

Spring 2017

ZYGOTE PLUS



A newsletter for alumni of the College of Biological Science

UN supports DNA barcoding

DNA BARCODING IS now part of the United Nations strategic plan for enhancing and protecting biodiversity.

Supporting DNA barcoding was among the recommendations made during the UN's Biodiversity Conference in Cancun, Mexico, in December. Representatives from 196 countries attended the 13th conference of the Parties to the Convention on Biological Diversity (CBD).

"This is a huge milestone for the University of Guelph and science in Canada," said Malcolm Campbell, vice-president (research). "Because of the visionary work of U of G researchers, DNA barcoding has changed the way we look at life on this planet. The UN's recognition is a testament to its effectiveness and the important role it plays in protecting the world's biodiversity."

An international agreement, the CBD stresses the need to conserve biological diversity and share benefits from use of genetic resources.

During the Cancun conference, DNA barcoding was identified as key to

implementing a strategic plan for biodiversity.

"It's a crowning achievement," said Mario Thomas, chief executive officer of the U of G-based Biodiversity Institute of Ontario (BIO). "It's not every month or even every year that we see the UN endorsing a technology that was developed here in Canada and recommending its use to the world."

The decision honours 12 years of scientific leadership by integrative biology professor Paul Hebert, who was the first scientist to propose that a short DNA sequence be used to identify species. He called the system DNA barcoding, analogous to how retail products are tagged to allow for quick identification.

DNA barcodes are now available for more than 500,000 species and five million individual plants, animals and fungi.

"We are delighted that the Parties to the Convention have endorsed the important role that DNA barcoding can play in helping to protect the millions of species which share our planet," Hebert said.



DNA barcodes can identify plants, animals and fungi.



www.uoguelph.ca/cbs

College family grows stronger

HELLO ALUMNI! IT'S been an exciting semester for the college and the University.

The college held its second annual CBS Awards dinner in November. A total of 60 undergraduate and graduate students were recognized for their academic success and leadership. We were lucky enough to have 20 award donors on hand to meet the recipients and to present their awards. You'll see a few photos from this event on page 4.

Also in November, the CBS Student Council hosted a visit from AsapSCIENCE, a popular YouTube channel that helps viewers understand the science in their lives. Mitchell Moffit, B.Sc. '10, and Gregory Brown, B.Sc. '11, are the brains behind the site. They entertained, encouraged and inspired students during their event in War Memorial Hall.

In November, I had lunch with Prof. Bruce Sells in his hometown of Perth, Ont. Bruce was the second dean of CBS from 1983 to 1995. I met with Bruce primarily to thank him for generously endowing a new CBS undergraduate scholarship, the Bernice and Bruce Sells Leadership Scholarship,



Jonathan Newman and Julie McDonald in London

which will be awarded for the first time this year.

Sandra Good, the long-time administrator for the Department of Microbiology, and more recently, the Department of Molecular and Cellular Biology, retired after 46 years of dedicated service to the department, CBS and the University as a whole. We are grateful and lucky to have had Sandra's services for so long!

In January, the college held its annual Career Night and alumni networking event in conjunction with

the CBS Student Council. We hosted more than 30 alumni who shared their career advice and tips with more than 200 undergraduates.

I gave a talk at the British Ecological Society AGM in Liverpool in December. While I was in the U.K., I met with several CBS alumni. David Montagnes, B.Sc. '84, M.Sc. '86, reader in integrative biology at the University of Liverpool, and I shared a pint at the famous Philharmonic Pub. Sue Walker, B.Sc. '96, M.Sc. '00, head of applied science at the Chester Zoo, and I had lunch together on the Albert Dock. Heather Webb, B.Sc. '96, environmental policy officer for Northamptonshire County Council, and I had coffee in Milton Keynes. And in London I met Julie McDonald, B.Sc. '09, PhD '13, research associate at Imperial College; Prof. Suzanne Filteau, M.Sc. '83, PhD '88, from the London School of Tropical Medicine and Hygiene, and Bruce Knight, B.Sc. '88, an energy investment banker. They all met me for coffee and generously shared their time and memories with me.

