WESTERN UNIVERSITY BIOLOGY

ALUMNI NEWSLETTER

FALL 2022

Pollinator garden at the Environmental Sciences Western Field Station
Photo credit: Mitchell Zimmer

Western Science

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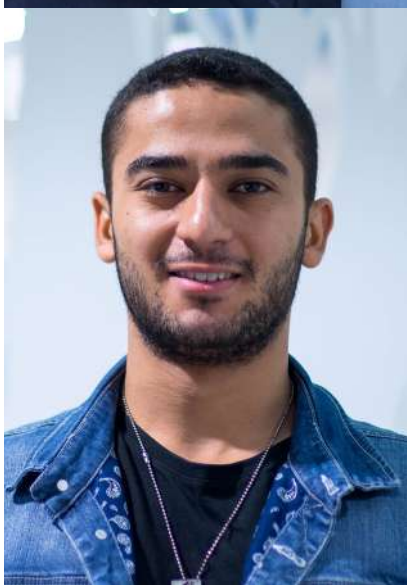

CHAIR'S REPORT

A MESSAGE FROM DAVID COLTMAN

Welcome to the Fall 2022 Biology Alumni Newsletter!

The Fall of 2022 brings a pulse of new energy to campus, especially as we are all back to Western in person. New energy and renewal are a theme here in the Biology Department, and on that note, I am delighted to announce that the Biology Department welcomes five new members to the academic staff this year.

Dr. Natasha MacBean is a joint appointment with the Department of Geography. Natasha's lab focusses on interactions between terrestrial vegetation, carbon and water cycles in response to environmental and global climate change.

Dr. Thomas DeFalco studies the responses of plants to environmental stress at the molecular level using the tools of molecular and cellular biology.

Dr. Daniel Jeffery brings extensive research and teaching experience in epigenetics, cell and molecular biology, biochemistry, and cancer biology.

Dr. Michael Pyne, a synthetic biologist, harnesses brewer's yeast to: reconstruct plant specialized pathways; construct and engineer novel bioprocesses to produce high-value natural product pharmaceuticals and novel drug discovery.

Dr. Raymond Thomas rejoins the Department as a Western Research Chair and Scientific Director of the Biotron. Raymond's expertise is in the areas of lipid metabolism and biochemistry ("lipidomics"), and his work has applicability to broad areas of biology ranging from plant stress to functional foods and brain health. Raymond is also an alumnus of Western Biology, having received his PhD in 2008.

In this issue we share more positive energy with the Biology Alumni community, with highlights from the 2022 Convocation and Homecoming in-person events. We also share the profiles and experiences of some of you, our Biology alumni, and how you have made a difference in the world. On behalf of the Biology Department, thank you all for your engagement and support!

David Coltman
Professor and Chair,
Department of Biology
Western University

Getting 'Up Close' With Sharks

BIOLOGY'S PAUL MENSINK USES IMMERSIVE TECHNOLOGY PILOT PROJECT TO ENHANCE STUDENTS' LEARNING EXPERIENCE

By Louise Milligan, Professor Emerita

For seven years, Biology professor Paul Mensink has taught and seen the impact of field courses. They allow students to learn biology in the real world, but they are expensive and cannot accommodate a large number of students .

This got him thinking, 'How can I share the field course experience with 200 or more students?' The answer – bring the field to them!

Mensink is using augmented reality (AR) to allow his students to experience basking sharks up close, feeling like they are swimming beside them. It provides an up close view of feeding mechanisms, movements and behaviours. All you have to do is strap on your virtual reality headset and there you are with them.

The augmented reality app, MarineXR, was developed by Mensink in partnership with local creative company EXAR Studios. The app can be downloaded to students' smartphones to access the AR content in the classroom or online. Through the app they can run different exercises. This immersive technology opens up new and exciting ways to engage students, which coupled with theory discussed in class, enhances their learning experience.

"There is more to this than a fun, game-like experience. Alongside these immersive education experiences, we carry out research

projects examining how they affect student learning, motivation and engagement," explains Mensink.

