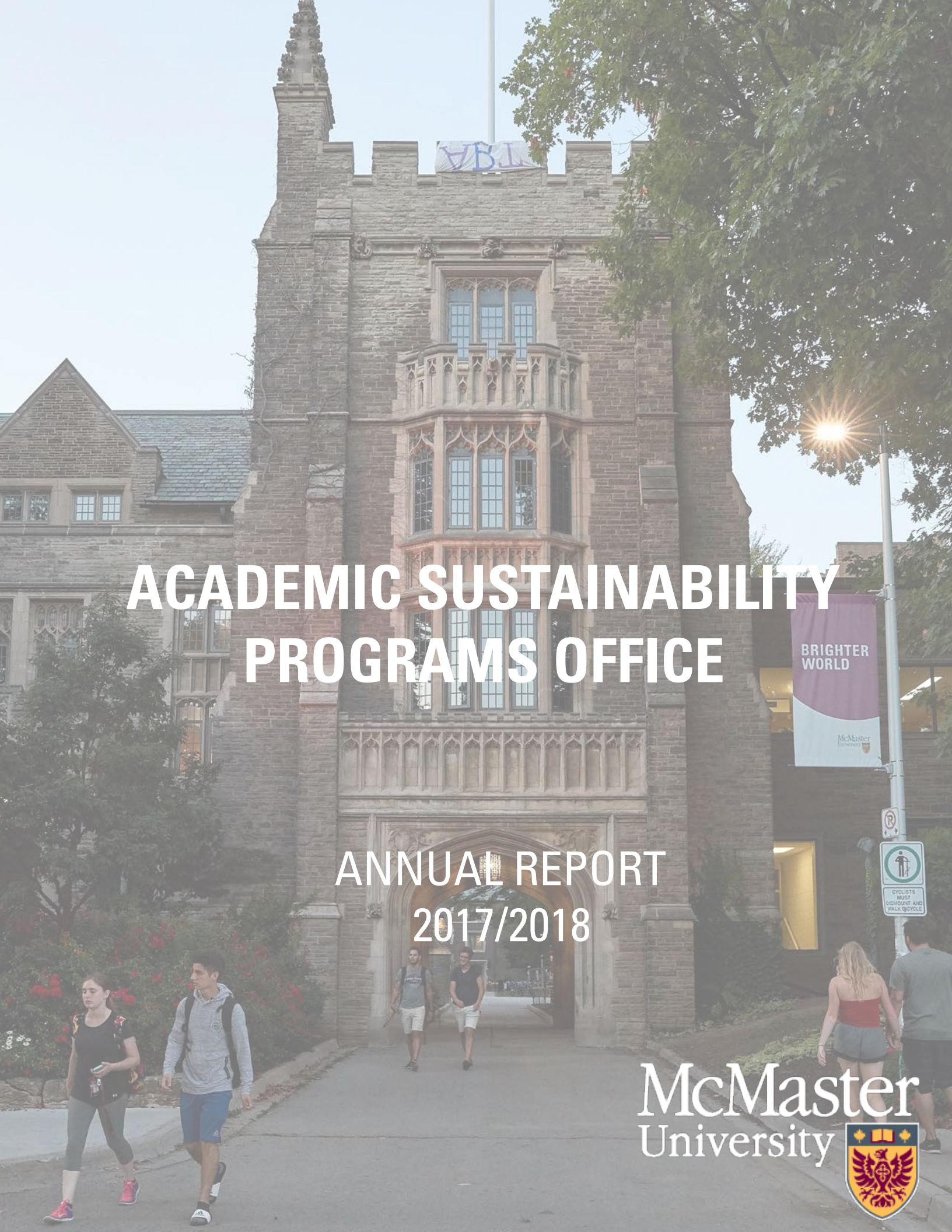

ACADEMIC SUSTAINABILITY PROGRAMS OFFICE

ANNUAL REPORT 2017/2018

McMaster University

A LETTER FROM THE SENIOR MANAGER

This past year, the students, staff, and members of the community that make up and support McMaster's Academic Sustainability Programs (ASP) Office have made great strides to advance the Office's mission to inspire in all students a desire for continued learning and inquiry through experiential education. We have done this by providing students with unique opportunities for interdisciplinary, student-led, community-based, and experiential learning related to sustainability.

Between September 2017 and June 2018, McMaster saw 36 students graduate with an Interdisciplinary Minor in Sustainability; which has been offered at the University for the past four years. The efforts made to enhance the Minor Course List, clarify requirements, and streamline associated administrative processes, and expand course offerings of required courses have been successful and I am inspired by the collaboration between staff, faculty, and students to identify and support opportunities for improvement.

The Sustainable Future Program has also seen substantial growth since its first course was offered in the Winter of 2013. In response to continued growing demand, the Program has been further expanded with the level-two course doubling in capacity. With expansion put in place, we anticipate over 550 students, representing all Faculties, will successfully complete a SUSTAIN course this coming year.

Through the Sustainability Internship Program and Graduate/Undergraduate Collaboration in Experiential Learning Program, we have supported 32 students in their self-directed learning. Each year, we are excited by their increasingly unique and diverse connections to sustainability. We also continue to enhance our relationship with the broader community, with a focus on fostering deep collaborations, as well as generating action and dialogue among community members through active engagement.