We're also gearing up for Alumni Weekend 2017, taking place on June 9 and 10. We're excited to welcome the CBS human kinetics Class of '77, who will be organizing their class reunion while celebrating their 40th anniversary. I look forward to meeting each of you in June and hope that others who are celebrating a milestone year (ending in a two or seven) will join us for the festivities as well.

JONATHAN NEWMAN, CBS DEAN

Don't miss Alumni Weekend 2017

Join us June 9 and 10 for Alumni Weekend, featuring events across campus:

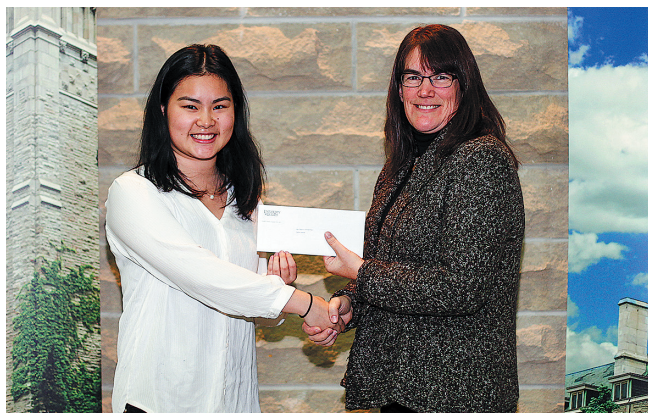
- UGAA Awards of Excellence Gala;
- President's Milestone Lunch;
- Beer Garden at The Bullring;
- Tours of Macdonald Hall, Honey Bee Research Centre, new Gryphons Athletics Centre and more.

Visit www.alumni.uoguelph.ca/alumniweekend for more information.

Alumni make a difference in students' lives

THE CBSAA PRESENTED its annual scholarship to U of G student Crystal Gong last fall in recognition of her strong leadership and involvement in college clubs and activities.

The CBSAA is pleased to give back to the student population by sponsoring this important scholarship. Our thanks to CBS dean Jonathan Newman for hosting the awards ceremony and acknowledging the hard work and accomplishments of many deserving CBS students.



Crystal Gong, left, and Valerie Sharman

We hosted two Speaker Night events, the first featuring Prof. Emma Allen-Vercoe, Department of Molecular and Cellular Biology, who discussed her research on human gut microbes.

Our second Speaker Night featured Prof. Chris Perry, B.Sc. '02, M.Sc. '03, PhD '08, School of Kinesiology and Health Science in the Faculty of Health at York University. We would like to thank both of our speakers and those who attended.

Many of our CBS alumni participated in Career Night hosted by the CBS Student Council in January. The students really enjoyed speaking with alumni and hearing about the opportunities that are available to them once they graduate.

Join us for Alumni Weekend June 9 and 10. We would like to invite CBS alumni to our annual general meeting and breakfast event. We are also looking forward to meeting alumni from the human kinetics Class of '77, who will be hosting a reunion event. Keep an eye out for registration information and join the University family at Alumni Weekend.

VALERIE SHARMAN, B.Sc. '94, CBSAA PRESIDENT

Co-op offers learning opportunities for students and employers

Focal Point Research has hired several U of G co-op students since 2014 and plans to hire more in the future. That's because their co-op students bring fresh ideas to the company, which provides scientific, regulatory and quality assurance consulting for a variety of products, including cosmetics, drugs, natural health products and medical devices.

"We help assist small to large companies launch products in North America," says Jennifer Porter, general manager.

Dayna Lozon, a U of G toxicology student, was the company's most recent co-op student. She conducted label and ingredient reviews for cosmetic products and wrote scientific articles for cosmetic publications.

