"Joy, collected over time, fuels resilience - ensuring we'll have reservoirs of emotional strength when hard things do happen"

- Brene Brown
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On the cover: Summer Scholars Program students in the lab. Learn more about this new initiative on Page 7.

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REPORT FROM THE CHAIR

BiochemRocks has always had a rock and roll subtext to it, probably started by our hard-drumming former department Chair, Gerry Wright. Over the past few months, I have spent time reflecting on my own first term as Chair. In doing so, my mind kept returning to the notion that time passes quickly. I’ve thought about how the department has changed and how I have changed in the process. In paying homage to our magazine’s title, I think the Rolling Stones said it best on their 1974 album Its only Rock and Roll… “Time Waits for No One”. So how did we spend our time?

We educated and trained future leaders. One of our major strategic priorities has been educating and training future leaders. In the education domain, our Biochemistry undergraduate program, led by Dr. Caitlin Mullarkey, has grown to be the most popular Level 2-entry program from the Level 1 Life Sciences Gateway, attracting over 600 applicants per year. This year, the department successfully moved the Biochemistry undergraduate program to the Faculty of Health Sciences, realizing a nearly 20-year strategic goal of the department. Our Biochemistry graduate program, led by Dr. Matthew Miller, is now over 130 students and is consistently reviewed as a top biomedical training program in the country, attracting talented research scholars from all over Canada to train in our labs towards M.Sc., Ph.D., and M.D/Ph.D. degrees. Our Biochemistry graduate students bring in millions of dollars in scholarship revenue each year, attesting to the high caliber of students we attract. The BDC program, now in its 7th year, has grown to over 110 undergraduate students and close to 40 Master’s students per year, making it a premier offering in the Faculty of Health Sciences and indeed the University. As we look to the future, we are developing partnerships with schools in Europe to expand the footprint of the BDC program in the international domain.

We maintained our status as a research powerhouse. In the past five years, BBS recruited 7 new faculty members known for groundbreaking research and leadership in their fields. Our core faculty members attracted over $89.6M in research funding, making us the most research-intensive department in the Faculty of Health Sciences. Per capita, our faculty members receive over $853,000 per member annually, more than double McMaster’s overall intensity metric of $404,000 per faculty and three times the national average.

BBS faculty received 5 new Canada Research Chairs and Endowed Chairs, attesting to research performance of the highest caliber. Our department has been a leader in the global response to the COVID-19 pandemic, with members receiving millions in funding for research aimed at combating and detecting SARS-CoV-2, mitigating the health burden of COVID-19, and reducing the threat of future pandemics. We are a cornerstone in Canada’s Global Nexus for Pandemics and Biological Threats, the made-at-McMaster initiative to leverage our collective strengths to solve future global problems.
We invested in inclusive excellence. As a research-intensive department, we are curious by nature, we value creativity, and we strive to innovate. We understand that diversity leads to quality, and we strive to strengthen this connection as a guiding practice. The department is taking important and proactive steps to bridge the gap in equity, diversity, and inclusion in STEM fields with the 2022 launch of our Summer Scholars Program, a fully funded 12-week program that provides undergraduate students with cutting-edge research skills training, mentorship, and career development. The program is aimed at supporting Black, Indigenous, and 2SLGBTQIA+ STEM students who face systemic barriers in accessing academic research opportunities. We received over 80 applications for the inaugural cohort of 8 students who are now in their research placements making valuable contributions to science. These are exciting days for BBS. As we strive to make academia more diverse, I believe that departments like ours must take responsibility for creating opportunities for equity-deserving individuals at the ground level.

Of course, none of this happens in isolation. These accomplishments are the result of the collective action of many individuals who care deeply about this department. I am grateful to all our academic leaders and senior leadership team who give their heart and soul to BBS. I always say that the people make the place. The entire BBS community of faculty, staff, and students (and a special shout out to the members of my lab), are what make this place home for me.

Indeed, time marches on. As I focus my attention on the future, I do so with even greater resolve to discover, learn, and continue to grow as a person. It continues to be an honor and privilege to lead the Department of Biochemistry & Biomedical Sciences. We are stronger and bolder than ever before, and our future looks bright.

Brian Coombes, PhD
Professor & Chair
YEAR IN REVIEW

REPORT FROM THE ASSOCIATE CHAIR
UNDERGRADUATE EDUCATION

While not without its challenges, the 2021-2022 academic year was surely one of progress. McMaster’s campus, the department, laboratories, and classes slowly but steadily inched toward pre-pandemic activity levels. Everyone adjusted to the new normal of masking in classrooms and daily MacCheck screenings; above all faculty, staff, and students demonstrated their flexibility and resilience. Virtual learning was replaced with hybrid instruction, which was a step forward, but also posed a unique set of difficulties with periodic COVID-19 disruptions. In September, we welcomed undergraduate students back into the biochemistry teaching labs thanks to a herculean effort from Dr. Felicia Vulcu and Vivian Leong.

The Fall term also saw fourth year students embark on their thesis projects and by February all Winter course offerings were back to in-person learning. Undoubtedly an academic highlight was the return of our undergraduate thesis symposium, the capstone experience for our thesis project courses. For the first time in two years, students had the opportunity to showcase their work in-person to students and faculty alike. The event was exceptionally well-attended with 118 thesis students and 60 supervisors taking part. As always, I am grateful for the dedication, mentorship, and perseverance of our department members. The people are truly what make the Biochemistry department such a wonderfully spirited community.

"Overall, the biochemistry program has always been supportive and accommodating. Despite the COVID pandemic, the upper year students and staff members helped me transition into the program smoothly. The professors and academic advisors will go the extra mile to help their students succeed. The courses offered by the program allowed me to explore what biochemistry has to offer as a whole and helped me figure out the career path I would like to pursue after graduation."
- Jenny Doan, Level IV, Honours Biochemistry

"The Biochemistry & Biomedical Sciences Department has played a fundamental role in shaping my academic goals, passions, and successes in the STEM field. Through the BBS program’s diverse array of learning opportunities, undergraduate research projects, and self-directed thesis courses, I was able to build my critical-inquiry and problem-solving skills. I’m extremely grateful for the BBS faculty and staff for always being there to support and help their students achieve their true potential. With these experiences under my belt, I am proud to be a McMaster Alumni and will continue to apply these lessons towards my next steps as a medical student!"
- Umaima Abbas, HBSc, Teaching Assistant of the Year recipient

One aspect that has remained unchanged and steadfast through the pandemic is our reputation for excellence. Our students have always distinguished themselves amongst their peers and this year was no exception. Fourth year student Umaima Abbas was recognized by the McMaster Student Union as Teaching Assistant of the year for her work in BIOLOGY 1A03.
YEAR IN REVIEW | UNDERGRADUATE EDUCATION

Campus-wide only two undergraduate teaching assistants at McMaster are selected for this award each year. In addition, Umaira went on to receive the Burke Memorial Ring, an award given to graduating students which celebrates her academic achievement and contributions to undergraduate activities during her undergraduate career. Co-op student Rameen Jamil was also honored with two prestigious awards for her work as a research assistant in the lab of Dr. Manali Mukherjee where she helped to drive a collaborative COVID project. Rameen was first named Co-op Student of the Year by McMaster’s Science Career and Co-operative education office and subsequently went on to become the first McMaster co-op student in ten years to be named Provincial Co-op Student of the Year by Experiential & Work-Integrated Learning Ontario. Even in the face of an evolving and difficult academic landscape, our students have risen to the occasion and we are proud of their many successes and accomplishments!

In December, the department in collaboration with the Michael G DeGroote Infectious Disease Research Institute and Global Nexus launched a new Summer Scholars Program. The program is an immersive, 12-week experiential learning program focused on research skills development, mentorship, and career planning for equity-deserving undergraduate STEM students who identify as Black, Indigenous, and members of the 2SLGBTQIA+ community. The mission of the SSP is to engage, encourage, and assist students from equity deserving groups to pursue biomedical research and careers in biomedical sciences. In the first call for applications Ontario-wide, we received 80+ applicants from 10 different Universities across the province. Eight scholars were ultimately selected for the inaugural cohort. We are tremendously energized by the enthusiastic response to the Summer Scholars program not only from students, but also from our faculty members who eagerly signed on to mentor students in their research labs. The scholars arrived on campus in May and underwent two-weeks of intense skills training in the teaching labs before their research placements. The scholars have been a tremendous addition to the department, and we look forward to welcoming future cohorts!

Without question there is much to look forward to for the upcoming academic year! After decades of straddling two faculties, the undergraduate Biochemistry and Biomedical Sciences program will move into the Faculty of Health Sciences (FHS) in September 2022. Excitingly, this change will unite our faculty members, graduate, and undergraduate program under the FHS umbrella. Furthermore, it will offer new opportunities for integration and synergy with our Biomedical Discovery and Commercialization program.
Over the next few years, our undergraduate programs will see a constructive alignment of the curriculum to better reflect the Faculty expertise and research, housed in the Faculty of Health Sciences. In particular, we will look to expand our offerings of upper year courses.

With the transition to FHS, our undergraduate program offices have been restructured to better serve the needs of all our undergraduate students. In May we welcomed (back!) Shari McCollin to the department in her new role as Academic Manager of Undergraduate Programs. In this position Shari will be responsible for the implementation and efficient operation of all BBS undergraduate programs in the Faculty of Health Sciences. Shari will work closely with Michelle Biro and Taylor Gauthier, to serve our undergraduate students. After years supporting the advising and undergraduate laboratory needs of the department Taylor has moved into a full time Academic Advisor role. Michelle will also have an expanded role in the department after very adeptly taking on increased responsibilities in the BDC program over the last year. I am grateful to work with such a capable team and have every confidence in our ability to ensure the successful continuity and delivery of the department’s undergraduate education initiatives. BBS has a wonderful future ahead!