The Community-based Leadership in Sustainability (CLS) initiative has been a conduit to enhance our relationship with the broader community. This past year, through three CLS events, we worked and learned together with over 100 members of the community including volunteers, speakers, sponsors and donors, researchers, event attendees, and more.

I aspire that this annual report comes to represent more than a collection of accomplishments. I hope you will reflect on the student learning that has taken place and that has enabled students to grow from their experiences, that you acknowledge the diverse collaborations formed and fostered, and that you find inspiration in the stories of the individuals who have shared them with you.

I sincerely hope that you enjoy reading about these projects as much as I have enjoyed working with the individuals who created them.

KATE WHALEN
Senior Manager, Academic Sustainability Programs

MISSION & VISION

OUR MISSION

To inspire in all our students a desire for continued learning and inquiry through experiential education.

OBJECTIVES

To realize our mission, we strive to provide all McMaster students with the opportunity to take part in interdisciplinary, student-led, community-based, and experiential learning focused on sustainability.

Key to achieving these objectives is developing and fostering strong community connections, both within the University and the broader city of Hamilton, and supporting students to equip themselves with the knowledge, skills, and abilities to be successful in their learning. This is instrumental to their success as lifelong learners.

PRIORITY PROGRAMS

To achieve our objectives, McMaster's Academic Sustainability Programs Office offers the following programs:

- Interdisciplinary Minor in Sustainability: An opportunity for students to choose from a list of sustainability courses from Faculties across campus and tailor a minor to complement their undergraduate degree and education.
- Sustainable Future Program: A suite of four undergraduate courses focused on sustainability. Courses are open to all students, independent of their home Faculty.
- Sustainability Internship Program: An opportunity for students to develop and implement a real- world sustainability project and receive course credit from their home Faculty upon successful completion.
- Graduate/Undergraduate Collaboration in Experiential Learning (GUCEL) Program: An opportunity for students to work in collaboration with undergraduate and graduate students to develop and implement a real-world sustainability project and receive academic recognition upon successful completion.
- Community-based Leadership in Sustainability (CLS): Opportunities to connect with diverse members of the community around local sustainability issues, facilitated through a series of free events and workshops that are open to all.

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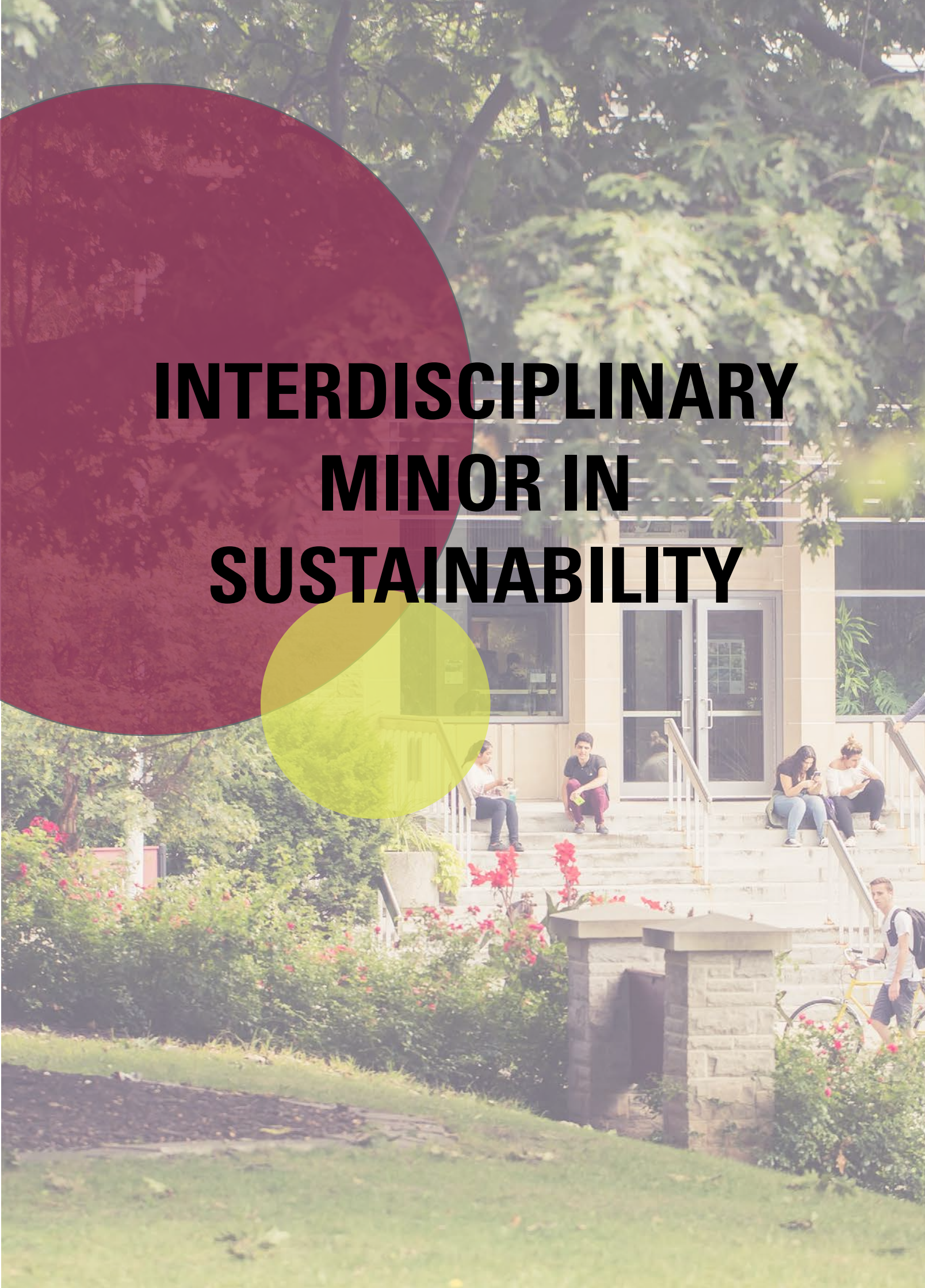