To this end, Mensink was appointed as a Teaching Fellow in Immersive Education in Science, and received funding to develop the Western Immersive Reality Education and Development (WIRED) Lab. This lab has state-of-the-art VR/AR tools that can, for example, track eye movements and monitor pupil dilation, as a student is engaged in an immersive experience. These data can contribute to determining the cognitive load of the immersive experience, which relates to the amount of information that a working memory can hold at one time. The capacity of working memory is limited, so the goal is to avoid overloading it with additional information or activities that don't contribute to learning. How does immersive learning impact cognitive load? How does it impact understanding? How does augmented reality affect student engagement? These are just a few of the questions Mensink and his colleagues are seeking to answer.

Who knows where Mensink will take his students next. Maybe on a swim through a pristine coral reef to appreciate and measure biodiversity, then revisit the same reef after a coral bleaching event. Students will have an up close and personal experience with environmental degradation in coral reefs without leaving the classroom. Just another way we can harness the power of immersive technologies to bring the joy and excitement of the real-world directly into our classrooms.

BIOLOGY PROFESSOR PAUL MENSINK

LEARN MORE

➜ Hear Paul Mensink's virtual Science Talk from Homecoming **here**.

Congratulations, New Alumni

HIGHLIGHTS FROM 2022 CONVOCATION

By Louise Milligan, Professor Emerita

Western Biology was thrilled to celebrate the graduating class of 2022 at in person events again after two long years. As achievements were celebrated, there was a lot of joy to be seen, and even a few tears of happiness.

Celebrating Donald B. McMillan's Legacy

One proud moment was the awarding of the new Donald B. McMillan Honours Thesis Award.

Donald B. McMillan, was a Western alumnus, having received his Honours Bachelor of Science in Zoology in 1951 and a Master of Science in Zoology in 1953. After completing his PhD at The University of Toronto, McMillan returned to Western University in 1959 to teach, until his retirement in 1994.

During his time at Western, McMillan was a mentor and friend to both students and colleagues. He loved to teach and inspired many young students to make science their life's work. He mentored countless undergraduate thesis students, in addition to several graduate students. Besides contributing to many publications in prominent journals with his students, McMillan published two books: Fish Histology, Female Reproductive Systems and an Atlas of Comparative Vertebrate Histology (co-authored by Richard Harris).

Outside of his fascination with biology, McMillan's passions included Bach, opera, cycling, the glories of the natural world, and his cottage by the Fundy shore in Back Bay, New Brunswick. Dr. McMillan died in 2018 at the age of 89.

The Donald B. McMillan Honours Thesis Award was established by his wife, Lone Jensen, to recognize excellence in the Honours Thesis research. Western Biology was very fortunate to have Lone in attendance at the award presentation.

Graduate Cassandra Janozeski received the inaugural McMillan award. "I am honoured to be the first recipient of this award. I am inspired by Dr. McMillan's passion for teaching and learning and his commitment to science students," enthused Janozeski.

CASSANDRA JANOZESKI AND LONE JENSEN

As an integrated science student with a specialization in biology, Janozeski liked how her program gave her exposure to the diversity of science. She also took advantage of the Science Internship Program, working in the Quality Assurance/Quality Control lab at McCormick.

"I really was looking for an opportunity to apply what I have learned in the real world. My internship allowed me to apply learnings from analytical chemistry, biochemistry and microbiology, while also giving me a good foundation for my Honours Thesis work," she explained.

In her last year of study, Janozeski worked in Dr. Martin Duennewald's lab on a project related to Amyotrophic Lateral Sclerosis, a progressive neurodegenerative disease, leading to loss of muscle control. She studied genetic mutations in a relatively newly discovered protein, DNA JC7, that might correlate to ALS. "This work has impact, as it furthers our understanding of its role in ALS. The thesis work really excited me; it was such a positive experience. I put my book learning into practice."

Although Janozeski has crossed the stage, she isn't finished with school. She will continue to learn by taking a few more courses with the hopes of getting into dental school in the future.