"What I've enjoyed most about working at Focal Point Research is the fact they let me make a meaningful contribution to the company," she says. "I truly felt appreciated for the work I did, and that the work I did actually helped the staff and had an impact on the company."

Her co-op term also helped her decide to pursue a career in cosmetic science.

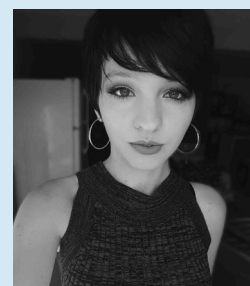
"We found her to be very capable," says Porter. "We get extremely qualified students from Guelph.

There haven't been any exceptions to that."

She adds that co-op students help fill in when the company's full-time staff are busy with other projects. "It gives us extra people power."

Porter credits U of G's eight-month co-op term for giving students enough time to be trained and practice their new skills on the job. They also gain a new appreciation for the regulations that enhance the safety of the products they use every day.

"They're an integral part of the team," she says. "They're not just a student. We make them feel they're an important part of the organization."



Dayna Lozon

CBS Awards night honours donors and recipients

THE CBS AWARDS ceremony and dinner held last fall celebrated 20 donors who support undergraduate and graduate scholarships at U of G and 60 student award recipients.



Marilyn and Dr. Kenneth Gregory (centre) with award recipients Lorian Fay (left) and Esther Matus (right).



From left, CBS professor emerita Mary Beverley-Burton and integrative biology professor Patricia Wright sit with student award recipient Mandy Gibson.



Student award recipient Alezandra Hughes-Visetin (centre) with Debbie Hickson (left) and Carolyn Szlavik from McNeil Consumer Healthcare.



From left, Glofcheskie family members Luke, Nancy and Gerry (far right) with Heather Petrick, the inaugural recipient of the Grace Olivia Glofcheskie Memorial Scholarship.

Students visit Health Canada

A bus load of CBS students arrived at Health Canada in Ottawa last fall to tour the facility and meet with CBS alumni who work there. The event gave students the opportunity to learn where their degrees can take them from those working in the field who were once CBS or U of G students themselves.

“We thought it would be beneficial to our students to help broaden their views of what type of work they might consider post-graduation,” says Jonathan Newman, CBS dean, who attended the visit.

A collaboration between the college and the CBS Student Council, the event was also designed to enhance U of G’s recruitment partnership with Health Canada.



Study explores how childhood habits affect future health

THE LIFESTYLE HABITS children develop at an early age can last a lifetime. The Guelph Family Health Study (GFHS) is following 3,000 families with young children in Guelph for 20 years to see if diet, exercise and sleep habits formed in childhood can impact long-term health.

“GFHS recognizes this is a huge challenge, and we are focused on supporting families in making changes that are meaningful to them,” says Kathryn Walton, a PhD candidate in Family Relations and Applied Nutrition (FRAN).

The study involves researchers from across campus, who will host an annual conference to share their findings with the community and families with young children. The first conference was held last fall.

“With the Internet age, we often hear from families that it is hard to find trusted information,” says FRAN professor Jess Haines, a co-leader of the GFHS. “The GFHS is committed to both exploring new knowledge through the best research available and sharing our findings.”

Many families want to develop healthy habits but find it difficult to follow through, says study co-leader Prof. David Ma, Human Health and Nutritional Sciences.

“Most of us know we need to eat nutritious food, stay active and get good sleep to be healthy, but the reality is that Canadians aren’t keeping healthy habits,” he says. “All of these unhealthy habits have consequences, such as chronic diseases, or being overweight or obese. Parents are an important influence on a child’s health behaviours. We think helping families develop healthy habits early will reduce their risks later in life.”

President’s Scholar gives thanks for support

Second-year biomedical sciences student and President’s Scholar Julia Bryson gave a speech on the importance of supporting students at the recent President’s Open House. Here’s an excerpt:

“It was the offer of a President’s Scholarship, made possible by donors like you, that has provided me and my peers here today with some truly invaluable opportunities.

