I love serendipities – those lovely moments when the stars happen to align just so and something unexpected and positive materializes.

In the days leading up to Convocation, I was thinking about serendipity, and about how sometimes the best things are not things we plan for or work toward – sometimes they just ‘happen’, and sometimes they even emerge from things we might have thought of as mistakes or failures.

When I lived in Sudbury, I often drove down to Southern Ontario to spend time with my family, and my usual route was to drive south on Highway 400 and take the exit at Highway 9 to take a back route into Kitchener-Waterloo. On one such trip, I got lost in my thoughts as I was driving and realized that I had missed the turnoff when I saw Canada’s Wonderland on the horizon. Deeply annoyed with myself for the mistake, I got off at the next exit, pulled over, looked at a map, and charted an alternative route through unfamiliar back roads. I drove along a narrow gravel road with leafy trees growing right up to the shoulders, grumbling under my breath, when suddenly the trees opened up on the left side and I was treated to the most striking, breathtaking, unexpected landscape: it looked like a wide, rolling river of red rocks, unlike anything I’d ever seen in Ontario – it looked more like Arizona, or maybe Mars. It was a beautiful summer day, and the sky was blue with puffy white clouds over this other-worldly terrain. (photo credit – Ontario Heritage Trust)

I had accidentally come across the Cheltenham Badlands. I pulled over and we spent an hour exploring this amazing place.

The point is, I would never have seen this, maybe never even had known it existed, had things gone according to plan, if I had taken the right exit. I made a mistake – a stupid mistake, even – but that mistake turned into a lovely memory that I cherish. And this experience can be understood as a larger lesson. If I look back at my trajectory (professionally and personally), I can see that if I had got everything I thought I wanted along the way, I would be in a very different place right now. And who knows what that might have looked like – I suppose that could have been great too.

But I’ll tell you something – it’s hard to imagine that the version of my life where I got everything that I thought I wanted would be better than this one, and I would have missed out on a lot of amazing and meaningful things along the way that have shaped me in ways that I wouldn’t now trade for anything, and gifted me with opportunities that I never even imagined (or didn’t even exist) when I was an undergrad. It’s clear to me from here that in many cases those times where things don’t work out, where you do all the right things but the odds just don’t come out in your favour, and even the times you make mistakes, can in many cases prove to be gifts when viewed in retrospect. The joy and privilege of being the Assistant Dean of this program and having the chance to get to know so many of you is just one of those gifts, and I look forward to getting to know more of you in the future!

Stacey Ritz
Assistant Dean, BHSc (Honours) Program
Fizza Manzoor has been an active member of the McMaster community. In her first year, Fizza joined the education-awareness club, Pencils for Kids, and continued as a member throughout her time at McMaster. During her third year, she served as co-president and collaborated with the executive team to advocate for education initiatives in Niger. This club provided a platform for Fizza to share her passion about overcoming barriers to education access globally, which she personally witnessed during her years living in Syria and Pakistan. Fizza also found joy in contributing to initiatives at home at McMaster and assisted in planning multiple wellness initiatives at the Student Wellness Centre. The process of generating ideas within a team-promoting inclusivity in events, and aligning initiatives with diverse student needs, made this one of her most memorable experiences at McMaster. Fizza has also served on the editorial board of The Meducator, a student-run undergraduate health sciences journal. As editor, Fizza was able to learn about the process of scientific publication from start to finish. She was also able to share her love for writing as she collaborated with authors and reviewers during the editing process. Most importantly, Fizza enjoyed being part of a platform that promoted student research and encouraged her peers to become active members of the scientific community. Fizza learned a great deal from these experiences at McMaster, and hopes that she can continue to grow as a leader and community member.

Since beginning his undergraduate studies, Aditya (Dave) Nidumolu has worked to engage himself in the university and local community. Drawing from a lifelong love for entrepreneurship, Aditya joined the McMaster Entrepreneurship Association in 2013 and later became its president in 2015. During his time with the club, he initiated an extracurricular course for McMaster students to learn about how to develop a business. In addition, he has helped merge several entrepreneurship-focused groups on campus into a single entity and aimed to better integrate his club’s activities into the broader Hamilton entrepreneurship community. Aditya adds that it has been a great experience to serve in his position and help other students learn more about entrepreneurship—a pursuit which can help students develop problem-solving skills that will be useful irrespective of their career goals. In the past year, Aditya noticed that it is relatively difficult for students outside of select programs at McMaster to learn about research opportunities and develop the skills necessary to pursue them. To better understand how undergraduate research experiences can be improved, Aditya lead a team of students to conduct a literature review on best practices in implementing undergraduate research programs. As a consequence, he founded the McMaster Student Research Council—a group of students that works closely with administrators and faculty involved in the McMaster research community to improve educational programming related to undergraduate research. During his time in the Bachelor of Health Sciences program, Aditya was also involved in the McMaster varsity fencing team, the Bachelor of Health Sciences Society, and McMaster Undergraduate Health Sciences Research Journal. He looks forward to another year of learning from and contributing to his local community.

Since first year, Lily Park has looked for ways to make meaningful contributions to the McMaster and Hamilton communities. This led her to volunteer at the Student Health Education Centre (SHEC), where she provided confidential peer support and helped coordinate events to raise awareness about mental illnesses. Lily continued her involvement with SHEC as an executive member where she trained incoming volunteers and helped implement new services. Lily has also been involved with the Rare Genomics Institute McMaster (MacRGI) as an executive member where she managed a team of students to prepare and conduct presentations for local high schools. This was done to mentor high school students, encourage their interests in the sciences, and advocate for future research endeavours to improve the quality of life for those affected by genetic disorders. Since the arts have always been an important aspect of her life, Lily integrated this passion into her community involvement through the Hamilton Music School where she prepared for annual student-run musical performances to raise funds for youth arts programs in Hamilton.

Lily is incredibly proud that she is able to use her love for performance to help fund programs that give at-risk youth the opportunity to also participate in the arts, something that has brought her much joy over the years.

Yifan is also recognized for the unique needs of university students, and has become passionate about addressing them. In her second year, she became a volunteer at SHEC, where she was trained to offer confidential peer support and programs and tests, as well as referrals to other services. As a member of the sexual health committee, Yifan contributed to the conception of a series of posters illustrating what consent is and is not. These posters have since been printed and distributed in residences, and have received over 165,000 reblogs on Tumblr, reaching and educating an audience far wider than McMaster.

In her third year, she became a walker for the Student Walk Home Attendant Team (SWHAT), where she learned that it is a service valued by students wanting company and safety alike. Currently in her role as the Public Relations Executive, she, in collaboration with others on her team, planned and executed the November Walk-A-Thon, contributing over $400 to Neighbour to Neighbour Centre, a local Hamilton organization dedicated to serving various in-need populations.

In 2016 we were fortunate to award four scholarships, The scholarship recipients for 2016 were Fizza Manzoor, Aditya Nidumolu, Class of 2016; Lily Park, Class of 2016; and Yifan Yang, Class of 2017,split into two parts: the BHSc (Honours) Scholarship and the Undergraduate Hamilton Community Service Scholarship.
The ability to “think outside the box” has characterized McMaster faculty for as long as I can remember, and the passage of time certainly doesn’t seem to hinder their resolve to transform undergraduate education in every way unimaginable. Through careful planning and collaboration, the Faculties of Engineering and Health Sciences have designed a new and exciting biomedical program, which will welcome its first cohort this upcoming September. The Integrated Biomedical Engineering and Health Sciences (iBioMed) Program seeks to endow students with the interdisciplinary background needed to tackle and implement practical solutions to the healthcare problems of today. Designing a hip replacement that lasts longer, for example, or a prosthetic arm that allows you to feel sensations of touch, requires a working knowledge of the health sciences in addition to having mastery over modern engineering skills and techniques, which is exactly what iBioMed hopes to instill in prospective students through inquiry and problem based learning.