Biology Gold Medal Winners

At an intimate ceremony, the Faculty of Science presented its top students with gold medals to recognize their success in their undergraduate studies. These gold medals are awarded to graduating students with the highest standing in their programs.

This year, Western Biology was proud to have 11 gold medal recipients.

GOLD MEDAL & AWARD WINNERS

(From left to right)

Terence Laverty Memorial Gold Medal – Honours Specialization in Biology: Gillian Ross

Florence Bucke Graduate Scholarship: Anka Colo

Western Gold Medal – Honours Specialization Genetics: Cambrie Taylor

Western Gold Medal – Honours Specialization in Biodiversity and Conservation: Joseph De Sousa

Western Gold Medal – Honours Specialization in Synthetic Biology:
Aiden Wilcox

Western Gold Medal – Major in Biology: Cailyn Mckay

Donald B. McMillan Honours Thesis Award : Cassandra Janozeski

Not available for photograph:

Western Gold Medal – Four-Year Degree (Specialization): Kara Ly

Western Gold Medal – Four-Year Degree (Major): Mhd Taisir Sahlol

Western Gold Medal – Three-Year Degree: Jose Navarro

Western Gold Medal – Honours Specialization in Animal Behaviour: Erin Holzscherer

Western Gold Medal – Honours Specialization in Genetics and Biochemistry: Zachary Fedder

Western Gold Medal – Major in Genetics and Western Gold Medal – Major in Medical Sciences: Amy Sirkin

Biology Alumni Profiles

ABDALLA ABDELHADY BSC '20

By Shayla Kroeze, BSc '19 and MSc '22

Abdalla Abdelhady's, BSc'20, time at Western shaped where he is today.

"When I started my biology degree, I had no idea what a bioinformatics specialist was or even that the role existed," shared Abdelhady.

However, his experience in class and through the Science Internship Program helped him to gain skills that help him excel in his current role as a Bioinformatics Specialist at Rapid Novor Inc.

Between his third and fourth years in the Honours Specialization, Genetics and Biochemistry program, Abdelhady embarked on an internship with Robarts Research Institute's London Regional Genomics Centre working on DNA sequencing. This experience paved the way for his future successes, as it was where he met his future undergraduate thesis supervisor, Dr. Rob Hegele, as well as his future boss at Rapid Novor Inc. In addition to the networking opportunities, his 12 months of work experience helped him build skills that he uses in his job.

At Rapid Novor Inc, Abdelhady works with the company's software to analyze protein sequence data, prepare reports for clients, and troubleshoot any sequences that look unusual. He has also been building his skills in science communication through client meetings, where he is learning to explain methodologies and results of their work directly with the customer.

"I love the satisfaction that comes from figuring out a difficult sequence, just like putting the last piece into a 1000-piece puzzle."

"The best part of my job is problem-solving when trouble shooting issues. I love the satisfaction that comes from figuring out a difficult sequence, just like putting the last piece into a 1000-piece puzzle," he explained.

More importantly, Abdelhady appreciates how Rapid Novor Inc. provides a positive work environment and truly expresses their gratitude for their employees.

Thinking back to his time at Western, some of his best memories come from his time as a Student Leader as both a Soph and Residence Staff. "I made amazing friends in the program, but I also gained communication and leadership skills that continue to be useful today," he recalls.

His advice for current students: Seek help and seek it early, keep an open mind, don't rush, and have a career back up plan because things don't always work out exactly how you planned, and that is okay. And if you are interested in a career in bioinformatics, take courses in programming and coding in addition to biology courses to set yourself up for success.

CHANTEL KOWALCHUK
BSc '15

By Arvind Satishkumar, BSc Candidate

Chantel Kowalchuk, BSc '15, is grateful for all the experiences in her university journey that led her to where she is today.

During her time pursuing a bachelor's degree at Western University, Kowalchuk made the life-changing decision to go on an exchange in her third year. This led her to Umeå, a rural town in Sweden, which she described as her most memorable experience as a student.