INTERDISCIPLINARY MINOR IN SUSTAINABILITY

INTERDISCIPLINARY MINOR IN SUSTAINABILITY

Addressing sustainability in our society poses interdisciplinary challenges that require interdisciplinary solutions. McMaster created the Interdisciplinary Minor in Sustainability with the goal of developing students' interdisciplinary knowledge and understanding of sustainability. To achieve this goal, the Minor provides a path for students to study diverse aspects of sustainability by taking courses from different Faculties and integrating them into a cohesive whole.

OBJECTIVES

- Encourage opportunities for student experiential learning about sustainability
- Provide opportunities to meaningfully engage with communities both within and outside of McMaster
- Offer a wide selection of courses to enable students to choose the sustainability emphasis that is right for them and to pursue courses that will further their individual learning objectives
- Promote engagement among students, faculty members, and staff across the University, facilitating interdisciplinary learning

REPORTING

Through the development and implementation of McMaster's Interdisciplinary Minor in Sustainability, students are now able to choose from over 85 courses from all Faculties across campus to gain a truly interdisciplinary perspective of sustainability, as well as tailor a minor that complements their major. In only four years of operation, 76 students have achieved an Interdisciplinary Minor in Sustainability.

COLLABORATORS

First and foremost, we would like to recognize the Arts & Science Program for providing integral support for the implementation and development of the Minor.

Specifically, Arts & Science Director, Jean Wilson, and Program Administrators, Shelley Anderson and Rebecca Bishop. The Minor would not be possible without the hard work and dedication of the past and current members of the Interdisciplinary Minor in Sustainability Committee; the Arts & Science Program for providing an administrative home for the Minor; the faculty members who have opened up their courses for inclusion and helped communicate the Minor; the staff members, including academic advisors, who have provided advice and guidance throughout; and the dozens of students who have shown their support by taking the Minor and working with us through its development.

YEAR IN REVIEW

McMaster launched the Interdisciplinary Minor in Sustainability in September 2014 to enable students from all Faculties to gain an interdisciplinary understanding of environmental, social, and economic sustainability.

Enhancing the flexibility and accessibility of the Minor, as well as communicating the opportunity to students early on in their academic journey, is integral to providing a positive and meaningful learning experience and ensuring long-term success of the Minor. As such, the following objectives have been, and will continue to be, the primary focus in the early stages of the Minor's implementation.

OBJECTIVES

- Maintain the Minor Course List by reviewing applicable courses from all Faculties and incorporating those that align with the goals of the Minor
- Enhance, clarify, and streamline related administrative processes to ensure that staff can effectively guide students and that students can easily navigate and access the Minor
- Promote the Minor to incoming and current students through their home Faculty

REPORTING

In April 2015, three students graduated with an Interdisciplinary Minor in Sustainability followed by 14 students in 2016, 23 students in 2017, and 36 students in 2018. These students come from the Faculties or programs of Arts & Science, Business, Engineering, Humanities, Science, and Social Sciences. We are encouraged by these numbers as they demonstrate growing interest and demand for the Minor.

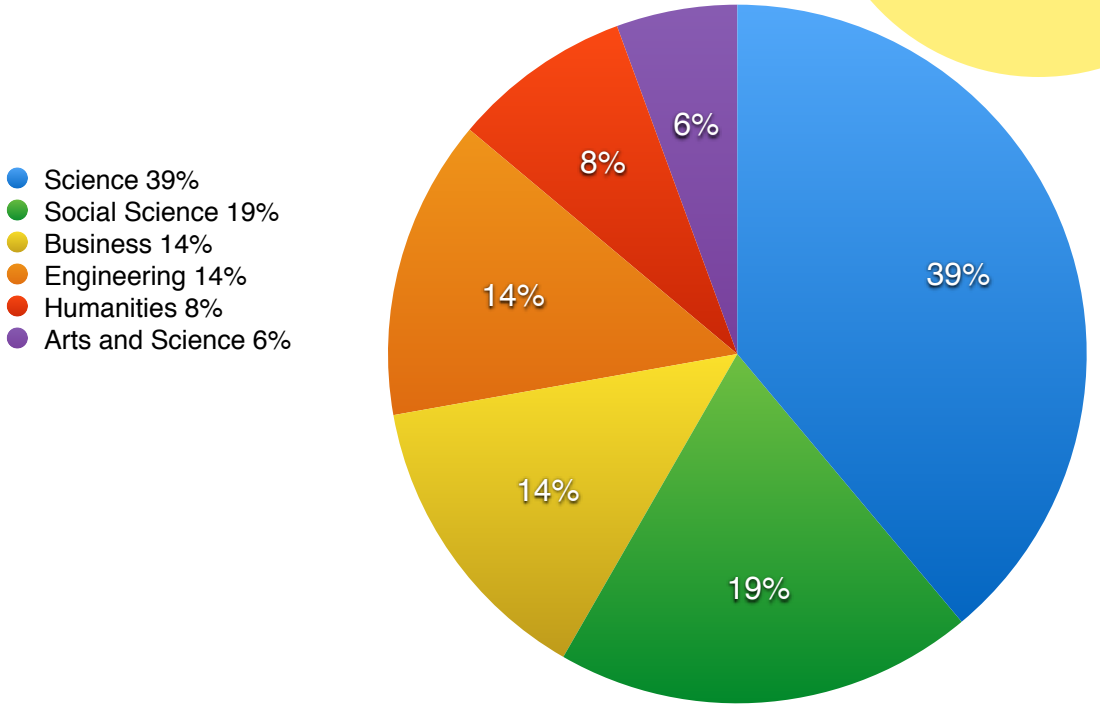
Alongside this early success, improvements have been made to ensure the Minor achieves its objectives:

- McMaster's Interdisciplinary Minor in Sustainability Committee members reviewed new and existing courses from their specific Faculty. These consultations led to five courses from four Faculties that were proposed and accepted for inclusion starting in 2018/2019. Two courses were reviewed and a decision was made to remove them from the list of acceptable courses going forward.
- Members of the Interdisciplinary Minor in Sustainability Committee may, throughout the year, approve inclusion of new and existing courses that meet sustainability criteria. However, the formal process must pass through the University's curriculum review process that operates on an annual cycle. As information about new courses becomes available, it is communicated to all Faculty advisors. The Committee works with the faculty members who teach these courses to request their support in advertising the Minor and the pre-approval to their students. This process reduces complex administrative processes by the students, staff, and Committee members. Furthermore, the additional communication and support to academic advisors helps to foster working relationships and maintain open lines of communication.

While these efforts have been quite successful, we continue to strive for stronger representation from all Faculties, greater student awareness, and more students represented on our Committee.

THIS YEAR'S COLLABORATORS

We would like to thank all members of the Interdisciplinary Minor in Sustainability Committee for their support: Brent McKnight, Associate Professor, DeGroote School of Business; Kate Whalen, Senior Manager, Academic Sustainability Programs Office; Shelley Anderson, Program Administrator, Arts & Science Program; Luc Bernier, Assistant Professor, School of Geography and Earth Sciences; Rebecca Bishop Program Administrator, Arts & Science Program; Cameron Churchill, Director, Engineering and Society Program; Carlos Filipe, Professor/Chair, Chemical Engineering; Chad Harvey, Assistant Professor, Integrated Science Program; Daniel LaFrance, Student Representative, Faculty of Engineering; John Maclachlan, Associate Director, MacPherson Institute; Judy Major-Girardin, Associate Professor, School of the Arts; Shanti Morell-Hart, Assistant Professor, Anthropology; Dean Mountain, Professor, DeGroote School of Business; Susie O'Brien, Associate Professor, Department of English and Cultural Studies; Maureen Padden, Associate Professor, School of Geography and Earth Sciences; Sandra Preston, Assistant Professor, School of Social Work; Stacey Ritz, Assistant Dean of Educational Services, Faculty of Health Sciences; and Jean Wilson, Director, Arts & Science Program. We would also like to thank the academic advisors and communication teams of each Faculty, as well as the countless students, Faculty, and staff who have contributed to the development and enhancement of McMaster's Interdisciplinary Minor in Sustainability.



SUSTAINABLE FUTURE PROGRAM

SUSTAINABLE FUTURE PROGRAM

The Sustainable Future Program (SFP) consists of a suite of undergraduate courses focused on providing students with the opportunity for interdisciplinary, student-led, community-based, and experiential education focused on sustainability. Courses in the Program are open to students from all Faculties. McMaster developed the Sustainable Future Program for students interested in learning about sustainability while having the opportunity to engage in experiential learning through developing and implementing real-world sustainability initiatives. The Sustainable Future Program aims to build reciprocal relationships between students, community members, and McMaster University to engage all parties in the journey towards a sustainable future.

OBJECTIVES

- Teach students about sustainability from an interdisciplinary perspective
- Provide opportunities for self-directed, interdisciplinary, and experiential learning
- Support student learning within the University and local community
- Engage undergraduate students in taking part in meaningful, experiential research
- Foster opportunities for students to place local knowledge and local action within a global context

REPORTING

Since launching the first course in the Winter of 2013, which had an enrolment of 97 students, the Sustainable Future Program has grown to include four courses and has supported over 450 students in the 2016/17 academic year. The Program continues to grow each year, and enrolment is anticipated to exceed 550 students in 2018/2019. A list of the past completed projects can be found on our website.

COLLABORATORS

We would like to thank the faculty members, course teaching assistants, and community members for supporting students enrolled in the SUSTAIN courses, as well as for supporting continuous course and Program development. Our sincerest appreciation extends to the hundreds of students who have contributed by taking courses and providing feedback for continuous improvement. We would also like to extend a special thanks to the Faculty of Engineering and the Engineering & Society Program for providing guidance and administrative support for the Sustainable Future Program.