Caitlin Mullarkey, PhD
Associate Professor
Associate Chair, Undergraduate Education

"Being in the BBS program was an amazing experience to learn from some of the greatest minds today shaping the biochemistry field. BBS connects contemporary technology within its courses to convey real-life applications in its courses."
- Dickyi Bhagentsang, Level III, Honours Biochemistry

"You have finally arrived at the starting line of your undergraduate career. Now is when all the fun stuff happens, like synthesizing polymers in chemistry labs, proposing new medications in Biochem2BB3, or even crystalizing experimental proteins which YOU create in Biochem2L06 teaching labs. Just pay attention in lectures, ask questions when you don't understand (our profs are really amazing for that) and have fun with all these new experiences with new friends and classmates. Your only way is up from here on out."
- Abrar Hossain, Level III, Honours Biochemistry
It is with mixed emotions that I write my last annual “Biochem Rocks” update as Associate Chair of Graduate Education. The opportunity to serve in this role has been a tremendous honour and was immensely gratifying. The exceptional talents and contributions of our graduate students is widely recognized both within and beyond the University – but few have the privilege of witnessing this excellence with the depth and regularity that I have had the pleasure of experiencing as Associate Chair. I want to thank, in particular, our incredibly talented and dedicated graduate program team, Lisa Kush and Nadia Butt. They are the true, “behind-the-scenes” heroes who support all aspects of our program’s operations, and I would have been lost in this role without them. As I step into my new role as Scientific Director of the M.G. DeGroote Institute for Infectious Disease Research, supporting graduate students will continue to be a central focus of my mandate. Graduate students are, after all, the backbone of our research enterprise, and its most valuable resource.

Adversity is often a catalyst of both innovation and exceptionalism. Not surprisingly, our graduate students have risen to the many challenges that continue to emerge as a result of the COVID-19 pandemic. This is not only reflected in highly impactful research directly related to the pandemic – but also in the tremendous resilience and persistence of those who have continued to innovate and produce exciting data in their fields of expertise despite the many challenges imposed by COVID-19.

A particularly notable highlight of the past academic year was the selection of Dr. Beth Culp as recipient of the 2021 Governor General’s Academic Gold Medal. This prestigious award recognizes the student who achieves the highest academic standing in graduate studies across the entire University. Dr. Culp completed her Ph.D. in the laboratory of Dr. Gerry Wright, and is now a Damon Runyon postdoctoral fellow in the Laboratory of Professor Andrew Goodman at Yale University. We congratulate Dr. Culp on this outstanding accomplishment and will continue to follow her incredible career with great interest and pride!

One of the many challenges that our students have had to confront during the pandemic is a massive inflation in cost-of-living in Hamilton and surrounding areas. To help mitigate these impacts, our Program took the aggressive step of increasing base stipends for M.Sc. and Ph.D. students by 20% over the next two academic years. This means that by the 2023-2024 academic year, our base stipend for M.Sc. students will increase to ~$28,900 and base Ph.D. stipends will increase to ~$31,450. We are proud that these will be amongst the highest stipends in the country for biomedical sciences graduate students. This initiative epitomizes our program’s commitment to placing our students first and will in turn ensure that we are able to continue attracting the best and brightest students to join our community of scholars.
Another exciting programmatic development has been the addition of a new series of graduate events designed to address issues identified by our students as important to their personal/professional development that are not explicitly covered in our curriculum. I would like to acknowledge the hard work of our administrative team in organizing these events, particularly our Graduate Officers, Nadia Butt and Lisa Kush, as well as Sarah Cumin, Manager of Academic and Staff Operations. The first of these events took place in May and was entitled, “Thriving Through Change”. This was a very apt way to start the series, as it allowed us to come together in person and acknowledge the exceptional period of difficulties that we have faced as a result of COVID-19, and to develop tools to help us thrive in the face of these ongoing changes. These events will continue to take place roughly once each term, and I strongly encourage you to enjoy and take advantage of these unique learning opportunities.

As we move into the 2022-2023 academic year, I know that the future of our program is extremely bright. Over the past two and a half years, our students, staff, and faculty have reaffirmed not only our deep commitment to science and innovation in the face of unprecedented challenges, but also to supporting each other first and foremost. I continue to be in awe of your collective character and accomplishments. I thank you for allowing me to serve you in this role over the past 4 years, and I wish you a happy, fulfilling, and productive year ahead!

Sincerely,

Matthew S. Miller, PhD
Assistant Dean, Biochemistry Graduate Program
Associate Professor and Associate Chair (Graduate Education)
YEAR IN REVIEW

REPORT FROM THE ACTING DIRECTOR
BDC PROGRAM

For this academic year, I have had the privilege to serve as the Acting Director of our Biomedical Discovery and Commercialization (BDC) program while Dr. Andrew McArthur was away on his well-deserved one-year research leave. In this role, I have had the opportunity to appreciate the talent and accomplishments of our students, the dedication of the BDC staff, the commitment of our faculty to providing the best learning experience, and the wonderful support of our industry partners for their participation in teaching and networking activities and for hiring our MBDC students as interns.

BDC runs both an undergraduate program at Levels 3 and 4 and a one-year graduate program at the Master’s Level. Our undergraduate program has become increasingly popular at McMaster, reflected by the fact that we have the maximal numbers of students in both Levels 3 and 4, and that we have just completed the recruitment of an incoming cohort of 58 students. We continue to see a high number of applications each year from a diverse range of Science programs, and this year again we had to turn down many qualified applicants due to space restrictions.

Four things with the undergraduate program are especially worth highlighting. First, as our university and the country are now in a better position to deal with the challenges of COVID-19; our program has now fully resumed in-person learning. Second, we continue to involve industrial partners in program teaching. For example, despite the pandemic, we were still able to secure six industry guest speakers for the Drug Discovery and Development course (the students fully enjoyed these lectures!). Third, I want to congratulate our Level-4 students Angad Singh, Ali Siddiqui, Hamna Imtiaz, Ryan D’Souza, Amy Zhang, Min Wen Gong, Michela Davies, Anna Katyuikhina, Mahnoor Adnan, and Bejal Mistry, and our Level-3 student Andrew Butrus, for presenting excellent commercialization ideas in the 2022 Synapse Life Science Pitch Competition and for making it into the final! Finally, I want to congratulate Team F (Jaskiran Bains, Anthony Delfino, Angelina Lam, Elizabeth Li and Will MacAulay) and Team J (Yasmine Kollar, Shiraz Nawaz, Inara Rattani, Ryan Tso and Avantika Vaidya) of the 2021/22 3B06 class for winning the 3-minute pitch competition at this year’s BDC Engage! We loved your commercialization ideas and enjoyed your presentations!

The MBDC program also had many highlights this past year. First, all of our 35 fall 2021 MBDC students secured internship positions prior to the Christmas Break in December 2021, and more importantly, all of them performed amazingly well in their placements. Second, early in the academic year, we held three online events of “backpack to briefcase”, which were designed to give our students the opportunity to interact with our industry partners. All these events were led by our MBDC students and featured six to eight industry partners. Third, in April we successfully held our annual “BDC Engage” event to celebrate the accomplishments of our current and past students.
All of our MBDC students did a wonderful short presentation on their internship experience during this online event. Two of our MBDC alumni, Alice Guan and Daniel Celeste, joined us as guest speakers and shared their stories and advice on finding your career path as a new graduate. Huge congratulations go to Angelica Giansante, Kristyn Guglielmin, and Jasmine Yang for winning best presentation awards! Last but not least, I am very excited to report that we have recruited a new cohort of 34 MBDC students and we look forwarding to meeting them in September 2022!

“The BDC program has strongly rebuilt my sense of community within the biomedical and commercialization fields. The transition from virtual to in-person learning was easily facilitated by supportive instructors and their ability to acclimate accordingly. The integrated biomedical and business features of this program directly contribute to its distinctiveness allowing students to acquire a unique skillset that can be highlighted in the workplace. Overall, this program has instilled a new sense of entrepreneurship within myself while exposing me to an extensive network of multifaceted individuals.” – Stephanie Abrokwa, BDC Level IV, BDCS President

“I am honoured to have received the Robert Alan Kennedy Global Nexus Research Experience Award! This award has helped me in my research in the Coombes lab. Currently, I am investigating the role of several macrophage defenses against Salmonella enterica Typhimurium. To date, I’ve worked on preparatory experiments prior to conducting live-cell imaging of Salmonella infections to explore the role of these macrophage defenses on how infection progresses within the host.” - Andrei Bogza, BDC Level IV

It has been great to work with the entire BDC team during the past year! Jon, Nancy, Michelle, Jennifer, Emily, and Sheema: your commitment to our students and your passion contribute enormously to the popularity of our BDC program. The past year also saw a few changes in the BDC office. Dr. Nancy McKenzie, the manager of the BDC Program since its inception, has accepted a position in the Office of the Provost at McMaster. I want to take this opportunity to thank Nancy for her leadership during her tenure as the manager, which was instrumental in making the BDC program a shining success at McMaster and in the country. I wish her well in her new position. I also want to congratulate Emily Taylor, our Career Development and Relationship manager, on the birth of her third child in early May! She is currently on parental leave and plans to return in July 2023. In the meantime, Sheema Yousefzai has joined the BDC team to cover for Emily while she is away.

To conclude, I want to thank Brian Coombes and Andrew McArthur for their trust in having me guide the program for the past year, along with Jon Schertzer (the Acting Associate Director of the BDC program for the past year) who has been an outstanding partner. I am happy to hand the directorship back to Andrew in July, and look forward to making contributions to the BDC program in other capacities.