"I feel like if I didn't go to Stockholm, I would've gone on a completely different path."

The exchange was so transformational that Kowalchuk went on exchange again after her undergraduate degree, this time to Stockholm to pursue her Master's project. Although she didn't fall in love with her research topic, she did uncover a passion for research overall. "I feel like if I didn't go to Stockholm, I would've gone on a completely different path," shared Kowalchuk.

Next was pursuing a PhD, which she did at one of the top mental health and psychiatry research organizations – the Centre for Addiction and Mental Health in Toronto. Kowalchuk received her PhD from the University of Toronto for her research looking at the link between mental health drugs and diabetes.

It was during her PhD that Kowalchuk discovered that writing was what she enjoyed the most. Through a lot of research into different careers and talking to many people, she decided to pursue a career as a medical writer. As a medical writer, Kowalchuk works with her clients to communicate new medical and scientific information to different groups of stakeholders, ranging from health care professionals to the general public.

Kowalchuk was completely unaware that her career was even an option, and her story highlights all the possibilities that can arise from each experience. When asked if she knew what career she would end up with when she started her first year at Western, she stated, "I don't think I could have known about this field at the time. When you enter as an undergrad, it feels like there are only a limited number of options. It took time to explore, meet people, and try different things, along with intention, and some luck, to get to medical writing."

The best advice Kowalchuk received: Always keep a door open. When you're in school, you naturally must think about what you want to do with your life and choose courses accordingly, but so much of life and your career is also just taking opportunities when they are presented to you.

PAULA DOUCETTE
BSc '97

By Ryley Yost, BSc '17 and PhD Candidate

Paula Doucette, BSc '97, had no idea her biology degree would lead to a fulfilling career in the federal government working in, on or under the Pacific and Arctic coasts of Canada.

Like many undergraduate students, she changed her degree part way through her studies. "I began in kinesiology, but it wasn't long until I realized I had a passion for science and switched to biology in my second year," explained Doucette. The hands-on courses and labs were a highlight of her education.

This theme of discovery continued throughout Doucette's young adult life. While volunteering in Florida and the Caribbean the summer following graduation, she explored scuba diving and uncovered her passion for the ocean and its protection. This led her to pursue a Master of Marine Management degree at Dalhousie University which included an internship in Victoria, British Columbia with the Department of Fisheries and Oceans.

"Have faith in yourself and be open to opportunities as you explore what your future might be."

Change and flexibility have been part of her path. "Have faith in yourself and say yes to opportunities as they present themselves, as you explore what your future might be," advises Doucette to current students. "Get out of your comfort zone, be vulnerable and transparent, as others likely feel the same."

Doucette continued to push her boundaries. After working in the federal government for several years, she obtained a Management Excellence Certificate from the Sauder School of Business at the University of British Columbia. This was the perfect next step to advance her communication and leadership skills as she transitioned to a higher-level government role with Transport Canada.

After 17 years at Transport Canada, Doucette is currently the Regional Manager of the Cumulative Effects of Marine Shipping Initiative. This initiative, which falls under the Federal Oceans Protection Plan, is designed for increasing marine safety, preserving, and restoring marine ecosystems, and strengthening Indigenous partnerships.

In her role, Doucette manages a team who assess the impacts of regional marine shipping on the

west coast and in the arctic along the northwest passage. One important project her team is working on in partnership with Indigenous peoples is to learn about the impacts and concerns shipping activities are having within Indigenous coastal communities, furthering the Federal government's reconciliation efforts.

"Being able to work on what I am passionate about while exploring different areas of Canada makes this role the perfect fit for me. I couldn't have imagined it when I switched to a biology degree back at Western," shared Doucette.

WANT TO BE FEATURED IN OUR NEXT ISSUE?

If you are a Western Biology alumni and want to share your story, reach out! We would love to hear what you have been up to. **Contact Louise Milligan at milligan@uwo.ca**

Welcome Back Home

HIGHLIGHTS FROM 2022 HOMECOMING

By Louise Milligan, Professor Emerita

On Saturday, September 24, the Faculty of Science welcomed home many of our alumni at our Homecoming 2022 celebration events. It was wonderful to see so many happy faces back on campus after two years of virtual Homecoming programming.