The 5-year undergraduate program is aiming to bring together roughly 140 students, who will share a common first year before entering one of two specialized degree streams. They either pursue an engineering degree (B.Eng, BME) that centers around biomedical engineering in addition to a student-selected core engineering discipline (e.g., civil, chemical, software, etc.), or a unique honors health sciences degree (B.H.Sc.) which ties health, engineering science, and entrepreneurship together to raise a graduate who can interact and collaborate effectively with healthcare professionals and patients. It may not come as a surprise, but the latter stream can spark anyone’s curiosity if they consider how it might compare to our much coveted BHSc. Harnish, Associate Dean, Undergraduate Education, Health Sciences have designed a new and exciting biomedical program to bring together roughly 140 students, who will share a common first year before entering one of two specialized degree streams. They either pursue an engineering degree (B.Eng, BME) that centers around biomedical engineering in addition to a student-selected core engineering discipline (e.g., civil, chemical, software, etc.), or a unique honors health sciences degree (B.H.Sc.) which ties health, engineering science, and entrepreneurship together to raise a graduate who can interact and collaborate effectively with healthcare professionals and patients. It may not come as a surprise, but the latter stream can spark anyone’s curiosity if they consider how it might compare to our much coveted BHSc.

In the fall, the Faculty of Health Sciences introduced a new first-year elective course aiming to foster the development of information literacy skills expected of any undergraduate student today (or anyone working in an academic setting, for that matter). It is aptly named, “Health Sciences in the Media” (HTH SCI 1K03), as students refine their ability to critically appraise available information by examining media reports describing health science-related discoveries. The value behind the typical health science course at McMaster arguably stems from its inquiry-based design, which begets improvement in a skill set (the renowned 6 Ps) that is transferable to any area of study. However, the content that you are required to learn in many of these courses is only applicable to those who have a background or interest in science. In this regard, HTH SCI 1K03 is quite unique, for it isn’t the research behind the discovery that matters, but rather how the media’s rendition of it compares to the original source’s presentation of the facts. While media representations are comparatively more accessible and easily understood than the primary literature, it goes without saying that scientists and non-scientists alike must be equipped with the skills and experience necessary to make an informed opinion regarding the messages conveyed. The course is therefore useful, and is accordingly open, to any first-year student from any program; the inaugural session, for instance, had students from BHSc, Nursing, Integrated Science, Commerce, and Humanities.

Taught by Dr. Eric Seidlitz, the course is structured as weekly lectures that highlight the tools, skills, and concepts required to complete two major projects. Students are taught, for example, how to locate information using the McMaster library system, navigate academic search engines and online databases, and use citation management software for referencing. The projects involve the deconstruction of popular news stories pertaining to health sciences research, which gives students an opportunity to apply what they’ve learned and exercise critical thinking. For a given media report, they must discuss aspects related to its quality and accuracy, like the author’s credentials, trustworthiness of the outlet, biased statements, evidence of hype with respect to the original research, etc. The task also presents first-years with an opportunity to closely examine scientific literature and get a sense of how various primary sources communicate information. This – along with lectures on types of health sciences research, publication and the peer review system, and metrics – ultimately lends itself to an appreciation of the modern practices of scientific research. After critically appraising their selected news stories, 1K03 students rewrite them, headlines and all, to produce a single story that better reflects the underlying science (and also doesn’t violate the university’s Academic Integrity Policy). This promotes the development of a skill that is a challenge for many: being able to explain something as concisely and accurately as possible to someone with little to no background knowledge of the topic.

Based on my own experience in the course, the chance to practice a few of those academic skills which are going to carry you through university (and beyond), in a setting that provides formal instruction, is one worth striving for in first year. At the very least, you might learn to never stand American word spellings whilst living in Canada!
Not everyone has been pleased by the changes. “There was some furor” admits Stacey. Quite a few students feared there was nothing special about the specialization if anyone could take BMS courses and claimed the reduced focus on classical Biochemistry made BMS not much different from the core Health Sciences (Honours) Program. “We had a good meeting with great dialogue. I explained the rationale, offered reassurances and acknowledged there were going to be differences of opinion” says Stacey. A number of courses used to be exclusive to BMS students but we saw low enrollment … these courses have now been opened up to others. It’s better to have more access and it’s a better use of resources. That’s better than being exclusive just for the sake of exclusivity!

Though the changes were not mandatory for senior BMS students, many are taking advantage of them to branch out and explore other areas of interest, beyond Biochemistry. For Stacey this is a clear indication that the changes were desirable for many and that much of the initial anxiety has settled through the transition. This willingness to change, to experiment and evolve the Biomed Specialization exemplifies one of the BHSc (Honours) Program’s greatest strengths. “To try something new, to never get ossified and always be willing to fly in the face of tradition for the sake of progress is the norm in Health Sci.”

What is this course similar or different to other courses you have facilitated, or even other science courses? YouT ube channels based on this concept!.

How did this course come to life? What was the most interesting part for you? What was the most interesting part for me was the engagement of the students, their enthusiasm was contagious! The students were a huge part of making the course what it was; they surpassed my expectations every week.

As scientists, we sometimes stumble upon observations that are perplexing, confusing, or outright bizarre! In these moments, we have no choice but to extrapolate from the existing scientific literature to generate hypotheses to explain those observations. What has the students’ reaction to this course been like? So far, the students have been extremely positive. They have described the course as “fun” and “engaging,” that the work they do doesn’t feel like work because they are investigating something in which they are interested. Other students have described the course as truly interdisciplinary, as they are required to draw from a variety of scientific literatures (e.g., biology, psychology, sociology) to explain their fictional characters. How is this course similar or different compared to other inquiry courses you have facilitated, or even other undergraduate courses you have taken? In some ways, the course feels familiar, as I am working with many of the students who have dedicated the entire learning process to some thing many people might consider a hobby. In fact, many students shared their ideas and my interest in the course with some colleagues, friends, and family members, they all thought I was joking!

Now that you’ve taught this course and brought it to life, what are your thoughts on it? Was the most interesting part? I am extremely happy with how the course turned out. Initially, I was nervous the course wouldn’t be as fun in my head, but now that I’ve run the course, I can say that it’s much more fun in person! The most interesting part for me was the engagement and excitement of the students; their enthusiasm was contagious! The students were a huge part of making the course what it was; they surpassed my expectations every week. Given their group research projects and infographics to the discussions we had in class.

Where do you want to take this course moving forward? Are you thinking of making some changes to it? Absolutely! Every semester is an opportunity to evolve and improve. I have received a lot of helpful feedback from the students, and I have begun implementing these for the new semester. Moving forward, I am very interested in expanding this course so that more students, including students outside of BHSc, are able to take it. I am also very interested in spreading word of the course outside the university. As there seems to be a lot of interest these days in bridging science with fiction (my evidence is the number of successful YouTube channels based on this concept). In this respect, the course has received some interest from local comic (and other related) conventions, and some of the students have even brought it to the next level by pitching it for their committee. 3FC3 might be heading to a convention near you!
Meet Yung Lee, Wilson Leadership Scholar 2016

Yung Lee, BHSc (Honours), Class of 2018, was one of the first three recipients of the Wilson Leadership Scholar Award, a prestigious award that recognizes the country’s next generation of leaders. Open to students across all faculties, the award includes $50,000 to cover education fees over a two-year period and admission to a leadership development program, deeming it one of the scholarships of highest value in Canada. We asked Yung some questions to get to know him and his vision as a Wilson Leader.

What does “leadership” mean to you? We’ve all been in situations in which we were led by an amazing leader that made us feel enthusiastic, or by an abrasive leader that made us question our own significance. I think every leader walks a fine line between acting as an authority (the one that dispenses truth) and an authoritarian (the one that abuses truth). In any leadership role, I strive to respect the strengths and weaknesses of all individuals on my team and balance their insights with my own skills when making decisions or working towards a specific goal.