Yingfu Li, PhD
Professor and Acting Director
Biomedical Discovery and Commercialization (BDC) Program
REPORT FROM THE ASSOCIATE CHAIR RESEARCH

Welcome to a year of research in review 2022! As we continue to endure the global pandemic I reflect upon both the hardships and the successes that BBS research has gone through over the last year. Late 2021 was difficult for many of us as COVID-19 continued to impact our professional and our personal lives and those of our families. But we have had amazing successes as well. BBS faculty, staff and students continue to show dedication, perseverance and resilience in the face of adversity - working together as a community to make our Department an incredible research success. I cannot name them all but here are a few of the outstanding research successes that we have had over the last year:

As the year unfolded, the COVID19 pandemic ebbed and flowed; we saw new waves and with them came new variants of concern. Omicron has become the dominant strain – with many variations thereof continuing to circulate. Among the many COVID-related studies coming out of McMaster, BBS faculty - for the second year going - continued to push boundaries to advance vaccine strategies and testing procedures. Dr. Matthew Miller is part of a research team that has developed next generation COVID19 vaccines that are currently in Phase 1 clinical trials - working via the new Canada’s Global Nexus for Pandemics and Biological Threats. These vaccines will combat variants of concern but will also be administered by inhaled aerosol so that they can target the upper airway providing enhanced efficacy. We are excited about this new trial and can’t wait to see his progress! Dr. Yingfu Li and his collaborators are making equally exciting advancements in testing – their point-of-care, saliva based antigen test uses new, patent-pending probes that recognize the SARS-Cov2 spike protein. The test is easy to use and it is inserted into a small reader attached to a smartphone, providing accurate results within minutes and eliminates time consuming lab work. Yingfu and his colleagues licensed the technology to Zentek Ltd, which now has invested more than $1 million, along with other partners to scale up production of the test components. BBS amazing research efforts in the global pandemic have also been highlighted in numerous media interviews.

Although we continue to battle with COVID19 globally, as a campus we came back together in the classroom this year, and it was nice to be able to welcome students back and re-engage human research studies. Outside of COVID, many faculty have made ground breaking discoveries and research advances: Eric Brown is using baking soda to amplify uptake of antibiotics (azithromycin) to circumvent drug resistance; Gerry Wright welcomed delegates from the Birmingham Institute of Microbiology and Infection to McMaster in a new partnership; Yingfu Li is using the same technology he and his colleagues developed for COVID19 infection detection for testing infections in agricultural animals; and Hendrik Poinar has recently identified and reconstructed the first ancient genome of E.coli in a 16th century mummy (that is super cool).
Although discovery research has been negatively impacted by the pandemic, BBS faculty continued to garner funds from external sources. BBS faculty won a total of just over $11.2 million in grant funding in 2021-22. Congratulations to all the grant awardees - recipients include Dr. Yingfu Li (NSERC Alliance), Dr. Jonathan Stokes (NSERC Discovery), and Drs. Sara Andres and Brian Coombes (CIHR).

We continue to offer our faculty members exemplars to view and assistance with peer review of grants – please reach out if you need these services – we want you to be successful! As the pandemic restrictions loosened, BBS faculty publications blossomed – this year we collectively published hundreds of papers (over 200 by my count). A few notable publications include; Dr. Ray Truant describing a system for live-cell microscopy imaging published in PLoS One; Drs. Jon Schertzer, Greg Steinberg and Alison Holloway together published a paper in American Journal of Physiology (Endo Metab) on how environmental chemicals impact gut serotonin production; Dr. Deborah Sloboda published work showing paternal obesity changes offspring phenotype via impacts on the placenta; Drs. Brian Coombes and John Whitney reviewed the roles of pyrophosphorylated nucleotides in bacteria in PLoS Pathogens and Dr. Sara Andres reviewed how LigD coordinates enzymatic activities in DNA double strand break repair in bacteria. Along with all these successful publications, Dr. Gerry Wright was named among the World’s most cited researchers in the cross-field category. There are so many more amazing BBS published papers to read!

Given our amazing scientific productivity it’s not surprising that BBS research outputs are recognized by local, national and international media. Dr. Lori Burrows continues to be an expert voice on the threat of antibiotic resistance and super bugs and recently compiled some recommendations for public health officials on the topic. Dr. Gerry Wright spoke to Global news about soil bacteria and malaria; Dr. Brian Coombes’ work on stress and the gut was featured online; Celest Suart with Hayley McLoughlin (University of Michigan) and Ray Truant lead a partnership between their volunteer run website and the National Ataxia Foundation to help people with the condition. We are so proud that BBS is showcased all over the web!

It’s also not surprising that with all these research discoveries, funding, and publications that our BBS faculty won numerous awards. In 2021-22 the BBS Research Advisory Awards committee submitted 7 different nominations for awards and honours. I continue to thank Dr. Sara Andres and Dr. Jon Schertzer helping our BBS faculty with their nominations and applications. In 2021-2022 we celebrated with Drs. Lori Burrows and Matt Miller who were both awarded Canada Research Chairs (Tier 1 and Tier 2 respectively). Lori also joined the Canadian Academy of Health Sciences in 2021, and Dr. Deborah Sloboda was awarded the 2022 MUFA Service Award. Congratulations to all our award winners and we hope to have more of us on this list next year!

It has been two years (!) since we launched our inaugural BBS Research Symposium in March 2020 and the pandemic continued to force the BBSRS team to a virtual platform. The 2022 BBSRS was held over three days – March 1-3, 2022 – in Gathertown where we were all represented by “mini-me” avatars! We had a keynote given by Dr. Pranam Chatterjee, a scientific workshop with Dr. Katie Moisse and a career panel with Shwan McGruik, Yuning Wang and Alison Kennedy along with 56 outstanding trainee presentations.
Once again the graduate student-run event went off without a hitch, with amazing science, poster presentations and even games and go-kart racing.

The BBSRS Organizing Team this year was made up of co-chairs Celeste Suart and Erica Yeo; Fundraising Chair Emily Bordeleau, Scientific Program Chair Dana Sowa, Logistics Chair Jeong-Ah Yoo, and Communication Chair Dirk Hackenberger. Guiding them were faculty advisors Dr. Deb Sloboda and Dr. Sara Andres – special thanks to Sara for continuing to support the BBSRS for three years running!

We had 13 trainee awards given out this year (thanks to some amazing fundraising); including 5 oral awards and 8 poster award winners – but as with every year I think everyone deserves an award because the science presented was such an incredibly high calibre! A special thank you to the Bordeleau family who donated funds towards the Bordeleau Memorial Scholarship for Graduate Student Mental Health Awareness this year. This was a very special award dedicated to Roger Bordeleau and placed emphasis on supporting mental health in graduate students - the Award was given to Art Marzok (top scoring submitted abstract to BBSRS). Finally, a big thanks goes out to all the internal and external sponsors of this amazing research event. We now turn our attention to planning the 2023 BBS Research Symposium – this time we plan on seeing everyone in 3D, face-to-face and in-person!

Another year of virtual Seminars was hard – it’s been too long since we have all sat in a room and pondered science together – but we did it and maintained a somewhat steady stream of speakers showcasing their work with us. Special thanks to the McMaster faculty that took time out to update us on the latest science behind the SARS-Cov-2 virus, as well as those outside of BBS that joined us. Thanks to the 8 McMaster faculty members that showcased their research program and to our five external speakers who joined us again virtually. Thank you to Tracy Stojanovic for continuing to advertise and manage these seminars over Zoom! We have learned a lot about webinars over the last 2 years, so for the year ahead we are launching a mixed version of face-to-face and virtual seminars – we will have some externals join us in person and others virtually so that our off campus colleagues can still enjoy the Seminar Series from the comfort of their offices!

This coming year too – we will be announcing the whole year’s list of external speakers before the end of the summer – so you can all plan ahead and make sure you don’t miss your favourite speaker! Thanks to our newly formed Seminar Committee; Jon Schertzer, Kate Kennedy and Saad Syed – and welcome back to Katie Raposo. We will have you organized from September to June - stay tuned for the new and improved BBS Seminar Series in 2022-23.
This past year has also brought us new faculty members – Dr. Jonathan Stokes joined us late in 2021 and we had an informal gathering outside to welcome him to the BBS team (again – since he trained here and we are thrilled to have him back!). We will also welcome two new additions in 2022 – Dr. Lindsay Kalan and Dr. Cameron Currie will be joining the BBS team!

New initiatives are underway such as the creation of a Faculty Onboarding Sharepoint site which will make life easier for new (and old) faculty members to find that “specific” form they are searching for. Stay tuned for this – we are excited to have this launch very soon. Finally, a special thanks to the members of the Research Advisory Committee – Sara Andres, Jon Schertzer and Lesley MacNeil who have guided me throughout the year on matters research. A big congratulations to Dr. Ray Truant, who with his colleagues, leads technological advances in the new McMaster Centre for Advanced Light Microscopy (CALM). This hub of excellence in light microscopy, contains world-class instrumentation, and is promoting cross-disciplinary interactions among researchers in science, engineering and life sciences, as well as training future generations of microscopists. And Ray will also give you a personal tour!

It has been a great year for BBS research and research initiatives – and another is around the corner where we will get to interact more with each other on campus and share our science. I look forward to seeing us come out of this uncertainty as a closer community, where we support and praise each others efforts and celebrate our collective research success!

Deborah Sloboda, PhD
Associate Professor
Associate Chair, Research
INSTITUTE FOR INFECTIOUS DISEASE RESEARCH (IIDR)

This past year was another impactful one for the Michael G. DeGroote Institute for Infectious Disease Research (IIDR), as the persistence of the COVID-19 pandemic continued to fundamentally impact our research activities and priorities. Indeed, many of our researchers dedicated their time, energy, and resources to finding new solutions to the ongoing problem. For instance, in partnership with Canada’s Global Nexus for Pandemics and Biological Threats, IIDR members Dr. Matthew Miller, Dr. Fiona Smaill, and Dr. Zhou Xing, together with the Department of Medicine’s Dr. Brian Lichty, made international headlines when they unveiled their made-at-McMaster next-generation COVID-19 vaccine candidates.

These new vaccines — administered by inhalation instead of injection - have since begun phase-I human clinical trials and are so far showing efficacy against all variants of concern.

Throughout the year, IIDR researchers have also been instrumental in advising local, provincial, and federal governments on pandemic-related matters. Dr. David Earn and Dr. Jonathan Dushoff, for example, have been conducting studies for the Chief Science Advisor’s Expert Group on Modelling Approaches, which was struck to inform decision-making on public health measures.