“One of the most exciting components of the President’s and Chancellor’s scholarships is the opportunity to work as a research assistant at the University during the summer after your first or second year.

“I was fortunate enough to work in the ECHO lab at OVC, where I started a systematic literature review focused on the impacts of climate change on the neglected tropical diseases in East Africa.

“This year we also had scholars doing everything from tracking sea birds in Alaska or squirrels in the Yukon, to researching genetic therapies



Julia Bryson

for cystic fibrosis, to engineering biodegradable 3-D printing filaments that could one day be used in prosthetics and automotive parts.

“The opportunity to explore your field of interest, or even a completely new one, is something that we all cherish and are so appreciative of your financial support in making it happen.”

If you are interested in supporting CBS students, please contact Taline Artinian, CBS alumni manager, at artinian@uoguelph.ca, or 519-824-4120, Ext. 54568.

Gray jay wins national bird title

THE GRAY JAY was named Canada's national bird in November, chosen over more well-known front-runners such as the loon and the snowy owl – and an excellent choice, says integrative biology professor Ryan Norris.

The Canadian Geographic Society spent two years searching for Canada's avian representative.

"Gray jays embody a lot of qualities that I think we value as Canadians. They are friendly, tough and extremely intelligent," says Norris, who has conducted numerous studies on the robin-sized species.

Found in nearly every province, gray jays are year-round residents in the Canadian boreal forest. They stay put during Canada's harsh winters rather than flying south like the common loon, the candidate that topped public voting for the country's national bird.

In winter, gray jays rely on berries, fungi, insects, carcass meat and other foods stored in tree cavities during summer and fall. They remember

where they've stored tens of thousands of food items scattered throughout a territory up to 160 hectares in size.

Gray jays rely on cached food not only to survive harsh winters but also to thrive during the breeding period.

"What is perhaps more remarkable is that female gray jays start breeding in mid-February when temperatures are routinely below -15 C and there is very little food around," says Norris.

He has published studies on how gray jays' survival depends on storing their food in suitable trees, and how climate change affects the quality of cached food.

"It's my hope that selecting the gray jay as the national bird will elevate awareness of the effects of climate change on wildlife," says Norris. "Our work highlights how warmer temperatures can have a negative influence on food availability, but we still know very little about how climate is influencing many other species that live in Canada."

Lab wins co-op employer award

Prof. Jim Uniacke has two reasons to celebrate.

His lab was named Guelph Co-op Employer of the Year for 2016, and one of his students, biochemistry co-op student Brianna Guild, was named Co-op Student of the Year.

"I am very honoured to be receiving this award," says Uniacke, Molecular and Cellular Biology. "Undergraduate training has always been a priority of mine. It is wonderful to know that the co-op students who have trained in my laboratory took it upon themselves to nominate my lab based on their positive experiences and training environment."

Uniacke's lab studies how cancer cells respond to low-oxygen environments.

Guild also won the Dr. and Mrs. Kenneth F. Gregory Scholarship in 2015 for her academic performance and volunteer work.

"I am very proud of Brianna," Uniacke adds. "She is very deserving of this award. Brianna fully immersed herself into so many facets of the University. She was an exemplary student, but also active in outreach programs, tutoring and volunteering. She has definitely had a positive impact – not only in my lab but in the department and the University."



Gray jay

Lab targets chronic pain

DO YOU SUFFER from chronic pain? If you aren't now, you are likely to do so in the future, as more than 80 per cent of people over 65 experience chronic musculoskeletal pain during their lifetime, says Prof. John Srbely, Human Health and Nutritional Sciences (HHNS). It could be in the form of persistent lower back pain, neck pain, headaches or fibromyalgia.

Srbely's research program is focused on the mechanisms and treatments for chronic musculoskeletal pain, often termed chronic myofascial pain. One of the key themes to his research is the idea that chronic myofascial pain may not necessarily originate from local muscle injury, as commonly believed, but from a state of hypersensitivity within the nervous system called central sensitization.