What qualities have contributed to your success as a leader? During the summer before my first year of university, the thought of entering a new community left me imagining what my university life would be like. While these thoughts made me feel scared or nervous at times, I mostly felt like this was a great opportunity for me to finally leave my comfort zone and grow as a person. University offers a fresh start, a blank slate, and I intended to make the most of that. I truly believe that being a good follower, a good leader, and a good person is contingent on being able to take healthy doses of risk in daily life. So far in my university career, I have never regretted risky decisions I made—whether it be for my team, my initiatives, or myself. Therefore, I truly believe that a large part of my leadership quality is tied to risk-taking and cherishing every opportunity I am provided with to learn.

As one of the first recipients of the Wilson Award, how do you hope to inspire young scholars? What advice would you give? I think being one of the first recipients of this award comes with great responsibility. Not only do I need to continue to excel in my academics and extracurriculars, but I also need to be able to demonstrate to future Wilson Scholars (and hopefuls) what I can accomplish. This leadership program is still a work in progress, which means this program will be shaped by what we do with it. Therefore, I hope to inspire young scholars by continuing to be hardworking, approachable, and modest. I think the best advice that I can provide to young scholars is to always be open to learning and to be a student at heart.

What do you hope to achieve in the future? After my undergrad, I hope to pursue medicine while continuing my involvement in the field of clinical epidemiology research (evidence-based medicine). Coming into university, I thought being a doctor would be the one and only goal for me. However, after witnessing the impact of research on current medical practices, guidelines, and, ultimately, the lives of patients, I truly began to value research and would like to incorporate it into my professional life. Maybe, after my MD, I will get a graduate degree to expand my research interests, while narrowing down which field in medicine I want to pursue in the future. Also, as part of the inaugural cohort of Wilson Scholars, I want to be a leader in the field that I pursue, and continue to be involved in the BHSc and Wilson Scholar community in some sort of way.

What have you been up to since you left BHSc? What is your role now? How is it different from your previous role? There are opportunities and pieces of excitement everywhere, whether they are creating new courses or taking on new initiatives. It has been fun working with both students and staff in the BHSc program, but I have been in the position for the last 15 years which is way too long. It was time for a fresh person. I could have accepted the administrative appointment to stay with the BHSc program for a couple of more years, but with any position, 15 years is too long.

The Assistant Dean role is something that should not take 10% of your time. It should be taking up 90%. We had to look for people who are significantly devoted to education to find my replacement. While many people are devoted to research, you have to think more about education in this role. The program is in good hands with Stacey. We knew her from her previous work in the program. She was a first year inquiry facilitator and has lots of experience.

Tell us more about the new Integrated Biomedical Engineering and Health Sciences (iBioMed) Programming. We decided to create the new Integrated Biomedical program because there is a huge gap in Canada. The biomedical engineering field is still relatively small in Canada and it needs to increase to fully explore the new opportunities available in the area. While a couple of universities have started programs, they have not been as prevalent in Canada when compared to other fields. We have perceived a need to train individuals to see the problem from both the engineering and health sciences disciplines.

When we talk about health, there are so many components that would not exist without engineers. Think about it. Many aspects of medical equipment, such as MRIs, require an extensive knowledge of not only the health aspects of science but also engineering. We are now getting into a world that is exploring nanoparticles, targeted drug delivery, new kinds of vaccination or even antinumour therapies that can benefit from the innovations in biomedical engineering.

Engineers will be very happy with the inquiry nature of the new program. In fact, they do this sort of thing already. They usually start with the problem and collaborate together to come up with solutions. I had the chance to interact and work with a couple of engineering students during the AN INTERVIEW WITH DEL HARNISH:
ASSOCIATE DEAN, UNDERGRADUATE EDUCATION, FACULTY OF HEALTH SCIENCES (FHS)
Compiled by: Steven Cho, BHSc (Honours), Class of 2018

Emerging Health Leaders sessions. We also talked to current students in the BHSc and Electrical and Biomedical Engineering (B.Eng.) programs. We reached out to engineering students who were taking anatomy. BHSc graduates in engineering fields and held focus groups to garner multiple perspectives. Courses will be developed specifically for the incoming students to the program.

How can students contribute their ideas to start new programs or course initiatives? There is nothing administrative to prevent students from providing their input. It is completely possible. In fact, some of the great courses that we currently have in the BHSc program came from students’ ideas. I would say that if you have an interest and want to see it delivered through courses, propose your idea to Stacey. Talk to her and discuss what you would want the learning outcomes to be. It is through this feedback that we are able to gauge student interests. Without it, the program has no idea what students have in mind.
I graduated from the program in 2004 and had a very short flirtation with law school before I dropped out. I needed more time away from school to figure out what I really wanted to do. Del Harnish, who was the Assistant Dean, of the Bachelor of Health Sciences (Honours) Program at the time, gave me an office and a year to experiment with some new ideas in education. I flourished and found an exciting area of research – complexity science – that shifted my whole worldview.

I went to the University of Toronto to do a master’s on complexity theory and inquiry-based learning, while simultaneously exploring the arts and contemplative practices like mindfulness as vehicles of transformation. At the time, mindfulness was far from the zeitgeist it is today.

Grad school was tough. I struggled to find folks that resonated with my ideas and questions. However, I persevered and eventually found a group of academics, artists, and therapists to study within a doctoral program at Simon Fraser University in British Columbia. My time out West was amazing. My interests in philosophy, education, the arts, group process, and therapy converged at Simon Fraser University in British Columbia.

I went to the University of Toronto to do a master’s on complexity science – that shifted my whole worldview. I flourished and found an exciting area of research – health.

In the HTH SCI 3QA3 Qualitative Research Methods in Health is going to be really exciting. We will be exploring the richness of narrative, the complicated intersection of self and culture, the creative and sensuous world of the arts, and the play of language – all in relationship to self, other, health and research. I think the arts and humanities are deep wells of practical knowledge about how to conduct and communicate research. Looking at the world qualitatively is a very different paradigm from the one that privileges empirical objectivity over meaning and experience. Qualitative research places us, the researchers, more at the centre of the process and creatively complicates the personal, cultural, institutional, linguistic, socio-political, and spiritual dimensions of health. Students will have an opportunity to dive deep into a methodology and teach it to the class as part of a group, while also working on developing a real research proposal.

Reality hit hard after graduating with my PhD in 2014. I struggled for a while to find scraps of work and define my place in the job market. I started to figure out how to translate and transfer my skills in research, writing, coaching, leadership development, curriculum design, and the arts to new areas. I do freelance writing and research, teach mindfulness at UofT, manage a fellowship at MaRS Discovery District in Toronto, and do creativity coaching on the side. In a world where career paths are much less defined, I now recognize the challenge as one of crafting a unique career out of my many skills and an openness to being shaped by unexpected opportunities. The adventure continues.

Today I'm an Assistant Clinical Professor at McMaster in Geriatric and Internal Medicine. I've completed a Fellowship in Behavioural Neurology at UCSF, and I'm currently enrolled in a Masters in eHealth. I love dealing with people, especially vulnerable populations, and I love learning about how complex issues interact within patients and within patient populations. I chose Internal Medicine because of the depth of knowledge and comprehensive approach that it takes to diagnosing and treating peoples’ ailments. I chose Geriatrics because I love dealing with patients holistically in the context of their larger family. In Geriatrics you get to deal with neurologic issues, psychiatric issues, medical issues, as well as functional and social work problems. It stretches me to use all of my skills to provide the best care.

At the same time, elderly patients are very appreciative.

From the eHealth point of view, I love understanding how technology can improve our ability to diagnose, treat, and manage patients, but more importantly how technology can empower patients to take control of their health and become better educated about the interventions and medications that can help improve their health. This is certainly the way of the future.