Dr. Dawn Bowdish, has been working with Dr. Andrew Costa (Department of Health Research Methods, Evidence, and Impact) to study the impact of COVID-19 in long-term care homes. Having received $5M in government funding, the duo is now leading the largest single study focusing on long-term care in Canada. This study seeks to generate a comprehensive understanding of how well vaccination works in residents of long-term care homes. The results will inform policy regarding boosters against future waves of SARS CoV-2 infection.

Meanwhile, Dr. Andrew McArthur developed and spearheaded much of Ontario’s SARS-CoV-2 genomics workflow, Dr. Miller served on the National Advisory Committee on Immunization (NACI), and Dr. Charu Kaushic served as an executive committee member of Canada’s COVID-19 Immunity Task Force (CITF). In addition to our COVID-19-related endeavours, the IIDR also achieved a number of important milestones in other areas of infectious disease research over the course of the past year.
Notably, we undertook an important policy-based research initiative that focused on improving access to novel antibiotics in Canada. Led by the IIDR and in partnership with the Canadian Antimicrobial Innovation Coalition (CAIC), this project was catalyzed by the startling fact that the majority of novel antibiotics — drugs with efficacy against otherwise resistant bacteria — approved for use in other jurisdictions in the last decade are currently unavailable to Canadian patients. We consulted broadly with a range of stakeholders from across the healthcare spectrum to determine how this issue — which impacts the timeliness and effectiveness of patient care — could be rectified. Our findings, formally submitted to the federal government at the end of the year, presented options for incentivization and regulatory improvements, as well as potential measures related to data, costs, distribution, and supply and demand. We are optimistic that the government will take action in this space soon.

Meanwhile, work led by Dr. Gerry Wright, in partnership with colleagues at the University of Hamburg in Germany, resulted in the discovery of a promising new antimalarial compound, opening the door for the development of new drugs targeting malaria, one of the deadliest infectious diseases on the planet.

Dr. Leyla Soleymani, a biomedical engineer at McMaster, is among the newest IIDR members, joining the institute in 2021 alongside new faculty recruit Dr. Jonathan Stokes. Over the past year, we have also successfully recruited two additional faculty members — Dr. Cameron Currie and Dr. Lindsay Kalan, both of the University of Wisconsin-Madison. These new faculty bring exciting and cutting-edge expertise in diagnostics, machine learning methods for antibiotic discovery, new environmental sources for antibiotics, and novel ways to treat challenging polymicrobial chronic wound infections. Their research programs will expand opportunities for collaborations and provide outstanding trainee environments, and we look forward to working together.

While this report is intended to look back on the year that was, we would be remiss if we did not look forward as well. Indeed, the year ahead will undoubtedly be a transformative one for our institute, as Dr. Wright will formally step down from his IIDR directorship to lead Canada’s Global Nexus. We wish Dr. Wright well in his new position and are excited to continue working alongside him and his Nexus colleagues on important infectious disease-related research. While bittersweet, the change opens the door for new leadership, mandates, priorities, and initiatives at the IIDR, our institute will continue to build on the exemplary standards established by Dr. Wright over the past 15 years as we work toward developing new knowledge, treatments, diagnostics, and solutions for the world’s most pressing infectious disease issues.

Lori Burrows, PhD
Professor & Interim Director, IIDR
Tell us a bit about your research interests.
My lab studies the microbes living in and on our skin — or, simply put, the skin microbiome. We are specifically interested in how the microbiome contributes to wound healing, particularly in chronic wounds such as diabetic foot ulcers. Our research currently is focused on developing microbial biomarkers to predict wound healing so patients can get faster and targeted care. We are also interested in understanding how different microbes interact with each other in these wounds and how these interactions lead to infection and disrupt the normal healing process. Finally, we are exploring the potential of healthy skin bacteria to produce novel antibiotics that prevent pathogens from colonizing the skin or that could be used as new therapeutics targeting infection.

What drew you to this area of research, and to science more generally?
I have been interested in science since an early age and when I started my undergrad there was no question about pursuing a science degree. During that time, I developed a fascination with microbes and understanding how they interact with each other across many different environments. I became interested in how antibiotic resistance develops, which led me to pursue my PhD at McMaster with Gerry Wright.

How has your career unfolded since you earned your PhD at McMaster?
After I earned my PhD, I took a position in industry at a small wound care company. They were developing an antimicrobial wound dressing for hard-to-heal chronic wounds. It was a transformative experience for me, and, at the same time, I realized that there is a large gap in our current understanding of how infection unfolds. This is because most of these wounds are colonized with multiple species of bacteria and fungi, but they are not always obviously infected — think red, odorous, painful, etc. I realized that there was an opportunity to study this area and make a significant contribution, so I returned to academia with the goal of starting my own research program.

What are you looking most forward to about returning to McMaster?
I am really looking forward to the collaborative environment and working with new colleagues to advance research related to infectious disease and antibiotic resistance. I can’t think of a better place to do this type of research and I truly value the emphasis McMaster places on integrating team science across disciplines.
What has been the most rewarding moment in your science career to date?
This is a hard question to answer as there have been many rewarding moments throughout my career for different reasons; however, I think one of the most rewarding things has been seeing the trainees in my laboratory succeed. Whether it is having their first paper published or earning an independent fellowship to pursue their research, I am always filled with joy and pride at their well-earned success.

Who is your greatest mentor in science and why?
Developing a career in science relies on many different mentors, including peers. My PhD mentor Gerry Wright shaped how I approach science by always encouraging us to be creative and to support each other. This has had a huge influence on how I approach both my research and mentoring. I also value my post-doc mentor Elizabeth Grice. I joined her lab when she was an assistant professor, and even though she was working toward tenure she always passed along opportunities to me that ultimately helped me in my career and offered valuable advice about how to start and build a lab as a female in science.

What are your research goals for the next five years?
We were just awarded a new NIH grant to develop biomarkers for diabetic wound healing based on the microbiome. I am really excited to get started on this project and to work with clinical colleagues from across North America to test our markers in a clinical study. I am also excited to integrate back into the Canadian research community and take advantage of the outstanding infrastructure at McMaster for the discovery of new antibiotics. We have a lot of exciting projects ongoing and think that human skin is a unique source of antimicrobials rich for discovery.

What are your hobbies and interests away from the lab?
Before the pandemic, I loved to travel. Since that has become more challenging now, I’ve been enjoying outdoor activities like hiking and biking within my community and spending time exploring with my two-and-a-half-year-old daughter.
CAMERON CURRIE

Cameron Currie joins the department of Biochemistry at McMaster University after serving as the Baldwin Professor of Bacteriology at the University of Wisconsin-Madison, where he co-founded the Wisconsin Antimicrobial Drug Discovery Research Center. For Currie, joining McMaster means a return to Canada, where he earned a B.Sc (University of Alberta), an M.Sc (University of Alberta), and a PhD (University of Toronto). Currie will be working within and across the Michael G. DeGroote Institute for Infectious Disease Research (IIDR), the David Braley Centre for Antibiotic Discovery, and the Global Nexus for Pandemics and Biological Threats.

Tell us a bit about your research interests.
I’m interested in the role of beneficial microbes in mediating the biology, ecology, and evolution of hosts. This is an area commonly referred to as symbiosis. Microbes are embedded in and on the bodies of virtually all plants and animals, and some of these microbes can help their hosts deal with different challenges, including disease. So, a lot of the work we do in the lab is around understanding the role of beneficial microbes in mediating disease dynamics. Part of what we do is tap into these microbes for molecules and compounds that might benefit humans, like antibiotics.

What drew you to this area of research, and to science more generally?
I’ve always been interested in the complexity of natural systems and the complex interactions that occur in nature. Beneficial microbes engage in a mutualistic association with other organisms in complex ways, so that drew me in. My research is rooted in understanding these complex interactions between different kingdoms of organisms — I did my PhD on leaf-cutting ants, which engage in a mutualism with fungi that they grow for food. In studying the literature, I learned that the ants were thought to be so good at agriculture that they could maintain their gardens free of disease. I thought, ‘well that’s really amazing — these ants that have been farming fungi for tens of millions of years having no problems with disease while human farmers have major problems with disease.’ One of the things I discovered when I studied this was that there are in fact major diseases in the ant fungal gardens, and that the ants themselves have bacteria on their bodies that produce antibiotics that help deal with these infections. It was this work that really cemented my interest in this type of research.

What has been the most rewarding moment in your science career to date?
I’m a scientist because I love discovery and figuring things out; however, being a professor is about forming a team, training younger scientists, and guiding others. So, for me, the thing I’m most proud of is the success of the postdocs and students that have studied in my lab. It’s absolutely the most rewarding and satisfying part of this work.
What are you looking most forward to about joining McMaster?
McMaster’s strength in microbial chemical biology and antimicrobial discovery makes it a really exciting place for me to come and get immersed in. The collection of outstanding faculty, the infrastructure dedicated to this area, and the Global Nexus initiative clearly make McMaster one of the best places in the world for the type of research that I’m interested in. I’m super excited to be a part of it all. McMaster’s interest in transformative, interdisciplinary research is going to present great opportunities for me and my group. Coming back to Canada is similarly exciting.

Who is your greatest mentor in science and why?
I’ve been fortunate to have lots of great mentors, including fellow grad students who I was able to interact with when I myself was a student. My PhD advisor David Malloch was a great inspiration for finding interesting ways to think about the world. The most important mentor for me, though, was my Masters advisor, John Spence at the University of Alberta. As a Masters student, I started in his lab at the age of 21, and he really helped me learn to think, ask interesting questions, and write well. More importantly, though, it was his amazing leadership that shaped my own philosophy for running a lab. He was absolutely critical to my success.

What are your hobbies and interests away from the lab?
I’ve always been a big hockey fan, both playing and watching. Wisconsin is a place in the US where hockey is pretty popular, so I’ve been able to keep playing and watching here. I love the Edmonton Oilers, my hometown team. Otherwise, I enjoy a casual round of golf and spending time with my family.
**STAFF FOCUS**

**SHARI MCCOLLIN**

Shari welcome back to BBS! You were first featured in the 2016 issue of BiochemRocks when you were in the role of undergraduate lab assistant. How do you think your experience at McMaster, has prepared you for your new role?