Taking Over the Grad Club

You could feel the buzzing energy at our annual Western Science Homecoming BBQ at The Grad Club. Alumni and their families came by before the game to catch up with old friends and reminisce with some famous tunes from Rick McGhie (via YouTube). Young and old, our purple and proud alumni filled the pub and patio! What a great way to return to in-person events!

Sharing Our Successes

Virtual programming was also offered for our alumni who couldn't make it back but wanted to stay connected. This year, our Science Talks: Technology for Good, featured Biology's own professor Paul Mensink. His incredible work with MarineXR, an augmented reality education app (see story on page 4) captivated our audience who had many questions for him.

You can watch professor Mensink's presentation here.

As well, Computer Science's professor Anwar Haque talked about digital connectivity and shaping tomorrow's smart hyperconnected world.

You can hear about how professor Haque is leveraging AI and next-generation communication technologies to tackle real-world problems here.

Cheers for the Western Mustangs

After the Homcoming BBQ, many alumni headed over to a sold out Western Alumni Stadium to watch the Western Mustangs take on the Waterloo Warriors. The Mustangs got off to a hot start and they kept the heat on to ultimately claim a 66-3 blowout win.

Find out about future Western Science and Western Biology events by following **@WesternUBiology** on Twitter and **@WesternUScience** on Twitter, Instagram, Facebook and LinkedIn.


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Make a Difference

ALUMNI, YOU CAN SUPPORT THE GREAT WORK HAPPENING IN BIOLOGY

Every day, our alumni make a difference for the Faculty of Science to enrich the student experience, create better learning opportunities and fund innovative research.

Did you know that both the department of Biology and the broader Faculty of Science have Highest Needs Funds?

These Funds are a way for alumni to support the faculty, allowing us to meet any urgent needs. Because these funds are not constrained or delayed by our annual budget process, we can act rapidly and boldly to accomplish better and more impactful science research and teaching.

The following are some of the funded projects that will impact the Department of Biology directly.

The Biology Highest Needs fund supported a paid weeklong workshop for Indigenous, Black and Racialized undergraduate students over the summer.

The Western Science Fund enabled Letícia Soares, post-doctoral research associate in the Department of Biology and the Advanced Facility for Avian Research, to develop projects to promote diversity, inclusion and access in STEM through birding. Her community engagement with underrepresented groups is changing the way conferences are delivered and influencing discussions and policies regarding equity, diversity and inclusion in ornithology, the study of birds.

The Western Science Fund is also supporting a three-year project that is leading the way on researching how to best attract and retain women in science. The Department of Biology will surely be positively impacted by the findings and recommendations that come out of this project.

You might also remember in the last issue I mentioned we are raising funds for the John S. "Jack" Millar Field Course Award. Supporting experiential learning for biology students remains a priority for the department.

We welcome you to join our Western Science donor family to help our Faculty push the boundaries and influence the future of science for generations to come. If you'd like to give to any of Western Science's funding priorities, please visit our website. Or, feel free to reach out to me any time to discuss your personal alumni engagement or support.

Warm regards,

Paula L. Luchak
Director of Alumni Relations & Development, Western Science
Paula.Luchak@uwo.ca