Inquiry is about as real as life gets. Nothing is black and white in the real world. Identifying learning goals, coming up with a process to obtain that knowledge, and then understanding when you've learned enough to answer your question or completed your goals is so important. It is the most valuable skill that I took from my undergraduate years. Maintaining an active brain while learning and not just memorizing facts is also important. We clearly left BHSc understanding that there are many different ways to learn and approach problems, and selecting the right approach for a particular problem is a skill set in itself. Being creative in the learning process was also encouraged. I think the biggest problems I see in the healthcare system today are a result of people not exercising creativity at work, and people not being confident enough to take risks. Those are two values that I felt the BHSc Program instilled in us.

If you could give advice to your first year self, what would it be (share a personal lesson or tip that you wish you knew when you were in first year)?

1. Establish better sleep hygiene earlier in life.
2. Establish better exercise habits early in life.
3. Don't put so much pressure on yourself to be perfect in all aspects of your life. It takes time, experience, relationships, and maturity to gain perspective and be the person you ultimately strive to be. Try to relax and take it all in.
4. Think about your haircuts and facial hair styles. They will come back to haunt you!)

Immediately after leaving the BHSc Program, I realized that I had received a valuable experience. That value has only increased in time. After 13 years passing, I have not encountered an educational experience that matched what I received in those first three years. I'm so thankful to Del, Mo T (Teresa), Penny, Andrea, Stash, and all the Profs for putting their minds, hearts, and souls into creating such an amazing experience.

 Anything else that you would like to share with the BHSc Community (e.g. favourite BHSc/McMaster memory; inspirational quote).

-Sean Park should bring the mutton chops back.
-Rich Hildden should continue to jump off stages like a wild man for the rest of his life.

Favourite memories: playing the BHSc coffeehouses, riding in the Montreal Maniacs, house crawls, chemistry madness, and Chari’s toxicology class…names out of a hat with the whole term on the line.
ALUMNA PROFILE: CHELSEA MACKINNON
BHSc (Honours) Class of 2015

Compiled by: Tiffany Got, BHSc (Honours), Class of 2018

Since graduating from the BHSc (Honours) Program, what have you been up to?

After graduating in 2015, I returned to McMaster to do a 5th year of courses, which was an awesome decision! I was able to take so many interesting courses, conduct a second large research project with my thesis supervisor, and explore many different opportunities. I could pursue after my undergraduate education. In the fall of 2016 I began my MA in Music and Health Sciences at the University of Toronto, which has been an awesome fusion of my two interests: music and health.

What plans do you have for the future?

I plan on working towards my clinical certification so that I can practice as a Neurologist Music Therapist, and I am also going to pursue a second MA degree through Queen’s University: MA of Entrepreneurship and Innovation, in the Community Health stream. I will also continue to teach Music Health and the Community at McMaster, both the initial course and the practicum component (part two).

How would you describe the courses that you are currently instructing?

HTH SCI 4D03 Music, Health and the Community is an interdisciplinary course that provides a broad overview of music and health, music therapy, and the importance and benefits of intergenerational interactions. Students in this course complete one month of community programming with an elementary school and a retirement home/long-term care facility in a Hamilton community through the Hamilton Intergenerational Music Program. HTH SCI 4W03 is the Practicum component, where students who have completed 4D03 work in the community for three months. The in-class component consists of student facilitated discussions on a research topic of their choice that is related to the program.

How did you start the Hamilton Intergenerational Music Program?

The Hamilton Intergenerational Music Program began as a 4X03 initiative – I joined a tutorial that was looking at doing some musical activities. We spent lots of time refining our ideas, and ended up running a ‘pilot’ program towards the end of that school year. During my fifth year, I continued to run programming, and it was during this year that the program took on its current structure.

How did BHSc facilitate this opportunity?

I believe that it was through the 4X03 structure (which many would argue is actually quite un-structured) that allowed us to explore our own interests, the needs of the greater community, and ultimately come up with the idea for the program. This course is unique to the BHSc (Honours) Program, and in another program we may not have had the same opportunity to be creative and come up with such a meaningful project.

The BHSc (Honours) Program has also been instrumental in the continuation of the program, and its transformation into a BHSc course. Without the support from Stacey, Margaret and the rest of the BHSc team, I would not have been able to continue to engage Hamilton seniors and students together in the Hamilton Intergenerational Music Program.

What is one take-away that you have learned in the Hamilton Intergenerational Music Program?

I have learned so much throughout this entire process, it is really hard to pick one take-home or take-away message. One overarching lesson I have learned is that if you are passionate about something, do everything you can to continue to pursue it. I saw first-hand the benefits to the community that the Hamilton Intergenerational Music Program was bringing, and by exploring opportunities to continue this venture I was able to ensure that Hamilton communities (and McMaster students) could continue to engage in the program, and benefit from it. If you asked me a year ago, I would have said that since I was moving to Toronto there is no way I could have continued to run the Hamilton Intergenerational Music Program. Today, I am so thankful that I explored this possibility, and am even more thankful for the incredible support from the BHSc Program, music program, and the Hamilton Wentworth District School Board.

How has your experience of teaching BHSc students been? What has inspired you about the process? What has surprised you?

I teach 4D03/4W03 on Wednesday evenings in Hamilton, and I usually have 8:00am class on Thursday mornings in Toronto. Every week, I wake up on Thursdays feeling so refreshed and motivated, and it is totally due to spending the night before working with my students at McMaster. Teaching a group of such motivated, innovative and inquisitive students is truly a pleasure. I am inspired every week by their enthusiasm, and genuine drive to be the best they can be.

What do you hope students gain from this course?

I am in a very unique position as the instructor of this course. I recently completed my Bachelor of Health Sciences (Honours) degree at McMaster, and now am in a role where I contribute to students’ undergraduate education. As such, I have set up certain assignments and course structures to ‘fill a gap’ that I perceived when I was completing my degree. I hope that by the end of the course, students have an appreciation for the importance of giving back to the community in which they live and learn. Structures don’t function without community, and it is important for each of us to contribute to both. Finally, I hope that students gain an understanding of the rich links between music and health, and I hope to inspire them to pursue their passions.

What experience has impacted you the most during your time in the BHSc (Honours) Program?

I think that I recognized my ‘most impactful BHSc experience’ after leaving the program. I did not realize what a unique learning environment I had been immersed in at McMaster. I have yet to find a group of students who are so invested in their own education, and so dedicated to their schoolwork. I truly miss being surrounded by 215 like-minded individuals who constantly pushed me to do my very best.

What would you have done differently during your BHSc experience?

I think my only regret during my undergrad was doing things just because all of my classmates seemed to be doing them. Did I really need to spend the summer after second year writing the MCAT? I thought at the time I did, because all of my friends were! Looking back, I could have spent that time on an adventure that was really meaningful to me.

What advice do you have for current BHSc students?

Although this is much easier said than done, I think it is so important to tell students to not compare themselves to their peers. Instead, devote that energy to being confident in your own personal adventures, accomplishments, and interests. Looking back, it was very stressful to think about my own life compared to my classmates. It is true that you are surrounded by an incredible group of accomplished individuals in BHSc – I wish I had recognized that I was just as accomplished as all of my friends, earlier! I would tell current BHSc students to be confident in themselves, to recognize their own personal strengths, and to embrace their weaknesses (because we all have them).
Could you tell us about who you are and what you have been up to since graduating from the BHSc (Honours) Program?