When I was first hired by the department, I arrived with very little administrative experience. I had been a laboratory technician for the previous 12 years in the Occupational and Environmental Health Laboratory at McMaster, so I knew my way around the lab. But, I quickly picked up the administrative and academic advising aspects of the role. As a former biochem grad myself, I can relate to the challenges faced by students and this helps me to build a rapport with them. When I accepted an Academic Support Associate position with the Faculty of Science in 2017, I was able to continue supporting our Biochemistry students. Since then, I progressed to other more senior academic advisor roles in the Office of the Associate Dean Academic where we served more than 8,000 undergraduate students. I learned a lot during this time and made many great connections. In my new role, I have a unique opportunity to apply my experience as both a former student and staff member to support the success of our undergraduate students.

Have there been a lot of changes with the program since you were a student?

Thankfully, there have been some changes in the lab course requirements since I was a student! Back then, we all hated 3L03 which we referred to as “3-Hell-03” because we had to type up 25-page lab reports every week (marked by the TAs!). Because the department listened to the students and the course requirements were revamped (no more 25-page reports!) students now can really enjoy the much-improved 2L06 lab course.

With the transition of the Biochemistry undergraduate program from the Faculty of Science to the Faculty of Health Sciences, what do you think will be your biggest challenge? What are you looking forward to most in this new role?

With this transition we essentially have to replicate the services previously administered by the Associate Dean’s office in the Faculty of Science which is a big task. However, we are confident as a team that we have the right plan in place. This includes maintaining a good relationship with the Assistant Dean’s office as some students will continue to complete their degrees within the Faculty of Science.

I am most looking forward to meeting with the students again and getting to know the new cohorts of Biochemistry and BDC undergrads on a more personal level.
What advice would you give to high school and Year 1 Life Science students considering entry into the biochem program?
Biochem has a high GPA cut-off so it is very important to have good study habits and time management skills. University is a big change from high school. The Student Success Centre offers great workshops to prepare high school students for university. Many of our students are looking at med or grad school down the road where you need exceptional grades, so I strongly advise that they set themselves up for success now. For Life Sciences students seeking entry to Biochemistry, my advice is not much different... do the work, put in the effort but also make friends and join clubs. The university experience is about more than academics, it is about making social connections and having fun too. I personally always enjoyed the Biochem program; the students work together and importantly, also want to succeed together.

What do you enjoy the most about working with undergraduate students? Do you have a favourite student success story you would like to share with us?
I really enjoy getting to know the students’ backgrounds and stories. It’s a special moment when you can see them eligible to graduate, seeing them grow and succeed during their time with the department.

I had a student that was offered a thesis in a chemical engineering lab which was very much outside her comfort zone. She worried that she didn’t know enough about this area and wouldn’t be successful. I reassured her that they wouldn’t expect her to know everything so despite her reservations she completed her thesis and killed it! She went onto to apply to the Biomedical Engineering grad program and was accepted.

I understand that you are an avid reader. Of the latest crop of books which one(s) would recommend for a great summer read and why?
You will likely notice I always have my reader (a Kobo Libra) or a book with me. I read a lot of romantic suspense... there is a happy ending but a lot of mayhem along the way! In my top year, I read 188 books. I also had a second job working at a bookstore for many years to feed my addiction.

I loved, loved Toni Anderson’s, “A Cold Dark Place”. I got this book as a free download and then purchased the next six books in the series...I highly recommend!
Towards the end of my PhD, I spent a lot of time reflecting on what I enjoyed most about research. I knew that designing and executing experiments gave me some sense of fulfillment, but I wanted to move away from bench work in the next phase of my career. Luckily, working in such an interdisciplinary research area had introduced me to the important role of intellectual property protection in drug discovery and development. I decided that pursuing a career in patent law would offer me an exciting route to leverage my research training into an area more suited to my interests, while remaining connected to scientific discovery.

After graduating in the summer of 2021, I moved to the Bay Area to attend Berkeley Law. I chose Berkeley because of its stellar faculty and research in intellectual property law—and its proximity to the birthplace of biotechnology! I have had a fantastic experience in law school thus far, and am enjoying deepening my understanding of the laws and policies that shape our society—which I felt I lacked from many years devoted strictly to science. While my days now look very different than they did in graduate school, I feel that my time at McMaster was pivotal in helping me develop skills that I use as a law student. For example, understanding how to dissect scientific articles has helped me familiarize myself with case law, and having a strong background in writing primary research articles and review papers has helped me transition into persuasive legal writing.

When I was applying for graduate programs, I remember being drawn to the Biochemistry department at McMaster because of its strength in microbiology research. I had really enjoyed my time working in a plant pathogen lab as an undergraduate student, but I wanted to pursue molecular microbiology from a more clinical angle. This is what brought me to the Coombes lab in 2016, which I felt offered the perfect balance between basic and applied science.

During my PhD, I focused on understanding Salmonella infection biology and identifying new anti-Salmonella therapeutics. This work was particularly interdisciplinary and relied heavily on the collaborative environment in the Biochemistry department. I loved doing research in a field with fundamental and translational aspects, studying the molecular mechanisms that Salmonella uses to infect hosts and using this information to guide potential treatment strategies.

I plan on pursuing a career in life sciences patent prosecution, which involves helping inventors draft patent applications for their discoveries. Although I am no longer in scientific academia, I truly loved my time in research—in no small part due to the Biochemistry program at McMaster. I will always be thankful for my supervisor, Dr. Brian Coombes, everyone in the Coombes lab, and my friends in the Biochemistry department for making my graduate school experience such a great one.
You just graduated this Spring with an Honors in Bachelor of Health Sciences Science in Biomedical Discovery and Commercialization degree from McMaster. Congratulations! Tell us more about your university experience at Mac.

I started at McMaster in the Life Sciences gateway program where I chose Biology, Psychology, Neuroscience and Behavior as my specialization. However, I always had a passion for science and research but at the intersection of business, which is why I was very excited about the Biomedical Discovery and Commercialization (BDC) program and applied during my second year. When choosing my pathway after my undergraduate degree, I applied to different programs including the Masters of Science, Masters of Public Health and Master of Biomedical Discovery and Commercialization. I chose to pursue the Masters of Biomedical Discovery and Commercialization because of the unique opportunity to take MBA courses through DeGroote School of Business, while still offering a strong biomedical science graduate level education. The MBDC program also offers a unique opportunity for a community internship in pharma, consulting and start-ups, which will advance my understanding of industry and help contribute to my future career goals.

We learned about your entrepreneurial spirit and the remarkable strides you made in your 3rd year when you founded EmergConnect. Tell us more about the idea and concept that led you here.

The story of how I came up with the idea behind EmergConnect is unfortunately an all too uninteresting one. I was working with a startup at the time and felt that there were many missed opportunities and so I embarked on my own journey to determine if my ideas had validity and merit. To that end, I joined the Health Venture program run by McMaster and initially came up with the concept of centralizing health records but quickly modified my idea to something more realistic which was same day patient care through a digital front door for accessing emergency care services. I quickly learned that entrepreneurs often overvalue their idea, and it’s not just the idea that counts but its execution. In fact my idea for EmergConnect is neither new nor unique, but my dedication and determination have been, despite having a mountain to climb. After fine-tuning the idea and the concept, I decided to take it to market and run with it as far as I could and have been running ever since.
What have been some of your biggest successes and what have you learned from them? My earliest success with EmergConnect was really forming my founding team. This is one of the most important things that one could do as a founder. I was fortunate enough to have a very experienced network who believed in me and in my idea and agreed to join me in making this idea a reality. My next biggest success was attracting the interest of physicians who were able to act as clinical champions within the health care system. This followed our successful efforts in raising capital, arguably the measure by most early stage entrepreneurs as fundamental to growth and scaling-up. Together with the team I was able to secure research ethics approvals, and subsequently institutional approvals, following which we were able to sign contracts with major hospital networks in Ontario to pilot the technology.

Between achieving an Honors degree and running a start-up, how did you manage to successfully navigate all your academic goals and start-up responsibilities?
Juggling all of my responsibilities as a student, an entrepreneur as well as my other research interests and hobbies can be challenging at times and the most important thing is to be highly organized. The first thing I do every morning is organize my schedule, my to-do list and what my goals are for the day. I also do this at the start of every week and at the start of every month. Each week is planned out, each month is roadmapped, and my goals are set by each quarter and each year. I have found that if I stay organized and on top of my responsibilities I am able to tackle everything that comes my way.

What have been some of your biggest challenges, how did you overcome them and what would you have told your younger self?
I came into the start-up thinking that everything would go smoothly and according to plan. However, as I quickly learned, things seldom go according to plan. The most important thing is perseverance, and resilience in the face of challenges. This is by far the most important lesson I have learned throughout my educational and professional career. Obstacles will arise, failure will follow failure, and there will always be a time when it feels like what you’re doing is impossible but you have to keep going despite the challenges, setbacks and roadblocks. I think many of us are held back by the notion that we may fail, and the reality is that we most likely will fail, but this is not a bad thing, this is the most important step to success. Without failure there is seldom success, and I failed fifty times for every single one of my successes. I would also tell myself not to take everything personally. There will always be people that won’t believe in you especially when you’re working in medicine, and you’re the youngest, most inexperienced person in the room, but keep going and keep trying!

Finally, networking is the most crucial step you can take for your career. Nothing is created in a vacuum and business is inherently about people. So network, talk to as many people as you can, ask them who they can introduce you to, and follow-up on every single introduction. You never know where it may lead.
So, what’s next, Ron, what are your future goals?
As Erica Williams Simon once said “Don’t ever attach yourself to a person, a place, a company, an organization or a project. Attach yourself to a mission, a calling, a purpose ONLY.” My purpose is to change the way people think about healthcare, including patients, clinicians, doctors, government and the healthcare system overall. My mission is to help innovate healthcare away from its current paradigms and inefficiencies by bringing it into the twenty-first century in-line with every other industry.

