forensic Science Journal. 1-10, (<https://doi.org/10.1080/00085030.2024.2383170>)

Maggie Xenopoulos

We're excited to share a recent publication from Maggie Xenopoulos' lab, a project she is especially proud of due to the complex statistical coding involved. The study used autonomous underwater vehicles to measure Lake Superior's metabolism, assessing how the lake's carbon cycling contributes to the global carbon cycle. The findings reveal that the lake's mixed layer metabolism varies across time and space but generally acts as a CO2 source to the atmosphere. The Metabolic Balance of Lake Superior's Mixed Layer - Gunawardana - 2025 - Geophysical Research Letters - Wiley Online Library.

The first author, Sasindu Gunawardana, is Maggie Xenopoulos' PhD student and a non-traditional student who returned to graduate studies while raising two children.

The second author, Nolan Pearce, is a former postdoctoral fellow in the Biology Department who also taught at Trent.

Paul Frost

Paul's recent study explored how phosphorus (P) levels influence algal biomass, stoichiometry, and zooplankton populations. By adjusting P supply in microcosms, researchers tracked changes in algae, *Daphnia*, and phosphorus concentrations. In low P environments, algae grew but had poor nutritional quality, resulting in low *Daphnia* abundance and fecundity. In contrast, high P environments initially boosted both algae and *Daphnia* populations, though increased grazing often reduced algae and raised phosphorus levels. One outlier showed unexpectedly high algal biomass alongside a large *Daphnia* population. The findings highlight the complex feedbacks that regulate algae-*Daphnia* interactions in response to phosphorus availability.

Frost, P.C., K. DaSilva, J.A. Frost-Xenopoulos, W.S. Burr, and C.L.C. Jones. 2025. Effects of phosphorus enrichment on *Daphnia*-algae interactions in laboratory microcosms. Journal of Plankton Research 472: fbaf002 (<https://doi.org/10.1093/plankt/fbaf002>)



Daphnia (water microorganism)



The Petri Dish has a more diverse readership than you might expect...
David Beresford

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Biology Demonstrators, Susan Chow and Sara Pieper, seen here tiny and on some polypore mushrooms, will be giving a demonstration of Fungi Friends and Foes at the Peterborough Regional Science Fair April 8th. Information about the Fair (including how to volunteer as a judge) can be found at: peterboroughsciencefair.com

Awards & Achievements

Graham Raby Receives Outstanding Mentor Award and Delivers Keynote at AFS-Wildlife Society Conference



From left to right - Amber Fedus, Laura Haniford, Graham Raby, Christian Bihun, and Erin Stewart

Graham Raby was recently awarded the Outstanding Mentor Award from the American Fisheries Society Ontario Chapter Student Summit, nominated by students in recognition of his mentorship.

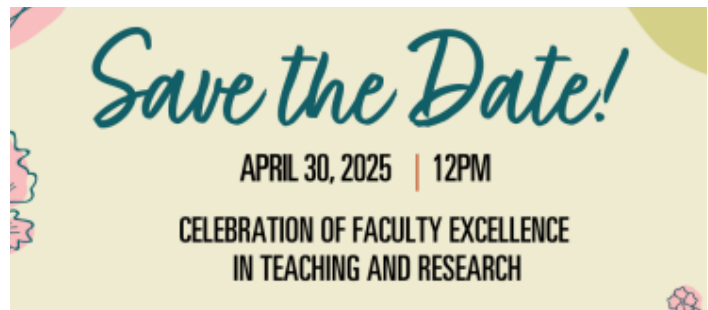
At the joint conference of the Ontario Chapter of the American Fisheries Society and the Ontario Chapter of the Wildlife Society at the University of Guelph, Graham Raby also delivered a keynote address titled "Unraveling the Mystery of Sexual Size Dimorphism in Walleye."

PhD students Amber Fedus, Laura Haniford, Christian Bihun, and Erin Stewart from Graham's lab attended the conference, with Erin and Amber delivering excellent contributing talks, showcasing their research alongside other leading voices in fisheries and wildlife science.

Research Grants Spotlight

Dr. Stephanie Tobin and **Dr. Cayleih Robertson** have both been awarded 2025 Research Development Grants through the Office of Research & Innovation Internal Grants Program. These grants will support their ongoing research initiatives, providing them with valuable resources to advance their projects. Additionally, **Dr. Holly Bates** has received a 2025 Knowledge Mobilization Grant, further enhancing her ability to effectively communicate and share her research findings with broader communities. These recognitions highlight the continued success and growth of our team, and we look forward to seeing the impact of their work in the coming year.

More information can be found here: <https://www.trentu.ca/researchinnovation/our-researchers/research-awards>



Celebration of Faculty Excellence

The 2025 **Distinguished Research Award** honours **Dr. Marguerite A. Xenopoulos**, the Canada Research Chair in Global Change of Freshwater Ecosystems and a professor in the Department of Biology at Trent University.