Since graduating, I have been pursuing a career as a global health researcher. I study the role that international law and institutions can play in addressing global health challenges. My work comes from an understanding that our society can collectively take proactive measures to improve people’s health in Canada and around the world. When I was a BHSc student, I had the good fortune to work with the incredible John Lavis on health policy research. My very first research project as a research assistant with John was focused on the use of research evidence among health professionals and policymakers in low- and middle-income countries. It was such an eye-opener to learn about how health needs differ across countries and how certain policies can be differentially effective depending on the context in which they are implemented. I did not go into BHSc planning to pursue a career in research. In the program, I learned about the power of ideas and I thought that I could help by contributing to those ideas around what kind of actions are needed to improve health. Initially, my intention was to focus on the Canadian context. While this still remains a great interest, I became captivated by the reality that there is even more to be done outside of Canada. I had the opportunity to do an internship at the World Health Organization (WHO) in my last year of BHSc, during which time it was so interesting to suddenly talk to people from more than 33 million Canadians. I do not mean to diminish the importance of focusing on Canadian health policy; in fact, in my role as the Scientific Director of the Canadian Institutes for Health Research’s (CIHR’s) Institute of Population and Public Health, I am responsible for exploring the very cutting-edge research. I first met John in an interview to be his research assistant and we have been working together consistently for the last 12 years. The kind of work people like John are doing is world-class, which represents the highest quality of work that researchers should be aspiring to achieve. The opportunity to work and contribute to this kind of cutting-edge research allowed me to learn from the best and try to emulate that in my own work.

I also learned from the program that in certain cases rules are not strictly followed. People in the program are very much focused on negotiating. There are always program requirements, prerequisites and various guidelines on the way things are supposed to happen. Sometimes they can hold you back. Del Harnish always encouraged us to chart our own futures. For example, BHSc gave me the opportunity to apply for a research assistantship in the Canadian context but there was something exciting about thinking of the potential impact of research on billions of people rather than millions of people.

I had always been interested in law, governance and decision-making processes. After BHSc, I went to law school to gain skills and an analytical lens to think through policy, regulatory and legal issues in a systematic way. I did my PhD in health policy, got a doctorate in law, and from there got a professorial job at the University of Ottawa. More recently since August 1, 2017, I have also been working as the Scientific Director of CIHR’s Institute of Population and Public Health. In this role, I am one of the people leading Canada’s principal health research funding agency. I work with health researchers to set the next priorities for research funding and try to help get their research into policymaking processes.

What have you taken away from the BHSc (Honours) Program?

I gained so much from the program, both professionally and personally. First of all, the chance to work comes from an understanding that our society can collectively take proactive measures to improve people’s health. I met John in an interview to be his research assistant and we have been working together consistently for the last 12 years. The kind of work people like John are doing is world-class, which represents the highest quality of work that researchers should be aspiring to achieve. The opportunity to work and contribute to this kind of cutting-edge research allowed me to learn from the best and try to emulate that in my own work.

It also came up in other contexts along the way. I remember when I was in law school; I was applying to a joint master’s program. Unfortunately, I did not meet any of its admission requirements. But I argued my case. I had not taken enough economics, but I took a half course in health economics. I did not speak French but I argued to the admissions committee that I could speak French. I did not take a course in politics but I explained my research experience with John Lavis who was cross-appointed to McMaster’s department of political science. BHSc taught me to be bold and to try to chart my own path. Recently, I applied for the role of the Scientific Director of CIHR’s Institute of Population and Public Health. I am the youngest person to ever serve as a CIHR Scientific Director, but this was a job that I thought I could do well and I thought it would be helpful for CIHR to have a younger perspective with a different background. So I decided to give it a shot and I guess I got it by making a case for myself. Having the confidence to challenge the existing norms on what one expects or how things should be, is something that I can definitely credit to the BHSc (Honours) Program.

What is your advice to students who may be uncertain about their career path?

Early in my career, I made the effort to undertake a diverse range of experiences. I wanted to see what it would be like to do research, to have a post in government, to be employed by an NGO and to work in industry. I tried to seek out those different experiences so that I could make an informed decision about my future. My advice would be to expose yourself to different experiences. Personally, many of my experiences were from extracurricular activities that allowed me to gain leadership, organizational and management skills. I advise BHSc students to explore a diverse range of possibilities. For example, try to see what it is like to be a practicing doctor, or to work in business or to do research. Try and see what works for the life you want to live.

I also think mentorship is absolutely critical for pursuing careers. My advice for students is to find a mentor who cares about them. I am always open to the idea that sometimes rules should not apply in certain situations. Rules are created for a point. But I am definitely open to the idea that sometimes rules do not make sense for the given circumstances. I am not a rule breaker, but I know that rules are there for a purpose. In my last year in the program, I went to Geneva to intern at the WHO. I made a case that being in that environment would be an enriching experience and how I could make it work while achieving the underlying objectives of the program.

By: Yosef Ellenbogen and Maxwell Ng, BHSc (Honours), Class of 2018

McMaster iGEM

McMaster (iGEM) is an undergraduate team for the International Genetically Engineered Machine (iGEM) competition in synthetic biology. We are a student-run team supported by Hamilton Health Sciences, the McMaster Faculty of Health Sciences and the McMaster School of Biomedical Engineering. Each year, we design and develop a project within the field of synthetic biology. During the school year, we work on the project design and modeling components, human applications of our project, as well as synthetic biology education and community outreach events. During the summer, we work on our project in the lab.

The culmination of our work is presented at the Giant Jamboree each year in Boston – an international conference on synthetic biology, where undergraduate teams and speakers from around the globe share their ideas, knowledge, and accomplishments. This past year was our second year attending the conference, and first year formally competing. Last year we explored the automation of protein production and harvesting in E. coli using multi-chromatic light, and this year our team won bronze at the conference for our work on designing lactic acid bacteria as a targeted immunotherapy for gastrointestinal cancers.

McMaster iGEM is still in its infancy as a club, and we are excited to have earned international recognition in our first year of formal competition. Moving forward we plan to continue pursuing excellence in research, as well as expand the scope of our projects and outreach, demonstrating the importance and potential of synthetic biology research.
An Incomplete Picture

In individuals with eating disorders, the dorsal vagus nerve sends persistent stressful sensory information to the brain, resulting in symptoms such as low heart rate and blood pressure, blunted hormonal regulation, anxiety, depression, and cognitive impairment. The ventral vagus nerve (which is responsible for social engagement) is under active, resulting in introversion, ventral vagus nerve (which is responsible for social engagement) is under active, resulting in introversion, and inability to interpret the body as it actually is.

The Wandering Nerve

Known informally as the “wandering nerve”, the vagus nerve roams throughout the body, forming a vast network of fibres that allows communication to occur between vital organs and the brain. Its tendrils extend to the heart, lungs, and digestive tract, conveying information back to the brain about the internal state of the body. The vagus nerve also has a more evolved component that senses environmental signals related to emotion and safety. In response to an environment with no immediate threat, this component promotes the body’s emotion-socialization behaviours through a ventral vagus nervous branch. Altogether, the vagus nerve contributes to a moment-to-moment “picture” of the body by communicating internal and environmental sensations to the brain. This picture is used to react to the body’s needs.

The Need for a Body-Mind Intervention

A successful treatment for eating disorders must treat both the physical and environmental interpretations of stress — reducing the body’s physical reactions to stress. The researchers also observed a 24% significant reduction in depression (they dropped from a category of “severely depressed” to “mildly depressed”) in both groups, with some moderate improvements in participants’ overall mindfulness. By the end of the intervention period, participants in both groups felt that mindfulness techniques helped increase their health and mood. Participants reported a variety of benefits from their mindfulness practice, including learning skills to relax in moments of stress, relief from food concerns, and feeling more connected to their bodies.

References


RESEARCH AND PROGRESS IN CANCER THERAPY

Chronic myeloid leukemia (CML) is a slow progressing disease most commonly affecting those over the age of 50 (1, 2). In this disease, the immature blood cells proliferate uncontrollably due to the presence of an abnormal chromosome 22 called the Philadelphia (Ph) chromosome (1–3). Myelogenous leukemias affect the development of the myeloid lineage cells, which includes red blood cells; platelets; and neutrophil, basophil, eosinophil, and macrophage white blood cells (WBs) (Figure 1) (1, 3). The chimeric BCR-ABL fusion gene located at chromosome 22q11.2 is found to have oncogenic property, causing immunodeficiency, anemia, and excess bleeding or bruising (1). CML progression can be classified into three phases: chronic phase, accelerated phase, and blast crisis. These stages are based upon the number of immature WBCs in the bone marrow or blood (4). The natural progression of the disease from the benign chronic phase to the rapidly fatal blast crisis occurs within 3–5 years (2).