This year I was very fortunate to be one of the recipients of the BDC Summer Scholarship Fund which was designed specifically to help students focus on self-led research or summer work which wouldn’t allow for a traditional summer internship opportunity. The BDC summer scholarship fund is a significant initiative that helps students pursue projects sparking entrepreneurship and innovation. This scholarship afforded me the possibility to continue working on a Microfluidics Chemical Engineering project in 3D Bio-Printing in Dr. Todd Hoare’s Lab at McMaster over the summer without having to worry about finances.

I am very excited to start the MBDC program at Mac in the Fall followed by a community Internship opportunity in January 2023. After graduating from MBDC my aspirations are to expand EmergConnect to capture the North American market, while I pursue a PhD in Chemical and Biomedical Engineering at Stanford University and continue contributing to the research landscape.

"Don’t ever attach yourself to a person, a place, a company, an organization or a project. Attach yourself to a mission, a calling, a purpose ONLY."

- Erica William Simon

Interviewed by
Sheema Yousefzai, CDRM
MBDC Program
Hello everyone! My name is Nima Behravan, and I recently graduated from the Honours Biochemistry program. I will be starting medical school at the Michael G. DeGroote School of Medicine soon! I am writing this to talk to you about my journey in the Biochemistry program and some of the accomplishments I have had because of the wonderful opportunities offered in the department. If I could do it, you can too! I hope this is inspiring for you!

The Honours Biochemistry program equipped me with many skills and experiences that helped me in various research projects. For instance, courses such as BIOMEDDC 2W03 and 3W03, as well as BIOCHEM 2L06 strengthened my scientific writing and communication skills.

This truly assisted me in writing my most recent first-author publication on breast cancer lipid-based treatments! This paper is titled, "Lipid-based nanoparticle delivery systems for HER2-positive breast cancer immunotherapy", published in the Journal of Life Sciences. The biochemistry program taught me not only the skills needed to write a professional and easy-to-understand scientific paper, but also familiarized me with lab techniques, figure creation skills, and other techniques that allowed me to publish towards a valuable cause: breast cancer treatments.

But the amazing impact of the Biochemistry program on my life far exceeded my expectations. A unique aspect of the program is that it allows for an excellent work-life balance. This allowed me to not only excel in my studies, but to also have time to productively contribute to my community through volunteering and jobs. For instance, I was able to serve in various teaching assistantships (TA) throughout my undergraduate studies. I TA’d for Biology 1A03, Math 1LS3, and other courses. Because of my passion for teaching and mentorship, I was fortunate to be selected as a finalist for the MSU Teaching Assistant of the Year Merit Award 4 times! A great part of my success in teaching is because the Biochemistry program provided us with professors and instructors who were so empathetic, accommodating, and excellent at teaching. Dr. Michelle MacDonald and Dr. Felicia Vulcu had the biggest impact on me. Thus, I am truly grateful to have had such wonderful mentors in the program.

When the pandemic arose, the Biochemistry department acted proactively to ensure that us students experienced a smooth transition to online learning. This allowed me to have a continuous learning trajectory, but to also be able to value my mental health and wellness during these difficult times.

The Biochemistry program has changed my life, and shaped my personality, skills and traits. The warm and welcoming staff, professors and student community allowed me to enjoy every step of my experience here. It also prepared me for the next chapter of my life: studying medicine at the Michael G. DeGroote School of Medicine! Always keep in mind that I was a biochemistry student sitting in the very same classrooms as you are. So if I could do it, you will too. I believe in you!
Nima and his students performing a cool wet-lab experiment from home during the pandemic! In this experiment, Nima taught his students how amylase in saliva helps break down starch in foods. His students look excited and proud to hold up their purple-colored test tubes!
In recent decades, obesity and metabolic disease have emerged as frontrunners in the global burden of disease and disability. In the Schertzer lab, we work hard to study the microbial and immunological underpinnings of metabolic disease. While many microbial components have gotten a bad rap as promoting inflammation and worsening insulin resistance, in the Schertzer lab, we are fond of the idea that microbiota also contain insulin-sensitizing components, and we’ve been working for many years to establish what these microbial components are, which immune sensors they signal through, and under what conditions that can improve blood glucose control.

Much of our early work focused on the role of the NOD1 and NOD2 innate immune sensors in blood glucose responses. Around this point, I was midway through my PhD, and mildly panicked that the focus of ‘Aim 3’ of my thesis remained a big question mark. As supervisors tend to do, Dr. Schertzer forwarded a paper that looked at how microbial-based vaccination using crude preparations of gut extracts could improve blood glucose control in lean diabetic mice and the wheels began to turn (of course, the wheels also fell off a few times along the way...).
BEHIND THE PAPER

We wanted to test if NOD1 or NOD2 were required for the blood glucose response to microbial vaccination, and we found that indeed they were! Fruitful collaborations with the Sloboda Lab and Miller Lab demonstrated the phenotype was sex-independent and promoted a specific immune-compartmentalized humoral immune response. Sufficient data from this project allowed me to defend my thesis (hooray!) and continue as a post-doctoral fellow to carry this project over the finish line, ultimately resulting in this exciting manuscript that we were able to publish in Molecular Metabolism.

David Sychantha, PhD
Postdoctoral Fellow, Wright Lab
"Asp ergi l om ar asmin e A inhibits metallo-β-lactamases by selectively sequestering Zn2+"

β-Lactams are a class of antibiotics that target bacterial cell division and inhibit the growth of many pathogenic organisms. To evade these antibiotics, multi-drug resistant bacteria have emerged that produce Zn2+-dependent metallo-β-lactamases (MBLs) which hydrolytically inactivate most β-lactams. With the prevalence of MBLs rising, β-lactams are at risk of becoming defunct, and a solution to rescue these antibiotics is needed. The Wright lab became interested in β-lactam resistance in 2010 shortly after the global dissemination of New Delhi MBL-1 (NDM-1). The goal was to identify new MBL inhibitors as antibiotic adjuvants to rescue legacy β-lactam drugs. By 2014, the fungal natural product apsergillomarasmine A (AMA) was discovered as an inhibitor of NDM-1 with low toxicity and in vivo efficacy in mice. AMA strongly binds to Zn2+ and removes this metal cofactor from the active site of MBLs. Shortly before I joined the Wright lab in 2018, it was known that while AMA had good potency against NDM-1, other clinically important MBLs were less vulnerable. The next challenge was to increase the potency of AMA toward a broader spectrum of MBLs by synthesizing AMA analogs, but to do so, the detailed mode of action of AMA was needed.

My work investigated AMA’s mechanism using a combination of classical methods in metallobiochemistry and chemical probes to assess MBL inhibition in living bacteria. The study determined that the kinetics of NDM-1 inhibition by AMA were indirect and driven by the spontaneous dissociation of the metal from the enzyme’s active site. Consequently, AMA sequestered liberated Zn2+ preventing NDM-1 reactivation. MBLs with higher Zn2+ affinity had slower rates of metal dissociation compared to NDM-1 and were less sensitive to inhibition by AMA as a result. This mechanistic insight will be important in evaluating AMA analogs as broad spectrum MBL inhibitors and further deepens our understanding of MBL enzymology. This work was published in the Journal of Biological Chemistry (August 2021).
Do you wish that you could do a quick and simple test for COVID-19 using your saliva and your cell phone? We have recently made such a test! I felt fortunate to be a big part of this invention, and in the process, I got the opportunity to work with an amazing team of talented researchers at McMaster’s Faculties of Health Sciences, Science and Engineering. The test was published in 2021 in two papers in which I have the honor to be a joint first author. In the first paper, which was published in Nucleic Acids Research, I performed a test-tube Darwinian experiment to create a group of short synthetic single-stranded DNA molecules, called “DNA aptamers”, that specifically bind the SARS-CoV-2 spike protein with high affinity. In the second paper, which was published in Angewandte Chemie International Edition, we built a dimeric aptamer with superb binding affinity for the trimeric spike protein, and used it to create a tiny gold chip that you can plug into a USB-like small reader so that you can do the test with a smartphone. This “biosensor” can detect SARS-CoV-2 viruses in unprocessed human saliva and you can complete the test in 10 minutes. This simple device showed excellent performance when it was tested with more than 70 real clinical samples, achieving a clinical sensitivity of 80.5% and specificity of 100%. I am super excited about this test, which is being commercialized by Zentek Ltd., an Ontario-based company. Currently I am working in the lab to further improve the performance of our aptamers for even better testing results.

Figure 1. A chip-based test device, based on a high-affinity dimeric DNA aptamer for the SARS-CoV-2 spike protein, is capable of accurately detecting SARS-CoV-2 in unprocessed saliva samples in 10 minutes.
MSc and PhD Graduands 2021

MASTERS (2021)

23 April
Andrea Hucik
Ishac Nazy
Biolayer interferometry as a novel method for detecting autoantibodies in patients with immune thrombocytopenia.

26 April
Gena Markous
Mick Bhatia
Development of a non-vivo system to serve as a novel surrogate of initiating events of MDS to AML disease.

19 July
Sabra Salim
Sheila Singh
Characterization and therapeutic targeting of CD133 in human glioblastoma.

20 July
Kaylyn Bacchiocchi
Jonathan Bramson
Identifying biologically active compounds to provide T cell costimulation for cancer immunotherapy.

29 July
Nikoo Aghaei
Sheila Singh
Genome-wide in vivo crispr activation screen to identify genetic drivers of non-small cell lung cancer brain metastasis.

9 August
Eugene Mech
Mike Surette
Emergence and mechanisms of multi-drug resistant microorganisms in patients at high risk for antimicrobial resistance.

11 August
Alexandra Parco
Brian Coombes
Psychological Stress Drives an Aberrant IL-22 and Nutritional Immune Response, Favoring an Expansion of Crohn’s Disease-Associated Pathobionts.

24 August
Tetyana Murza
Karen Mossman
p14 viral fusion protein driven cell-cell fusion induces chromatin fragmentation and a STING-dependent interferon response.