YEAR IN REVIEW

Since the first course was offered in 2013, the Sustainable Future Program has grown each year through the addition of new courses and/or the expansion and enhancement of existing courses. Through actively monitoring enrolment in each course to ensure supply is meeting student demand, it was recognized that SUSTAIN 2S03 should be expanded. As such, the SUSTAIN 2S03 was doubled, being offered once in Fall 2017 and once in Winter 2018. To enhance connections with the local community, a collaboration between the fourth-year course, SUSTAIN 4S06 - Leadership in Sustainability, and the newly created CityLAB Hamilton initiative was formed in the summer of 2017. CityLAB provides opportunities for students of McMaster, Mohawk, and Redeemer to work with City staff members to tackle local challenges and inspire innovative solutions. Additionally, in the Summer of 2017, the implementation of prerequisites for each SUSTAIN course beyond level-one was approved in order to support students in continually building upon their previous knowledge and experiences, as well as to enable the instructional teams to facilitate learning at the highest level.

OBJECTIVES

The specific objectives in program development are as follows:

- Assess demand for each course in the program and proceed with expansion based on findings
- Implement and assess collaboration between SUSTAIN 4S06 and CityLAB Hamilton
- Assess the program for the addition of prerequisite courses and proceed with actions based on findings

REPORTING

Expansion of SUSTAIN 2S03 was successful and enabled more students to take the course. Additionally, SUSTAIN 1S03 once again reached capacity after having recently been doubled in 2016/17. As such, expansion of SUSTAIN 1S03 will take place for 2018/19.

The collaboration between SUSTAIN 4S06 and CityLAB Hamilton was successful. A total of eight students from the Faculties of Business, Science, and Health Science worked in two groups with support from City staff and members of the community to each tackle a local sustainability challenge. The two challenges include neighbourhood-specific food insecurity and barriers to successful aging. With support from individuals and members of the community, the students worked to understand the deep and complex issues associated with their challenge, create solutions, and demonstrate leadership towards sustainable change. Both student groups had the opportunity to present to Hamilton City Council's General Issues Committee. In addition, the group that focused on wellness and successful aging in CityHousing Hamilton also presented to the CityHousing Board of Directors.

Students in the two upper-year courses, SUSTAIN 3S03 and SUSTAIN 4S06, collaborated with over 450 individuals to learn about sustainability through leadership and action. The students were able to select their project from a list on our website. Each project is reported on in the pages to follow.

To date, all SUSTAIN courses have been open, in that students were not required to satisfy any course prerequisites prior to enrolment. However, upon consulting with administrators and members of the course instructional teams, it was felt that if students had a foundation of theoretical knowledge and experience with unique course components such as community-based learning, interdisciplinary group work, project management, and reflection, then instructors would be able to facilitate learning at a higher level. As such, starting September 2018, the Sustainable Future Program will require that students enrolled in SUSTAIN 2S03, 3S03, and 4S06 have completed the previous level SUSTAIN course as a prerequisite. Although prerequisites were supposed to be in place for September 2017, a technological error in the University's enrolment platform resulted in prerequisites not being applied. As such, September 2018 will be the first time that prerequisites will be effectively applied.

REPORTING (CONTINUED)

While prerequisites will support the scaffolding of knowledge and experiences, we understand that knowledge and experiences are obtained in many different ways. Therefore, all SUSTAIN courses enable students to apply for course permission to waive the prerequisite requirement if they can demonstrate that they have gained the knowledge and experiences elsewhere.

THIS YEAR'S COLLABORATORS

Our sincerest thanks to all of the students who engaged in a SUSTAIN course this year for offering your insight and feedback throughout the year. We would like to thank Patrick Byrne, Project Manager of CityLAB Hamilton, and the City Hamilton for their leadership on and implementation of CityLAB Hamilton and for allowing us to take part in its inaugural year. We would also like to thank City Staff members Adam Watson, Jocelyn Strutt, and Kelly Coxon for their support in acting as Community Project Champions for students of SUSTAIN 4S06. We would also like to thank all of the staff and community members who supported students' experiential learning in each of the SUSTAIN courses. Specific individuals who supported students' experiential learning projects are highlighted in the pages to follow. The faculty and staff members who helped to identify, provide, and act as resources to support students in applying their knowledge in novel and real-world settings have been instrumental in enabling us to achieve the diverse learning objectives of our courses.

PROMOTING OPPORTUNITIES IN THE GIG ECONOMY TO SECONDARY SCHOOL STUDENTS

STUDENT AUTHORS

Hamad Akram, Engineering
Jonathan La, Engineering
Erin Varey, Engineering
Victoria Wong, Science

Volunteering in the local community as part of the Gig-economy
Photo Credits: Victoria Wong

OVERVIEW

An article written by Randstad Inc. suggests that the size of the non-traditional (i.e., remote, independent contractor, on-demand workers) workforce is between 20% to 30% and is rapidly growing[1]. As the economy transitions towards more modern forms of employment and community service, technology has to evolve to meet these needs. The gig economy is a labor market characterized by the prevalence of short-term contracts or freelance work as opposed to permanent jobs[2]. The gig economy provides entrepreneurs and freelancers the freedom to choose their work engagements, which includes volunteering and community-based ventures; this is one such way to accommodate the changing needs of the workforce[3].

Gigit is a Hamilton start-up focused on the emergence of the gig economy by introducing an online marketplace for volunteer and employment opportunities in the community. Our project goal is to identify barriers to and opportunities for highschool students to engage in the local gig economy for both volunteering and employment. By encouraging community work, Gigit is promoting social sustainability.