Dr. Stephanie Tobin is recognized with the **Early Career Research Award** as a promising researcher at Trent University specializing in skeletal muscle and cellular repair mechanisms.

Dr. Joanna Freeland, is awarded with the prestigious **Award for Educational Leadership & Innovation** for her exceptional leadership and dedication to advancing education at the course, departmental, and institutional levels.

Dr. Tom Hossie is the recipient of the 2025 **Research Impact Award** which recognizes impactful research which has contributed significantly to society (local, regional, national or international).

Dr. Sarah Jamieson is the recipient of the 2025 **Trent Community Leadership Award**, which recognizes faculty and staff who make exceptional contributions to the local community in Peterborough or Durham regions.

The Ministry of Natural Resources – Trent’s Next-door Collaborator

By: Lucy van Haaften

Did you know The Ontario Ministry of Natural Resources (OMNR) has an office in Trent University’s DNA Building, leading programs like the Wildlife Research and Monitoring Section (WRMS), the Aquatic Research and Monitoring Section, and the Rabies Program?

Research Scientists at the OMNR are also Adjunct Professors in the Environmental and Life Sciences graduate program at Trent. This means that they can act as supervisors or advisors for M.Sc. and Ph.D. level research. However, as some might not know, they can also be involved in undergraduate-level research. Some examples of past collaborative work between Trent and the OMNR with which student researchers have been involved include studies on Algonquin wolf genetics and the recovery of aurora (or brook) trout.

I am a 4th year Conservation Biology Co-op student at Trent and am currently completing my Honours Thesis with Dr. Jeff Bowman, a Research Scientist for WRMS. On the Bowman team, we mostly work with small mammals from mice to muskrats to flying squirrels. To complete an Honours Thesis with a supervisor from the OMNR, you have to make sure that your second reader (or co-supervisor) is a member of the Biology Department to tie your research to Trent University. My second reader is Dr. Gary Burness, who has helped guide my research goals and execution.

My research examines ultraviolet-induced fluorescence in northern and southern flying squirrels, at a field site just north of Buckhorn, ON. Basically, flying squirrels “glow” bright pink, orange, and blue under ultraviolet light and we don’t yet know exactly how or why. That’s where my work comes in – I am trying to characterize the patterns of fluorescence we observe and determine if the presence of any patterns is related to factors like the species, sex, or age of the squirrel, or the time of year. Collaborating with the OMNR has allowed me to pursue such novel and cutting-edge research that few other researchers are working on, under the guidance of a leading expert on small mammals.

I had the unique opportunity of working for the OMNR last summer on the Small Mammal Team and being able to collect a lot of my thesis data before the school year even started. One large perk of collaborating with the government is that they often have funding to hire students in the summer, so you can collect your own data and get paid to do so! Continuing throughout the school year, I have maintained access to OMNR resources which have been invaluable to my research.

To increase our knowledge of Ontario species and how best to protect them, this collaboration between Trent and the OMNR incorporates management and policy-based questions with questions of fundamental and evolutionary biology. It allows government scientists and university researchers to join forces to better tackle large, important research questions and train emerging student scientists at the same time. It is also an awesome opportunity for students to “get their foot in the door” of government research and to network with other scientists.

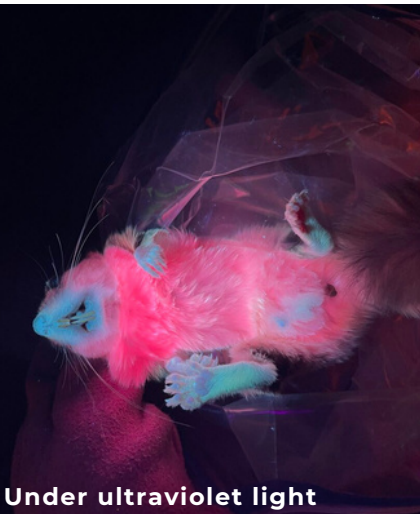
My advice to undergraduate students interested in wildlife and/or aquatic research: check out our knowledgeable neighbours in the DNA building. They are just a stone’s throw (or email) away and could help you conduct really interesting and meaningful research!



Lucy holding a southern flying squirrel



Southern flying squirrel under visible light



Under ultraviolet light
* All animals being handled and photographed under necessary permits

Hands-on Learning: Conservation Biology Placements

“ Hey, I’m Carson. This current school year has been filled with many new experiences, but by far the most unfamiliar of them has been my opportunity to work at the Riverview Park and zoo. If you ever get a chance, it’s a totally different ballpark to see animals up close.