30 August
Sarah Asbury
Jonathan Bramson
TAC Engineered y6 T Cells for Multiple Myeloma.

8 Sept
Nola Begeja
Ray Truant
Implementation of a novel fluorescent Huntington’s disease model and branaplam to study the interaction between huntingtin and HAP40.

8 Sept
Victoria Leon Guerrero
Lesley MacNeil
Characterization of intestinally expressed shc-3 (K11E4.2) in Caenorhabditis elegans.

10 Dec
Mercedes DiBernardo
Lesley MacNeil
Exploring resistance to Pseudomonas aeruginosa infection in Caenorhabditis elegans.

15 Dec
Daniel Paillant
Gerry Wright
Development and Evaluation of a Microbial Natural Product Prefractionation Library.

DOCTORAL (2021)

24 March
Lina Liu
Yu Lu
Investigating the role and mechanism of the splicing factor RBM17 in acute myeloid leukaemia.

5 April
Kaushal Baid
Karen Mossman
Investigating the Role of Macrophage Scavenger Receptor 1 and Extracellular Double-stranded RNA in Antiviral Cell Signaling.

14 April
Alyssa Vito
Karen Mossman
Investigating immunotherapy treatments and the immunological synapse in triple negative breast cancer.

2 June
Nhu Y Elizabeth Chau
Brian Coombes
The stringent response salmonella typhimurium.

7 June
Shehryar Ahmad
John Whitney
Mechanism of type VI secretion system effector transport and toxicity.

15 June
Caressa Tsai
Brain Coombes
Exploiting host immunity for anti-infective discovery in Salmonella Typhimurium.

23 June
Sansi Xing
Yu Lu
Mechanistic Understanding of Tau Alternative Splicing in Neurons Using Proteomics.

FHS PLENARY OUTSTANDING ACHIEVEMENT AWARD

This award recognizes graduate students in a Master’s or Doctoral program who have made outstanding achievements, as judged by their graduate program.

Dirk Grebenc
Hannah Stacey
Kristina Klobucar
Nader El-Sayes
Sarah Bello

9 July
Kara Tsang
Andrew McArthur
Prediction of antimicrobial resistance phenotypes from genotype.

30 July
Nazanin Tatari
Sheila Singh
Structural Basis of Amyloid Oligomer Toxicity and Inhibition by Small Molecules and Molecular Chaperones.

1 Sept
Mike Chong
Guillaume Paré
Identifying Circulating Mediators of Cerebrovascular Disease.

8 Sept
Katherine Kennedy
Deborah Sloboda
Maternal-microbiome relationships in pregnancy and impact on offspring intestinal development.

16 Sept
Basma Ahmed
Greg Steinberg
Exploring the relationships between liver fat, gut microbiota, serotonin and brown adipose tissue in humans.
STUDENT SUCCESS

MBDC Graduands & Awards 2021

MBDC Graduands
Parisa Agahi
Yonathan Agung
Yasamin Allahverdi
Dawood Al-Wattar
Shilpa Bhardwaj
Maaha Chaudhry
Katrina Cordovado
Yuhang (Grace) Feng
Rachael Gregoris
Dalton Groves
Taneya Janakan
Christopher Juman
Muhammad (Ahsan) Khan
Bomin (Madison) Kim
Victoria Kirkness
Bichoy Labib
Anson Lee
Yingxi (Ainsley)
Jonathan Mononiti
Qianwei (Reeta) Nan
Thaaniya Nanthakumar
Seong (Aaron) Park
Tameem Quader
Viktoriya Rybchenchuk
Herdiljot (Harry) Sandu
Vraj Shah
Nikhil Sharma
Sohaib Syed
Dana Tyrie
Mishquatul Wahed
Yuchao (Richard) Wang
Dennis Weber
Han (Emily) Xu

MBDC Awards
Ontario Graduate Scholarship
Seong (Aaron) Park
Dana Tyrie
Ontario Graduate Fellowship
Sohaib Syed
Faculty of Health Sciences
Graduate Programs Outstanding Achievement Award
Tameem Quader

Undergraduate Awards 2021

The Beauty Counselors of Canada Scholarship
Alina Khan
The Burke Memorial Ring
Umama Abbas
The Class of 1966 50th Anniversary Scholarship
Julia Perfetto
The Dr. Harry Lyman Hooker Scholarships
Saif Alam
Andrew Chan
Lana Moayad
Keshkiaa Suthaaharan
The Dubeck Biochemistry Award
Umama Abbas
Alexander Zakharia
van der Sluis Family Academic Grant
Misaal Mehboob
The Ernest Robert Mackenzie Kay Scholarships
Hephzibah Ali
Lauren Chan
Mahruch Fatima
Zaineb Hamoodi
Jonathan Monterio
Keshkiaa Suthaaharan
Alexander Zakharia
The Henry Global Consulting Academic Grant
Yossef Nafea
The Herbert A. Ricker Scholarships
Yossef Nafea
The J. L. W. Gill Prizes
Saif Alam
Andrew Chan
Sarah McQuay
The Josephine Staples Brien Scholarship
Brenda Nkonge
The Manson Olson Academic Grant
Saif Alam
The McMaster President’s Award
Michelle Song
McMaster Undergraduate Scholarship
Angelina Lam
The Ross Hume Hall Memorial Scholarship
Madison McKellar
The Yates Scholarships
Amanda King
The Provost’s Honour Roll Medal
Saif Alam
Owais Amir
Angelina Baldino
Andrei Bogza
Benjamin Brakel
Noah Brittain
Kevin Cao
Denise Catucutan
Andrew Chan
Lucas Chung
Katherine Dykema
Chethana Ellewela
Rex Huang
Rana Ibrahim
Alina Khan
Zaim Khan
Amanda King
Connor Kydd
Angelina Lam
Sean Lifshits
Sean Madden
Sarah McQuay
Misaal Mehboob
Lana Moayad
Daniel Molilio
Youssef Nafea
Danny Nguyen
Yoohyun Park
Julia Perfetto
Ava Shah-Beigi
Keshkiaa Suthaaharan
Nisha Taylor
yalakshmi Tamilselvan
Nikhil Uppal
Arca Wen
Angela Yang
Shuotong Yu
Amy Zhang
The Ross Hume Hall Memorial Scholarship
Madison McKellar
The University (Senate) Scholarships
Zayni-Dean Al-Azawi
Ryan Amini
Benjamin Brakel
Denise Catucutan
David Cheerie
Chethana Ellewela
Alessio Giovannoni
Junaia Habibi
Rex Huang
Manahil Iftikhar
Sean Madden
Sarah McQuay
Carter Nattrass
Deborah Park
Dhyanakshmi Tamilselvan
Angela Yang
Shuotong Yu
Alexander Zakharia
Amy Zhang
Graduate Awards 2021

China Scholarship Council
Xueli Xhao

CIBC Breast Cancer
Yujin Suk

CIHR CGSD
Christian Bellissimo
Emily Bordeau
Rebecca Burchett
Lindsay Carfrae
Leon Chalil
Allison Guitor
Marie-Ange Massicotte
Celeste Suart
Shu Hua Xu
Ali Zhang

CIHR CGSM
Kate Miyasaki
Jordyn Perry
Anita Singh
Dominique Tertigas
Veronica Tran

Farncombe Scholarship - Covid Extension
Logan Downer

Fred and Helen Knight Enrichment Award
Amany Al-Anany
Victoria Coles
Hiva Mesbahi
Jalees Nasir
Kim Pho

GSA Travel Assistance Award
Chirayu Chokshi
Kieliszek

Impact Award
Sheri Ahmad
Hiva Mesbahi
Caressa Tsai

Karl Freeman Award (1st Place, MSc)
Janice Tai

Karl Freeman Award (1st Place, PhD)
Celeste Suart

Karl Freeman Award (2nd Place, MSc)
Sabra Salim

Karl Freeman Award (2nd Place, PhD)
Caressa Tsai

Louis Minden Scholarship
Michael Chong

MD/PhD CHIR Award
Yujin Suk

Michael G. DeGroote Doctoral Scholarship
Emily Hartung
Danny Marko

NSERC CGSD
Nathan Bullen
Rabia Fatima
Timothy Klein
Evan Shepherson
Haley Zubyk

NSERC CGSM
Rebecca Barnshaw
Janice Tai
Andriana Tetenych
Tess Wilson

NSERC PGSD
Felix Croteau
Luke Yaeger

Ontario Graduate Fellowship
Ioana Cozma
Nader El-Sayes
James Howes
Erica Yeo

Ontario Graduate Scholarship
Tony Chen
Mike D’Agostino
Arman Edalatmand
Dirk Hackenberger
Patrycja Jazweic
Elizabeth Lach
Prabagaran Pradhariny
Ken Rachwalski
Kartik Sachar
Natasha Savic
Hannah Stacey
Megan Tu
Yona Tugg

Ontario Trillium Scholarship
Shuwen Qian

Physicians Services Incorporated
Zhang Ali

The Lee Neilson Roth Award
Nazanin Tatari

The Lorne F. Lambier, Q.C. Scholarship
Deanna Porras

The Michael Kamin Hart Memorial Scholarship
Ahamd Shehryar

The Thomas Neilson Scholarship
Rabia Fatima

Vanier - CIHR
Germain (Sophie) Ngana
The 2021-2022 academic year was nothing like we expected and the pandemic created a unique challenge for the Biochemistry and Biomedical Sciences (BBS) students. However, the department and the Biochemistry and Biomedical Sciences Society (BBSS) showed their strength as they persevered through the year, and finally ending off the year with a smooth transition to in-person activities.

The BBSS shifted their focus on supporting the students in an online-hybrid format, and expanded our services in academic, fundraising, mentorship, social and career-oriented events. The BBS “Broteins” mentorship program continued to support second year students by matching them with upper year mentors, and conducting interactive review sessions. We also sought to expand our academic and career support brought upon by post-pandemic uncertainty. Events such as “Meet the Profs”, “Research Info Night” and “What To Do After Level II” allowed students to gain the knowledge needed to further their academic endeavours.
Additionally, to help the students transition into an in-person curriculum we held many social events such as bonfires, hikes and get-togethers to increase peer interaction within the program. Finally, the BBSS expanded our community outreach by raising money for the Native Women’s Center through an online fundraiser, topped off with fun challenges completed by McMaster’s very own professors! As we plan to resume in-person activities in the 2022-2023 academic year, BBSS is excited to introduce new events and workshops for all BBS students. The executive team has developed many ideas, and looks forward to welcoming new biochemistry students with open arms!