OBJECTIVES

1. Approach school board officials about including the use of the Gigit platform during school classes such as Civics and Careers
2. Create awareness of the Gigit platform among high school students and encourage users to apply for volunteering and employment opportunities
3. Identify trends in gig economy knowledge
4. Identify areas that can be focused on during marketing campaigns by using results from Objective 3

REPORTING

We were successful in engaging 35 high school students through promotions and communications that were facilitated by school teachers. It was difficult to achieve this goal as building partnerships and collaborating with high schools is a long and tedious process. However, we were successfully able to present the Gigit platform to students and outline the benefits it provides like volunteer experiences, community engagement, and social sustainability. In addition, the students filled out research surveys (19 surveys filled in total) pertaining to their opinion of the gig economy and where they see themselves working/volunteering. Approximately 40% of the survey participants indicated that they enjoy reading and playing sports as their primary hobbies. Based on that key finding, we contacted local libraries and sports clubs and encouraged them to post volunteering opportunities on Gigit.

COLLABORATORS

We would like to thank our Community Project Champions and the Gigit team members, Midhat Malik, Christian Paetkau, and Chris McIntosh for their support and guidance throughout the project. We would also like to thank the students who supported our project by learning about the gig economy, fostering a discussion about volunteering and the gig economy, and providing valuable survey information to help attract popular organizations Last, but not least, we would like to thank Nora Frances Henderson Secondary school for providing support to allow us to enter their Civics and Careers class to present to students.

MENT-IT: CULTIVATING MENTORSHIPS AND COMMUNITY IN AN AMBITIOUS CITY

STUDENT AUTHORS

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Degiorgio-Daley Brandon, Humanities
Gillia-Adelman Camilla, Science
Lavigne Brady, Social Sciences

HIVEX conference advertisements
Image credit: D'Ambrosio, C. (2017). Urbanity magazine

OVERVIEW

Mentorship is a fundamental part of fostering sustainable and collaborative communities, as it cultivates knowledge, skills exchange, personal connections, and common interests. In the United States, for every $1 spent on effective youth mentoring programs there is at least a $3 return in benefits to the community[1]. The literature in Canada shows similar results: mentorships support young individuals' growth and development, as well as social and economic opportunities in their personal, academic, and professional lives. Also, youth with mentors are 130% more likely to engage in leadership roles[1]. However, three quarters of youth miss out on the benefits of mentorship[1]. Though mentorship resources are available online, this information is not being widely distributed to individuals outside of institutions in Hamilton, such as universities and corporations. To create more interconnected and sustainable communities, we need to teach mentorship skills and distribute mentorship resources to a wider demographic. Our goal is to teach young people how to cultivate positive mentorship relationships and provide information, tools, and resources to support and sustain mentor-mentee relationships.

OBJECTIVES

1. Conduct research on what mentorship relationships look like in Hamilton in 2017
2. Promote the valuable impact that mentorship relationships can have on community growth and development
3. Guide individuals on how to initiate and cultivate mentorships to encourage positive and sustainable impact

REPORTING

To understand more about mentorship in Hamilton, we conducted qualitative interviews with 24 mentor-mentee pairs from different industries, including culinary arts, entrepreneurship, transportation, engineering, athletics, general labour, finance, real estate, business, and education. From this research, we learned that mentors and mentees value meaningful relationships that foster mutual respect, trust, and honesty. Mentors and mentees invest more in relationships that are mutually beneficial and involve shared interests and values.

We reviewed academic research to support our primary research and learn more about the impact of mentorships on personal and community growth. Results from a meta-analysis found that mentoring is linked to positive behavioural, relational, health-associated, and goal-setting outcomes[2]. Furthermore, through our research we learned about Simon Sinek, best-selling author of the book Start With Why, who describes that "people don't buy what you do, they buy why you do it" (2017). In connection to our research findings, it is important for mentees to know their 'why,' so that mentors can buy in, creating shared value and a deeper understanding of each others' purpose and goals. We compiled our research into a 3-minute animated video, which we distributed via social media. We also designed a presentation and workshop for the Hamilton Hive, HIVEX young professional's conference on November 18, 2017. During the conference, we presented our video and invited guest speakers to share their personal mentorship stories. Following the presentation, 5 mentor and/or mentee facilitators led discussions at 6 tables, using guided questions. A total of 40 participants shared personal experiences, asked thought-provoking questions, and shared mentorship advice. Additionally, participants provided feedback including that they gained confidence to approach a possible mentorship and/or tools to sustain a mentorships.

We posted our research findings, video, and infographic on the Hamilton Sustainability Professionals Network website to offer greater accessibility of these resources and encourage more people to engage in mentorships in Hamilton. We hope our project inspires others to put into action purposeful, accessible, and educational mentorship programs.

COLLABORATORS

We would like to thank our Community Project Champion Vikram Hardatt for his support and guidance; mentor and mentee pair interviewees for supporting our research, members of the Sustainability Professionals Network who helped us execute our vision, and HIVEX coordinators, volunteers, and attendees for actively participating and providing us with positive and constructive feedback.