Figure 1. The differentiation of hematopoietic stem cells
Prior to the advent of current treatment in 2001, only one in three patients survived past five years post-diagnosis (5). It was discovered in the 1980s that the Ph chromosome caused the body to produce an abnormal constitutively active form of an enzyme called the tyrosine kinase (TK). The TK was then found to stimulate uncontrolled WBC growth, which allowed researchers to develop a TK-targeting treatment for CML. Research labs started screening compounds that suppressed the abnormal TK, leading to the discovery of a compound called STI 571, later imatinib. In 1998, imatinib entered its first human trial as a TK inhibitor (TKI). Imatinib was approved by the Food and Drug Administration (FDA) as the first-generation first-line CML treatment in 2001 (5). Because TKIs act on the abnormal enzyme and not on the gene on the Ph chromosome, they do not cure the disease where patients are in stable remission without therapy (6,7). Rather, it controls the disease in the long term with continuous use (6–9).

Figure 2. The mechanism of TKIs with imatinib as an example.

The prognosis for patients with chronic phase CML is already remarkable. With the improving technology aiding research for treatment development for CML, as well as many other cancers, patients in the accelerated phase and blast crisis may also one day soon witness complete remission.

Additionally, research and technology has advanced to a point where modern medicine can use NGS to analyze various cancers, residential and system side effects associated with classical cancer therapies.

With the improving genetic technology, thousands of gene expressions can be simultaneously measured, allowing a high-throughput platform for drug research and development (17). For example, next generation sequencing (NGS) can sequence a person’s entire genome within one day (18). With more precise diagnosis using NGS, the treatment of various cancers, including CML, can be tailored to a specific mutation. NGS can also systemically study cancer genomes and drastically improve the database of candidate genes contributing to cancer (18).

The Bachelor of Health Sciences (Honours) Program fosters lifelong learning among its students by encouraging feedback, evaluation and experimentation. The BHSc (Honours) Program leads by example and operates in accordance with the following goals that would have a large impact on reducing health burden. This student group related global health advocacy strategies targeted towards the mass public that would raise awareness and support the young people towards better and equal healthcare.

For their HAW projects, the student groups undertook the following projects:

1. Partner organization: Health Impact Fund (HIF)
   The Health Impact Fund (HIF) is a proposed solution for incentivizing pharmaceutical research and development for drugs that would have a large impact on reducing health burden. This student group researched global health advocacy strategies targeted towards the mass public that would raise awareness and provide the youth with an equal opportunity for the betterment of global health. The project involved an additional community engagement project of creating a promotional video for HIF.

2. Partner organization: 53rd week
   The 53rd week is a non-profit organization that seeks to promote responsible short-term volunteering abroad through advocacy, research and partnership. This student group researched reforms to the Ontario medical school admission process that could encourage responsible volunteering in the pre-medical student body. This group was involved in an additional project of conceptualizing a potential study to assess perceptions regarding short-term volunteering.

Partner organizations:
Partners in Health Canada Partners in Health (PIH) is a non-profit global health organization that addresses health challenges through service, research and training. This student group researched the outcomes of foreign donation to the public versus the private sector in Haiti. Their research included case studies of operations run by PIH in Haiti.

The HAW presented an unparalleled learning opportunity to students. Each group was able to gain an in-depth perspective into the operations of their partner organization and the environments in which they operated. Beyond learning about or discussing principles of global health advocacy from a theoretical perspective, students were able to apply their knowledge in a real-world setting. By engaging with the challenges of global health advocacy, students gained firsthand insight into its complexity. Furthermore, students were continually challenged to draw upon novel resources, modes of thinking and skills. The fact that many of the student groups have chosen to remain involved with their partner organization after the course has ended attests to the value of this learning opportunity.
In 2016, a group of McMaster University researchers developed a Chlamydia vaccine that incorporated a novel chlamydial antigen, BD584. This vaccine was effective in reducing infection in a female mouse model and their study was published in the journal Vaccine. Recently, I got a chance to sit down with one of the co-authors to discuss his experience with Chlamydia vaccine research. Below is the slightly modified transcription of the interview I had with Steven Liang, McMaster University PhD candidate and BHSc (Honours), Class of 2014.

Why is there a need for a Chlamydia vaccine?

There are different reasons why a Chlamydia vaccine is needed. Currently, we have antibiotics against C. trachomatis, the species of Chlamydia that causes disease in humans, which we can easily give to people who have an eye or genital infection. However, access to these antibiotics is limited in some places – specifically in the less developed world. Trachoma, an eye infection caused by C. trachomatis, is one of the leading causes of infectious blindness. Antibiotics are difficult to access in many developing areas, a vaccine would offer a relatively cheap but effective way to prevent the infection. However, access to these antibiotics is limited in many developing areas, a vaccine would offer a relatively cheap but effective way to prevent the infection.

How effective is the vaccine?

I would say it’s pretty effective in the mouse model against C. muridarum, the Chlamydia species that causes disease in mice, when compared to other subunit vaccines in the field. To test the effectiveness of our vaccine against Chlamydia infection, we looked at two groups of five mice – one group received two immunizations of BD584 and CpG, which is an adjuvant, and the other group received only phosphate-buffered saline, which acted as our control group. All mice then received an intravaginal challenge with C. muridarum. During the course of infection, we looked for the presence of hydrosalpinx, the dilation of the oviducts, which has been correlated with infertility. During Chlamydia infection, the induced inflammation contributes to oviduct fibrosis, which promotes tubal fluid build-up and results in hydrosalpinx. Since BD584 vaccination reduced the bacterial load in mice, we expected reduced inflammation, less fibrosis, less oviduct blockage, less fluid build-up in the oviducts, and ultimately less hydrosalpinx. In fact, we saw an 80% reduction of hydrosalpinx in vaccinated mice.

What has been the most challenging aspect of your research process?

This project is heavy on vaccine immunology but the research is not being conducted in a vaccine lab or an immunology lab. Some might call us a biochemistry lab or a virology lab or a microbiology lab – but we’re not a vaccine immunology lab. It’s difficult for me to know if certain ideas are reasonable because I’m not given the guidance that most graduate students would have if they were in a lab that’s specific to vaccine immunology. So, in a sense, I’ve basically been going rogue with this vaccine business, while other graduate students in this lab are working on cloning and designing therapeutics for other infectious agents - something quite different from vaccine immunology research. It’s difficult to ask for and receive the feedback that I need in order for my research to move forward as fast as possible, and as smooth as possible. I say the lack of direction is a challenge I face. This is essentially what I’m doing now. Although I didn’t start with extensive knowledge about vaccine immunology, I decided I was ready to get involved with testing a novel Chlamydia vaccine. I gained knowledge about the species through the course I had taken in the previous year. I went on to learn about BD584 in my studies on C. pneumoniae to develop a vaccine. I say the lack of direction is a challenge I face as being a graduate student. I mean, there are core principles in science that everyone should follow, but there are different ways of doing research. I try working under different principal investigators, in different types of fields, and with different types of researchers. For example, if you’ve been involved with wet lab research, try engaging in clinical research or try conducting a systematic review. By doing so, you’ll learn to appreciate the different ways that science can be done. I mean, there are core principles in science that everyone should follow, but there are different ways of conducting research. Getting exposed to those different approaches can help you in a way of thinking and broaden the range of skills that you develop. I try learning about different aspects of research – I think that’s the most important advice I can give to anyone who’s interested in pursuing a career in research.

I was enrolled in a third year immunology course, HTHS3 303. Basically, I loved the course. I liked the idea of being able to manipulate human physiology to prevent a disease. I thought that sounded more interesting than what I was doing. So, I decided to switch from infectious disease to Chlamydia vaccine research.