"We are currently investigating the concept that chronic myofascial pain may be the physiologic expression of central sensitization within the central nervous system, arising from ongoing pain and inflammation originating within other neuro-segmentally related tissues," he explains. The inflammation can have multiple possible causes, including persistent mechanical injury, joint or spinal degeneration, and chronic visceral disease.

His research, which is funded by an NSERC Discovery Grant, the Canadian Arthritis Network, Canadian Chiropractic Research Foundation and Ontario Chiropractic Association, is investigating the physiologic mechanisms



involved in the formation of myofascial trigger points, which are central to the diagnosis of this type of pain.

The current belief is that myofascial trigger points are primarily caused by muscle damage, but Srbely believes they can also arise from sensitization of the nervous system. These localized contraction knots are often targeted during a variety of therapeutic treatments, but how they form is still poorly understood.

Srbely is collaborating with researchers from a number of internationally recognized research institutions, including the Toronto Rehabilitation Institute, National Institute of Health, George Mason University and U of G's Ontario Veterinary College, where Prof. Mark Hurtig, Clinical Studies, is contributing to the study of these mechanisms in animal models. Another key area of research interest is studying the association of chronic myofascial pain with various biological markers,

which may act as reliable indicators of inflammatory responses within the nervous system.

As a licensed chiropractor and an acupuncturist for 25 years, Srbely has treated many people with chronic myofascial pain. "I quickly realized that we really didn't understand the mechanisms of chronic myofascial pain, and more importantly, didn't know how to effectively treat it," he says. "That's what drove me back to graduate school to study these and related questions."

A new HHNS clinical research facility on campus has enabled Srbely to investigate chronic pain in real patients. The clinic provides an ideal environment to learn more about chronic pain and other conditions. "It would be much harder to conduct this type of research without this facility," he says. "It's given us a great opportunity to expand our research to studying these conditions in clinical populations that were previously unavailable to us."



Jason Bystriansky (far left)
with his students

Grad takes the plunge into marine biology

FISH CAN LIVE in many types of environments, but what restricts some species to freshwater while others can live in saltwater? Jason Bystriansky, an assistant professor of comparative physiology at DePaul University in Chicago, is trying to find out by studying how proteins allow fish to regulate salt levels in their bodies.

Bystriansky wanted to be a marine biologist since childhood, but he didn't need to apply to a university by the sea. Instead, he was accepted into U of G's marine biology program. "Even though we were thousands of miles away from the ocean, there were actual marine biologists there," he says. "They brought the ocean to Guelph."

With a B.Sc. in marine biology and a PhD in zoology, earned in 1997 and 2006, respectively, Bystriansky credits his U of G professors, including Jim Ballantyne, Pat Wright, Glen van der Kraak, Nick Bernier and Paul Hebert

for inspiring him as a student.

Now that he's well established in his own career, he advises students and recent graduates to put their interests ahead of income when choosing a career path.

"I was always told that a job is something you do because you get paid, and a career is something you would do forever for free," says Bystriansky. "If you don't pick something you love to do, you may make a lot of money and you may be successful, but it doesn't mean you'll be happy."

His current research aims to understand how fish respond to environmental changes in water temperature and pH levels.

Those research interests began in U of G's state-of-the-art aqualab. "In my opinion, this is one of the best departments in Canada and the world in this field," he says. "We were surrounded by great mentors."

Upcoming Events

JUNE 4

CBSAA Family Day at Royal Botanical Gardens

CBS alumni will enjoy free admission, a complimentary lunch and a brief lecture at RBG. Visit www.alumni.uoguelph.ca/events/events-listing.

JUNE 9 AND 10

Alumni Weekend

Reunite with your classmates and attend special events on campus.

Visit www.alumni.uoguelph.ca/alumniweekend for more information.

Need help organizing a class reunion? Contact Taline Artinian, CBS alumni manager, at artinian@uoguelph.ca.

Zygote Plus

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