SEEDY SATURDAY

STUDENT AUTHORS

Molly Bradford, Biology
Rachel Brennan, Life Sciences
Stephanie Bysice, Engineering
Ana Rivera, Science

Advertisement for movie night
Photo credit: Molly Bradford

OVERVIEW

The use of commercial seeds has increased in popularity throughout Canadian farms[1], causing a push towards uniformity and homogeneity in agriculture which threatens seed biodiversity[2]. Seedy Saturday is a global event that educates the public on the importance of sustainable growing practices, supporting locally-sourced food, and supports a growing collective of individuals passionate about these issues. Working with community-based not-for-profit Green Venture, our group aimed to increase McMaster student involvement in Seedy Saturday Hamilton. Through social media campaigns and a promotional documentary screening on campus, we worked to achieve our project's objectives. By educating a younger generation the practices promoted at Seedy Saturday can continue to be cultivated in Hamilton.

OBJECTIVES

1. Educate McMaster students about the importance of maintaining heritage seed varieties, eating locally-sourced food, and engaging in local sustainable growing practices
2. Generate interest among Hamiltonians in Seedy Saturday Hamilton 2018
3. Engage undergraduate students and promote active participation in Seedy Saturday Hamilton 2018 through volunteer and experiential learning opportunities

REPORTING

The documentary screening held at McMaster introduced the dangers of industrial beekeeping and large-scale farming to a variety of students and community members. Following the documentary screening, a discussion was led by a local apiarist who will be acting as a vendor and running a workshop at Seedy Saturday 2018. Individuals engaged in discussion about sustainable beekeeping practices, threats to native pollinators, and the role of pollinators in maintaining seed diversity.

Through the use of social media, a variety of McMaster clubs facilitated the promotion of the McMaster documentary screening and managed to reach 6550 students and 1940 community members. Among these individuals, 150 students showed active interest in the event by joining our social media following on Facebook and Instagram.

To gain undergraduate student participation in Seedy Saturday Hamilton, an online volunteer database application was used. The posting, directed towards youth who were interested in volunteering at an environmental event, was viewed by 58 app users. Volunteers applied through this service and were put in contact with the organizers of Seedy Saturday. In addition, nine McMaster students volunteered at the Seedy Saturday event on February 3, 2018, including the student members of this project.

COLLABORATORS

We would like to thank the Green Venture representatives Kelly Vanwalleghem and Laura Anderson, who advised our team, oversaw the event at McMaster, and helped plan Seedy Saturday Hamilton. We would also like to thank Luc Peters from Humble Bee for being an active participant in our McMaster documentary screening and donating a jar of honey that was given to a fortunate student. The McMaster OPIRG was very generous in supplying the equipment for our McMaster event. We would also like to thank the Mac Veggie Club, McMaster Water Network Student Chapter, McMaster Outdoor Club, Mac Bread Bin, and McMaster Btech Events for expanding the reach of our event through social media promotion.

BLOCK PARTY: A STRATEGY FOR COMMUNITY ENGAGEMENT

STUDENT AUTHORS

Codey Boers, Commerce
Sabrina Musto, Life Sciences
Zoe Shepherd, Social Sciences
Jennifer Tian, Biology

Students engaged in group activity
Photo Credit: Dylan Ward

OVERVIEW

A study done by Mackett shows that with a rising complexity in modern life, there has been an increase from 35% to 51% of individuals travelling by personal vehicles providing a sense of security, convenience, and protection against bad weather[1]. As parents are reducing children's exposure to active travel, there is a loss of valuable roadside experiences such as the independence gained from walking without parents, loss of social opportunities, and a reduction in the amount of physical activity. Additionally, Penedo & Dahn provide evidence that a reduction in physical activity leads to a lower lifelong health and wellbeing[2]. In response to this, the Transportation Management division of the City of Hamilton and our group aim to increase knowledge and awareness of Active and Sustainable School Transportation (ASST) within the Hamilton area. The goal of our initiative is to promote active travel to school and teach youth about sustainable transportation by hosting a block party.

OBJECTIVES

1. Identify an interested community partner or partners
2. Plan and execute a successful block party event
3. Teach youth about sustainable transportation and promote social cohesion
4. Enhance the City's Block Party Toolkit with a case study example to demonstrate the Toolkit's application

REPORTING

We reached out to multiple schools in Hamilton. Cootes Paradise Elementary School, near McMaster, identified interest in our active transportation project. Once the relationship was established, we worked together to communicate with parents and students through the school's website to raise awareness of the event and encourage the use of sustainable forms of transportation.

During the event, we ran three inquiry-based games that taught youth about the importance of sustainable transportation. Additionally, we hired a local dance group to get students active and moving on a cool November morning and concluded the event with healthy snacks.

Through a hands-up survey, we found that the majority of youth took a more sustainable form of transportation other than being driven. Through the use of interactive games, 66% of youth felt they learned more about the benefits and importance of sustainable transportation, 58% of youth indicated that they felt more inclined to use sustainable forms of transportation after the event, and 76% felt that they were provided the opportunity to meet new peers from different grade levels and develop stronger bonds.

We were able to use our experience as a case study to understand and demonstrate how collaborators are able to communicate and establish a working relationship with an elementary school. Together, we created a visual infographic outlining the eight steps allowing for greater accessibility of the Toolkit.

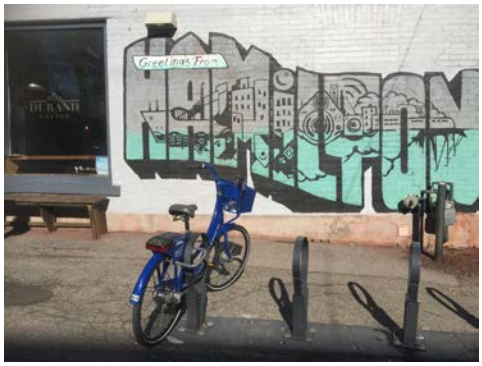
COLLABORATORS

We would like to thank Community Project Champions Rachel Johnson and Dylan Ward from the City of Hamilton for their support and guidance, Principal Denise Minardi, and other administrative staff from Cootes Paradise Elementary School who provided sponsorship and mentorship, as well as the teachers and students who made the day a great success. Finally, we would like to thank The Experience Grove for contributing to the events activities and success.