There are different questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

What steps still need to be taken before getting the vaccine from the pre-clinical stage to clinical development?

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

How effective is the vaccine?

I would say it’s pretty effective in the mouse model against C. muridarum, the Chlamydia species that causes disease in mice, when compared to other subunit vaccines in the field. To test the effectiveness of our vaccine against Chlamydia infection, we looked at two groups of five mice – one group received two immunizations of BD584 and CpG, which is an adjuvant, and the other group received only phosphate-buffered saline, which acted as our control group. All mice then received an intravaginal challenge with C. muridarum. During the course of infection, we looked for the presence of hydrosalpinx, the dilation of the oviducts, which has been correlated with infertility. During Chlamydia infection, the induced inflammation contributes to oviduct fibrosis, which promotes tubal fluid build-up and results in hydrosalpinx. Since BD584 vaccination reduced the bacterial load in mice, we expected reduced inflammation, less fibrosis, less oviduct blockage, less fluid build-up in the oviducts, and ultimately less hydrosalpinx. In fact, we saw an 80% reduction of hydrosalpinx in vaccinated mice.

What steps still need to be taken before getting the vaccine from the pre-clinical stage to clinical development?

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

What has been the most challenging aspect of your research process?

This project is heavy on vaccine immunology but the research is not being conducted in a vaccine lab or an immunology lab. Some might call us a biochemistry lab or a virology lab or a microbiology lab – but we’re not a vaccine immunology lab. It’s difficult for me to know if certain ideas are reasonable because I’m not given the guidance that most graduate students would have if they were in a lab that’s specific to vaccine immunology. So, in a sense, I’ve basically been going rogue with this vaccine business, while other graduate students in this lab are working on cloning and designing therapeutics for other infectious agents - something quite different from vaccine immunology research. It’s difficult to ask for and receive the feedback that I need in order for my research to move forward as fast as possible, and as smooth as possible. I say the lack of direction is a challenge I face. This is essentially what I’m doing now. Although I didn’t start with extensive knowledge about vaccine immunology, I decided I was ready to get involved with testing a novel Chlamydia vaccine. I gained knowledge about the species through the course I had taken in the previous year. I went on to learn about BD584 in my studies on C. pneumoniae to develop a vaccine. I say the lack of direction is a challenge I face as being a graduate student. I mean, there are core principles in science that everyone should follow, but there are different ways of doing research. I try working under different principal investigators, in different types of fields, and with different types of researchers. For example, if you’ve been involved with wet lab research, try engaging in clinical research or try conducting a systematic review. By doing so, you’ll learn to appreciate the different ways that science can be done. I mean, there are core principles in science that everyone should follow, but there are different ways of conducting research. Getting exposed to those different approaches can help you in a way of thinking and broaden the range of skills that you develop. I try learning about different aspects of research – I think that’s the most important advice I can give to anyone who’s interested in pursuing a career in research.

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

What steps still need to be taken before getting the vaccine from the pre-clinical stage to clinical development?

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

What steps still need to be taken before getting the vaccine from the pre-clinical stage to clinical development?

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.

What steps still need to be taken before getting the vaccine from the pre-clinical stage to clinical development?

There are several questions that still need to be answered before our vaccine can go to clinical trials. One of them is to determine the effectiveness of our vaccine against the human pathogen C. trachomatis. In the original study, we tested the effectiveness of our vaccine in mice challenged with C. muridarum. In order for the vaccine to be taken to clinical trials, we need to show that our vaccine is also effective in reducing infection in animal models that are challenged with C. trachomatis – and that’s what I’m working on right now.
Community Voices

Chris Zhou on the Prime Minister’s Youth Council
By: Ashley Lam, BHSc (Honours), Class of 2018

The Prime Minister’s Youth Council is currently a 24-member group, aged 16 to 24, responsible for providing non-partisan advice to the Prime Minister. Members also engage with government officials, national and local organizations, and other policy makers to discuss issues of importance to Canadian youth. Such topics include youth employment, mental health, and democratic reform.

Our very own Chris Zhou, BHSc (Honours), Class of 2020, was hand-picked by the Prime Minister from a pool of 14,000 applicants to serve for a mandate of two years. Chris hails from Charlottetown, Prince Edward Island, where he dedicated his energy to coordinating his high school’s Free the Children club and directing the local Air Cadet squadron. His leadership experience ranges from orchestrating a consulting project for the Department of National Defence all the way to navigating cadets through the woods with a chart and a compass. Chris is also a certified glider pilot and private pilot. In future years, Chris hails from Charlottetown, Prince Edward Island, where he is looking forward to continue being a renewed commitment to electoral reform.

After speaking with Chris, it is clear that he is passionate about youth engagement and developing the Council into a body that can effectively shape government policies by championing the voices of young Canadians. His role on the Youth Council serves as a constant reminder that the voices of youth do matter and that young people can— and already are— making a difference.

FORWARDS TOGETHER
By: Kimberly Lau, BHSc (Honours), Class of 2017

As another school year comes to a close, we congratulate our first year students for completing their first year in the BHSc (Honours) Program, while we bid farewell to our graduating fourth year students. Here’s what a few first year students had to say about their experience so far in the BHSc (Honours) Program and what they’re looking forward to in the years to come.

I was lucky to attend a very small, tight-knit high school, and my time in BHSc so far has been marked by a similarly strong sense of community. The most notable parts of my experience since September have been the relationships I’ve built with instructors and other students; the upperclassmen in particular have gone above and beyond in making me and other first year students feel welcome. I look forward to continuing being an active part of the Health Sciences community by meeting and strengthening my relationships with even more of the amazing people it has to offer. I also look forward to the great amounts of opportunity for growth and development. I am grateful for the support of my family, friends, and fellow students. I am so thankful for the faculty and staff, who care for each and every student. They have not only prioritized my professional development, but my personal development as well. I am also thankful for the range of courses that are available to us— courses that have given me a chance to discover and expand my world view. Something I would tell the first years, as cheezy as it sounds, is to follow your dreams! This is your life to live, so you shouldn’t have to feel like you have to do what everyone else is doing, or that you have to do something just to please other people. Find what you like, and discover your passions. If there isn’t something out there that fits your interests, forgive your own harsh judgmental self and try something new. There are privileges that come your way will definitely enrich your undergraduate experience.

Ruth Chau, BHSc (Honours), Class of 2017

“During the first week of first year, you might find yourself making plans on how you are going to do so many things and transform your life. However, these never seem to come to fruition. They get lost as the work load increases and the initial motivation you had wanes. My advice to first years, would be not to lose that initial energy and excitement. Treat every day in university as if it were your first day here. Look forward to coming to university each day, and be excited about what you are going to learn. You have so much knowledge and opportunities to do great things. Someday you might look back and think that everything you are learning is new. Also, if your plans fail, don’t lose hope, or give up. Start small, and explore your passions.”

Rithwik Haridas, BHSc (Honours), Class of 2017

Throughout the years, the BHSc (Honours) Program has fostered an environment for life-long learning, allowing us to grow with one another and realize our potentials. No matter the individual goals we are pursuing or the paths we take to achieve them, BHSc students will always move forwards— together.
Could you describe the initial process? What were some challenges that you faced and what have you gained from this experience?

Anna: After tentatively outlining the vision and goals of this prospective initiative, I reached out to several close friends of mine whom I thought would be interested. They gave me some constructive feedback and agreed to help out in executive positions. From there, the outreach became broader to establish the editorial, administrative, and graphics and layout teams. I would say that the biggest challenge was defining goals, and creating a plan with clear actionable steps.