Over the time I’ve been there, I’ve been recording behaviours of the squirrel monkeys and the slender tailed meerkats to hopefully gain some insight on how these species behave in a zoo environment. My work at the zoo has the greater goal of making sure they’re not bored, and to keep them happy and healthy. To that end, one of the things I’m doing is testing the effectiveness of different puzzles and contraptions used to keep boredom at bay. Both of those creatures are very curious and for the right treat, they work hard figure out a puzzle.

So far, it’s been a fun experience. I didn’t have any previous experience working with animals, but I do have pets at home, so it wasn’t completely unknown to me. Of course, these animals are far from cats and dogs, but they are still just as fun to observe.

In the end, this was an unknown to me going into it, but it turned out to be a worthwhile opportunity.

I guess it goes to show, you never do know until you try. ”

Carson



Carson Karja and Dawn Pond

“ One of the first things they told me at Riverview Zoo is to not get bit by the sloths. Not just for my own safety—as it turns out, they have very visible sharp teeth—but because I’d never live it down.

Maserati and Lamborghini, both fairly new arrivals to the zoo, are one of my two areas of study. I’ve been using a trail camera to follow their activity during their active hours so I can find out whether they like each other enough for even newer arrivals to be en route. So far, it doesn’t look like it.

The camels came with their own warning: a sign on the fence telling guests not to feed them, and the implicit understanding that I would never enter the enclosure. From the bench, my task is to see when they chew on the tree stumps, and which of the camels—Baika, Gobi, and Zaya—are doing it, and whether it could be an issue.

Taking part in daily zoo-wide meetings and doing animal behaviour monitoring has been a great way to spend my one-day-a-week placement. I am learning a lot about sloths, camels, animal monitoring, and the teamwork needed to care for animals in captivity.

Megan ”



Megan Summer and Dawn Pond

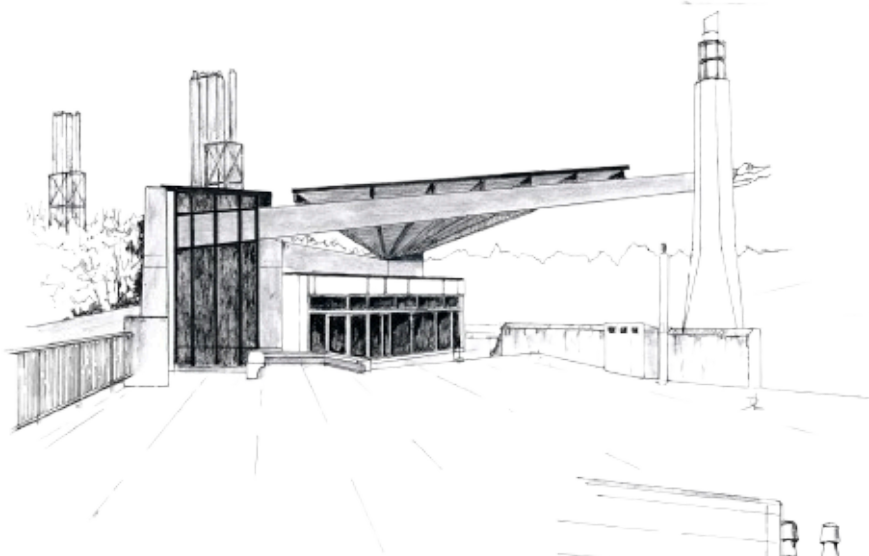
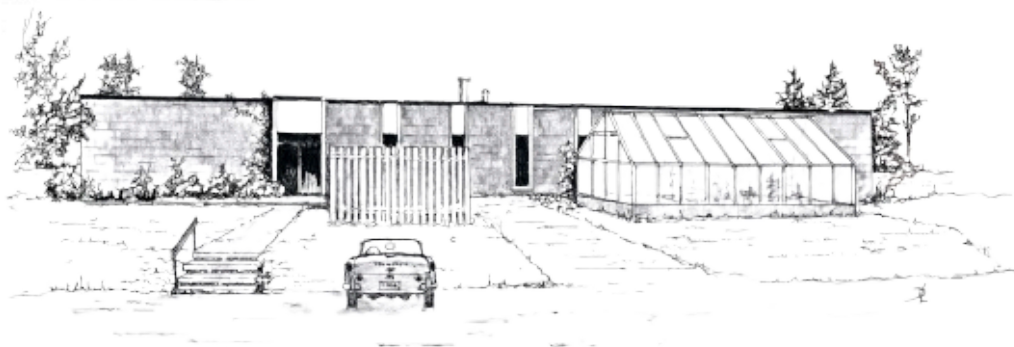
Trent's Biology Department through the years

Illustrations by David Lasenby ('64), Professor Emeritus, Biology



Rubidge Hall
(1964-1967)

Staging Building
(1967-1991)



Environmental
Science Building
(1991-2011)

Life and Health
Science Building
(2011- present)