### BIOMEDICAL DISCOVERY & COMMERCIALIZATION SOCIETY (BDCS)

Albeit the stress of hybrid learning during the uncertainty of the pandemic, the Biomedical Discovery and Commercialization Society (BDCS) demonstrated exceptional adaptability and ingenuity when planning multi-faceted events to enrich the academic experience within the BDC community. Our team bridged the gap between online and in-person activities to provide students with a unique experience directly tailored to their educational, professional, and personal needs. Initially, the BDCS introduced a new role within the society – the Mentorship role.

This role primarily focused on integrating the third- and fourth-year cohorts through small interpersonal groups aimed to provide academic support to incoming students. Throughout the year, the Mentorship team garnered immense success by hosting multiple events, with their most popular event being a Board Game Night held at the Bard and Bear Games Café. Additionally, due to its success in the previous year, Life After BDC was recontinued for a 3-day zoom panel discussion. Our External team divided Alumni speakers by their current roles – graduate/professional school, health/biotechnology, and consulting – and prepared questions related to their day-to-day responsibilities and step-by-step processes on the acquisition of their roles. Other notable events included: online quiz nights and review sessions held by our academic team; poster critiques and graphic design contests held by our marketing team; and a beginning of the year bonfire social held by our social team.

Next year the BDCS plans to continue and build upon the previous year’s achievements while providing greater support towards the fourth-year cohort with increased career-centric, networking, and graduation opportunities.

As the conclusion of the 2021-2022 school year approaches, we would like to express our gratitude to the BDC administration, teachers, and industry partners for their assistance throughout this unpredictable year. A special mention goes out to our president, Samantha Li, for her tactful leadership, as well as our vice presidents and associates for their continuous determination and versatility. The 2022/2023 BDCS team is enthusiastic to continue their aforementioned success and maximize on every opportunity that the upcoming year presents. Congratulations to the class of 2022, and an avid welcome to the class of 2024!
STUDENT ASSOCIATION UPDATES | BBSGSA

2021-2022 BDCS Executive Team

Samantha Li – President
Alessio Giovannoni – VP Academic
Bejal Mistry – VP Administration
Dheepthi Thommandram – VP External
Tyler Cusimano – VP Finance
Angela Yang – VP Marketing and Communications
Victoria Tyndall – VP Mentorship
Eric Situ – VP Social
Andrew Mitchell – Academic Associate
Elizabeth Li – Administrative Associate
Jaskiran Bains – External Associate
Anthony Delfino – Finance Associate
Ryan Tso – Marketing and Communications Associate
Cassandra Chan – Mentorship Associate
Stephanie Abrokwa – Social Associate

BIOCHEMISTRY AND BIOMEDICAL SCIENCES GRADUATE STUDENT ASSOCIATION (BBSGSA)

The BBSGSA is excited for what the next year holds. Although the realities of the pandemic interfered with our ability to run events that are safe for our students and community at large, we hope the coming year will see the return of our favourite activities, albeit in an adapted manner. The success of this spring’s new grad student help session panel provides the kindling for returning to our other popular events of the past. We covered major topics such as transferring, committee meetings, scholarships, and post-grad life. With any luck, the greatest hits collection of Biochem Olympics, new student meet and greet, and Halloween and Winter competitions will return this year. And, with new events in the works, we set our sights on growing beyond our pre-pandemic activities. We hope the department is looking forward to participating with us!

Luke Yaeger
BBGSA Chancellor
Greetings from the Faculty of Health Sciences Postdoctoral Fellows’ Association (FHS PDA)!

The FHS PDA is the representative voice for ~150 postdoctoral fellows employed within McMaster University’s Faculty of Health Sciences (FHS) to the FHS Graduate Studies Executive Council. Our mandate is to organize social and professional development events for FHS postdoctoral fellows, advocate for better working conditions and benefits with FHS Human Resources, and provide resources for international postdoctoral fellows to make their transition to McMaster University, and Canada, as smooth as possible.

These past years have been a challenge with the COVID-19 pandemic; however, the FHS PDA continues to support the FHS postdoctoral fellows. In 2022, our focus has been to expand our online presence by building a website for our association that will contain helpful links and resources for both international and Canadian postdoctoral fellows.

Furthermore, we are in the process of launching a Microsoft Teams group for postdoctoral fellows within the FHS so that they can easily network with other postdoctoral fellows and share job opportunities, interesting publications, potential awards/fellowships, or anything else of interest. In addition, we are looking forward to bringing back in-person social and professional development events in the near future such as a career event and trivia night. Another goal of the FHS PDA is to initiate a new opportunity for postdoctoral fellows to present their research. We are currently working on the possibility of having postdoctoral fellows present in the Biochemistry seminar series. Finally, we are pleased to congratulate Dr. Alexander Hynes for being awarded the 2022 FHS PDA Excellence in PDF Supervision Award.

It has been another successful year for the FHS PDA, and despite COVID-19, the FHS PDA will continue to support all FHS postdoctoral fellows. If there are any new postdoctoral fellows that wish to join the association or have any questions, please feel free to email us: fhspda@mcmaster.ca

Your FHS PDA Executive Team.
ARRIVALS AND APPOINTMENTS - FACULTY

BBS is pleased to welcome Lindsay Kalan appointed at the rank of Associate Professor and Cameron Currie appointed at the rank of Professor. You can read more about them in the Faculty Focus section (p.19-22).

Congratulations goes to Drs. Lesley MacNeil and John Whitney who were promoted to the rank of Associate Professor - CAWAR effective July 1, 2022. As well, Dr. Caitlin Mullarkey was promoted to Associate Professor – Teaching Permanence.

Dr. Andrew McArthur returned from his sabbatical on July 1st to his role as Director of the BDC Program. Dr. Li has stepped down from his role as Acting Director and will not be returning to his role as BDC Associate Director. Dr. Schertzer will remain in the Acting Associate Director role until at least August 31st at which time a search will be undertaken for a new Associate Director. Many thanks to Dr. Li for his work on behalf of the BDC program these last few years!

Dr. Matthew Miller has been appointed as the Scientific Director of the Michael DeGroote Institute for Infectious Disease Research. He takes over for Dr. Gerry Wright who was the inaugural director and served in the role from 2007 until 2020 and Dr. Lori Burrows who has been acting Director for the last two years. The search is underway to replace Dr. Miller as Associate Chair and Assistant Dean of Graduate Studies as he transitions to his new role. We thank him for his years of service and dedication to our graduate students and look forward to reporting on the IIDR’s continued success under his leadership.

Dr. Brian Coombes was renewed as Chair for a second term effective July 1, 2022. The department is grateful for his leadership and continued service to the students, staff and faculty. Under his direction, the department has flourished and continues to be the ‘jewel in the crown’ of the Faculty of Health Sciences. Congratulations Brian!

ARRIVALS - STAFF

Drealin Tambiloc joined the undergraduate program in early August of this year in the role of Undergraduate Laboratory Technician. In this position, Drealin will work closely with Vivian Leong to support the needs of the undergraduate teaching laboratory and assist in the delivery of all laboratory courses. Drealin recently completed an Advanced Biotechnology program at Mohawk College where she honed her research skillset in biochemical techniques and laboratory practices. Her training and experience will be a tremendous asset to our students and our undergraduate teaching team.

Andrea Hale arrived in July and is the newest member of the finance team. Andrea brings over nine years of financial experience working in industry in positions of increasing responsibility. Andrea holds a Bachelor of Arts Degree from McMaster University and an Education Degree from Charles Sturt University.
STAFF NEWS

Shari McCollin was welcomed back to the department on May 16th and brings with her a wealth of experience and knowledge to her role as Academic Manager of Undergraduate Programs. Shari was the Recruitment and Academic Advisor in the Associate Dean’s Office in the Faculty of Science. Prior to joining the Associate Dean’s Office, Shari worked in BBS and has a strong understanding of the BBS undergraduate programs. Shari is an alumnus of BBS and holds both a BSc in Honours Biochemistry and a BSc in Honours Computer Science from McMaster.

Sheema Yousefzai joined the MBDC team on March 7th replacing Emily Taylor who is on parental leave in the role of Career Development and Relationship Manager. Sheema brings a wealth of experience to this role with over 10 years of experience in recruitment and career development. Sheema holds a Bachelor of Arts in International Relations, UK and France. She was formerly a Manager at a not-for-profit employment and vocation agency assisting 1500+ businesses and employees in Toronto.

ANNOUNCEMENTS

On May 2nd, Emily Taylor and family welcomed their son Brady Anthony Taylor, weighing in at 7 lbs, 9 oz. We are all looking forward to meeting Brady soon!

MILESTONES

Congratulations to all staff members that reached a special career milestone at McMaster in 2021!

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Years of Service</th>
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<tbody>
<tr>
<td>Tamara Maiuri</td>
<td>RESEARCH ASSOCIATE</td>
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<tr>
<td>John Whitney</td>
<td>ASSOCIATE PROFESSOR</td>
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<td>Jakob Magolan</td>
<td>ASSOCIATE PROFESSOR</td>
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<td>Caitlin Mullarkey</td>
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<td>Sara Andres</td>
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<td>Jimmy Gu</td>
<td>RESEARCH LAB TECHNICIAN</td>
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<tr>
<td>Shawn French</td>
<td>RESEARCH ASSOCIATE</td>
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<td>Deborah Sloboda</td>
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<td>Michelle Allan</td>
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<td>Michelle MacDonald</td>
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<td>Felicia Vulcu</td>
<td>ASSOCIATE PROFESSOR</td>
<td>20</td>
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"Science may set limits to knowledge, but should not set limits to imagination."

- Bertrand Russell