Ashley: Similar to Anna’s experience with The Muse, our first issue was completed mostly with the help of my close friends. I catered to the known interests of my friends and asked them to write a piece as they see fit. The greatest challenge I found in starting something so new is also finding its identity. I had so many questions that I could not answer. Is this going to be exclusively about fashion? Is this a “Health Sci” magazine or will it be McMaster-wide? Should this be only for female students or transition report to refer to certainly hindered my progress. I learned to confront something so intimidating, that is what I will always treasure about having worked on The Muse and carry forward into whatever else I do—falling in love with something you’ve created and fighting for it. It forces you to push your own boundaries and develop in areas you may not even have been aware you were lacking.

Anna: Narrative has always been the guiding force of my experience. In the summer after first year, after I put down my thought of a magazine that accomplishes a different objective by celebrating the creativity and talents of students beyond their academia, I had the wonderful opportunity to speak with Ashley and Anna about their experiences starting their magazines.

Tell us about what inspired you to start your magazine.

Ashley: The inception of the magazine came from a place of creative rut in my life. I was surrounded by incredible friends who had their own passion such as photography, calligraphy, or boxing. I looked back to myself, and could not name one thing that I had done for my own passion. I wrote down everything that I was interested in. Fashion, photography, graphic design, and working in a team seemed to be the central themes. Then, it hit me. I could start a magazine. A publication with a focus on fashion and lifestyle was a void niche in the crowded scene of magazines and journals at McMaster, and the accelerating growth of The ECHO has only confirmed that many of my peers feel the same way. The ECHO is no longer my own; rather, it has become a community that fosters a meaningful outlet for students to share their interests, whatever they may be.

Anna: Narrative has always been the guiding force of my experience. In the summer after first year, after I put down the textbooks and resumed reading actual novels, I came across What Doctors Feel by the prominent physician-author, Dr. Danielle Ofri. Her eloquent and honest exploration of the influence that emotions have on both the clinician and the patient, in terms of mutual well-being and the quality of care delivered, gave me a new perspective on healthcare. Many of us with an interest in the allied health professions operate within an inflexible scientific paradigm, and often discount the significance of the human connection. I saw The Muse as an opportunity to transcend that scientific ideology through a celebration of narrative, the fine arts, and critical theory, and their involvement in healing. Importantly, I wanted to establish an inclusive platform that enabled undergraduate students to have their voices heard. The fact that The Muse is a medical humanities initiative run for and by baccalaureate students makes it unique nationwide.

The BHSc community is incredibly diverse, made up by individuals who often pursue additional interests outside of the sciences and academia. Anna Goshua and Ashley Eom, of BHSc (Honours), Class of 2018, are two students who turned their passions into something creative and tangible. Anna and Ashley are founders of their respective magazines, The Muse and The ECHO, both started during their second year.

The Muse is a medical humanities magazine encapsulating the intersection between the traditionally divergent fields of healthcare and the humanities, including philosophy, visual art, and literature. The magazine name is a play on the notion of “musing” or reflecting, and is meant to reflect its central focus, which is to enable people’s diverse experiences to inspire and empower oneself and others.

The ECHO has certainly broken out of its health sci shell and even the McMaster bubble less than a year after its launch. Our team comes from diverse programs and we have a presence in the Hamilton community. In the future, I would like to see The ECHO grow to collaborate with more student groups and business partners with respect to photoshoots and articles to create stronger roots in the community. A strong hope is to have the magazine printed and distributed to the capacity of other publications on campus.

In contrast, The ECHO, is a fashion, lifestyle, and community magazine that accomplishes a different objective by celebrating student talents in writing, photography, videography, and graphic design. Each issue’s content can be diverse, ranging from a creative fashion photoshoot to a student’s struggle for individualism in career choice. The magazine name symbolizes its mission to amplify and widely spread the creativity and talents of students beyond their academia.

By Sofía Zhang-Jiang, BHSc (Honours), Class of 2018

The BHSc community is incredibly diverse, made up by individuals who often pursue additional interests outside of the sciences and academia. Anna Goshua and Ashley Eom, of BHSc (Honours), Class of 2018, are two students who turned their passions into something creative and tangible. Anna and Ashley are founders of their respective magazines, The Muse and The ECHO, both started during their second year.

The Muse is a medical humanities magazine encapsulating the intersection between the traditionally divergent fields of healthcare and the humanities, including philosophy, visual art, and literature. The magazine name is a play on the notion of “musing” or reflecting, and is meant to reflect its central focus, which is to enable people’s diverse experiences to inspire and empower oneself and others.

The ECHO has certainly broken out of its health sci shell and even the McMaster bubble less than a year after its launch. Our team comes from diverse programs and we have a presence in the Hamilton community. In the future, I would like to see The ECHO grow to collaborate with more student groups and business partners with respect to photoshoots and articles to create stronger roots in the community. A strong hope is to have the magazine printed and distributed to the capacity of other publications on campus.

In contrast, The ECHO, is a fashion, lifestyle, and community magazine that accomplishes a different objective by celebrating student talents in writing, photography, videography, and graphic design. Each issue’s content can be diverse, ranging from a creative fashion photoshoot to a student’s struggle for individualism in career choice. The magazine name symbolizes its mission to amplify and widely spread the creativity and talents of students beyond their academia.

By Sofía Zhang-Jiang, BHSc (Honours), Class of 2018

The BHSc community is incredibly diverse, made up by individuals who often pursue additional interests outside of the sciences and academia. Anna Goshua and Ashley Eom, of BHSc (Honours), Class of 2018, are two students who turned their passions into something creative and tangible. Anna and Ashley are founders of their respective magazines, The Muse and The ECHO, both started during their second year.

The Muse is a medical humanities magazine encapsulating the intersection between the traditionally divergent fields of healthcare and the humanities, including philosophy, visual art, and literature. The magazine name is a play on the notion of “musing” or reflecting, and is meant to reflect its central focus, which is to enable people’s diverse experiences to inspire and empower oneself and others.

The ECHO has certainly broken out of its health sci shell and even the McMaster bubble less than a year after its launch. Our team comes from diverse programs and we have a presence in the Hamilton community. In the future, I would like to see The ECHO grow to collaborate with more student groups and business partners with respect to photoshoots and articles to create stronger roots in the community. A strong hope is to have the magazine printed and distributed to the capacity of other publications on campus.
A decade ago, a small idea for a 4X03 Project grew into a big production called the Health Sciences Musical (HSM), a space where students are able to explore their passion for music, theater and the arts. Since its inception, the musical has evolved into a tight-knit community encompassing almost 70 students as members of the executive team, cast, chorus, band, choreography team, musical arrangement team, stage and props crew, promotional team, and writing committee. These students come together to put on a 3 hour long production, with script-writing occurring in the summer, and cast, chorus and band rehearsing weekly over a period of 5 months. The stage and props crew put in enormous efforts behind the scenes, and the executive team works countless hours to plan and fundraise for the show through events throughout the year, such as Cabaret Night. Through this artistic pursuit, HSM has also enabled students to make a significant impact by giving back to the community. The proceeds from ticket sales go toward the BHSc Scholarship, as well as a local charity called Art Forms, which helps at-risk youth access free art-making opportunities. This year, HSM students had the opportunity to meet and interact with youth in Art Forms, and invited them to perform an activity before one of the HSM shows. To celebrate HSM’s 10th anniversary this year, the show, titled HSM: The [Unofficial] Origin Story, features the fictional story of how the idea of HSM first came to life. The show is performed during the spring every year; we are excited to welcome students, staff, friends, alumni, parents, and residents of the McMaster and Hamilton community to join us in indulging in a wonderful story!

The BHSc Charity Fashion Show started as a 4X03 initiative in 2004 and has captured the hearts and creativity of the BHSc community over the last decade and beyond. With the involvement of over 150+ students, we were proud to present the 12th annual BHSc Charity Fashion Show: “365” on March 4th at McMaster University’s Convocation Hall. Our extraordinary executive team, student designers, choreographers and models all came together on this night to put together a show that truly reflected their time, dedication and hard work. All proceeds from the show go to Camp Trillium, a support centre that offers recreational programs for children with cancer and their families.