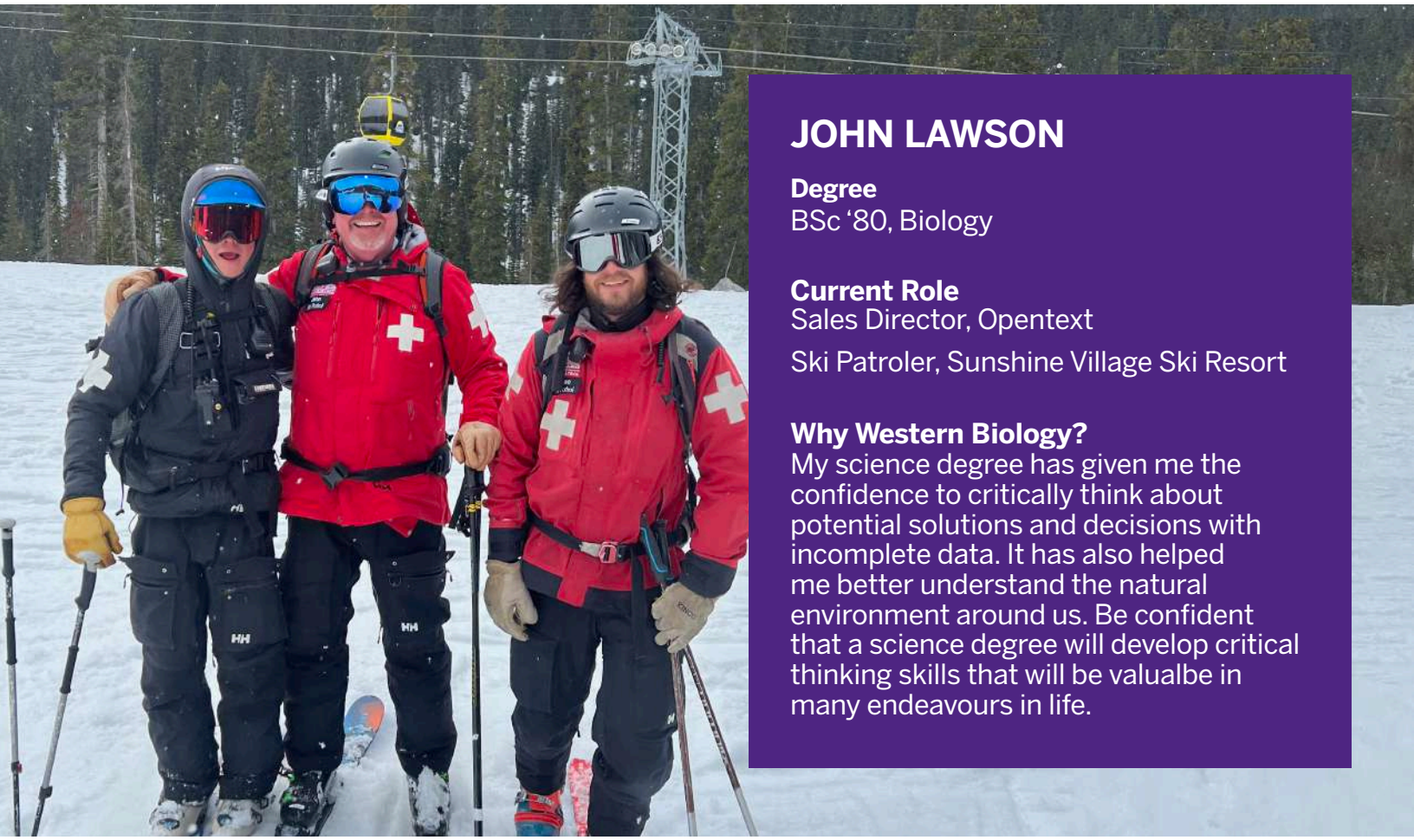
MARISSA GIULIANI

Degree
BSc ‘18, Biology

MES ‘19, Environment and Sustainability

Current Role
Environment and Sustainability Specialist for the Lundin Foundation

Why Western Biology?
My biology degree from Western allowed me the opportunity and flexibility to explore my passion for science through a variety of courses. I was able to follow the topics I was most interested in and gain the skills necessary to set me up for success after graduating.



JOHN LAWSON

Degree
BSc ‘80, Biology

Current Role
Sales Director, Opentext

Ski Patroler, Sunshine Village Ski Resort

Why Western Biology?
My science degree has given me the confidence to critically think about potential solutions and decisions with incomplete data. It has also helped me better understand the natural environment around us. Be confident that a science degree will develop critical thinking skills that will be valualbe in many endeavours in life.