CYCLE HAMILTON: LINKING INDUSTRIES AND FORGING VALUE

STUDENT AUTHORS

Wilfred Bao, Science
Stephen Folorunsho, Science
Joy Park, Science



A SoBi at Durand Coffee Shop in Hamilton
Photo Credit: Kate Whalen

OVERVIEW

Cycle Hamilton is a non-profit organization with the vision of making Hamilton the best city for anyone to ride a bike. To achieve this, Cycle Hamilton's 2020 Strategic Plan includes the goal of seeing an increase in the percentage of bicycle trips by encouraging a modal shift[1]. The benefits of a bike-friendly city are not limited to safer streets, decreased pollution levels, and improvements to the city's environment and infrastructure.

To work towards this goal, the project's objective was to strengthen Hamilton's cycling culture by increasing the benefits offered to Cycle Hamilton's partners and members, and increasing awareness of the organization amongst non-partner businesses and non-member customers. Therefore, we sought to build partnerships with businesses by proposing a certification that would identify the businesses as being bike-friendly and in support of Cycle Hamilton's vision. A certification is lucrative as studies have found that customers prefer businesses that identify as being socially responsible[3]. These ideas were presented to three businesses and one non-profit corporation through individualized value propositions that outlined the tangible and intangible opportunities of partnering with Cycle Hamilton.

OBJECTIVES

1. Identify and evaluate Cycle Hamilton's current partnerships and business proposal to revise a value proposition that will enhance the organization's existing assets for a more marketable partnership approach
2. Understand how non-partners view Cycle Hamilton as an organization and as a business partner, and ask businesses about the potential value that could be forged in their partnership
3. Form sustainable and equitable partnerships by presenting tailored value propositions that outline how the partnership improves Hamilton's bicycling culture by creating value for Hamilton's bicyclists and the respective businesses

REPORTING

In order to achieve Objective 1, we interviewed Cycle Hamilton's Head of Membership, Jethro Krause, and reviewed documents related to their partnership agreements. We also identified which businesses confirmed partnership as of January 2017, as well as those that had not confirmed or were yet to be contacted. Furthermore, to compare our findings, we conducted a literature review that presented an analysis of business models enacted by similar organizations in North America. We then scheduled 3 community walks to interview 5 non-partner businesses. We asked questions such as what value they identified and sought in partnering with non-profit organizations. Moreover, the interviews and walks were invaluable in allowing us to tailor each value proposition by observing customers' primary transportation mode as well as the business' views on partnering with non-profit organizations.

In completion of Objectives 1 and 2, we identified the need for a marketable proposal that presented mutually beneficial incentives for an equitable partnership. Thus, we assured business owners that there would be advertising and promotions on Cycle Hamilton's website, mailing list, and social media outlets. Additionally, we proposed a certification by means of a window sticker that would allow businesses to identify themselves as supporters of Cycle Hamilton. This sticker also informs bicyclists that the business is bicycle-friendly (i.e., with a bicycle rack, water station, toolkit, and tire pump). Furthermore, this certification acts as a great foundation towards achieving Share the Road's Bicycle-Friendly Business certification.

We are pleased to report that Sobi Hamilton and Durand Coffee have confirmed their desire to partner with Cycle Hamilton come 2018.

COLLABORATORS

The development of our value propositions and project plans were made possible through the support of our Community Project Champion, Jethro Krause, who was an invaluable mentor from the project's inception to implementation. Additionally, we are thankful to Chelsea Cox, General Manager of Sobi Hamilton, and Chris Redmond, Owner of Durand Coffee, for their receptibility to discuss and willingness to support collaboration opportunities with our team members. Lastly, the constructive feedback provided by members of the Sustainable Future Program and the Hamilton community were integral throughout the project and our experiential learning experience.

REDUCING BARRIERS TO SOBI USE ON CAMPUS

STUDENT AUTHORS

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Udari Premachandra, Science
Amanda Reale, Engineering

Sobi bike and rack at McMaster University
Photo Credit: Connor MacLean

OVERVIEW

With rising CO_2 emissions, increasing use of sustainable transportation within the community is a priority. Social Bicycles (SoBi), in collaboration with the City of Hamilton, hosts and maintains a system of shareable bikes across the city. With over 800 bikes in circulation between 130 bike hubs, this program has seen a lot of success in engaging working professionals to use the service[3]. As the concentration of students living around the McMaster campus continues to increase with increased enrolment, SoBi Hamilton has started looking for ways to engage students in the Bike Share program after noticing a lack of use from the student demographic[3]. After the failure of the October 2016 SoBi Referendum by 3%, which if successful, would have offered students a full-year SoBi membership for less than $17, SoBi is continuing their efforts to understand why students are not using SoBi bikes[1]. The goal of this project is to work with SoBi Hamilton to further understand the barriers that exist between students and SoBi on campus, and to mitigate these barriers for increased use.

OBJECTIVES

1. Identify various prominent barriers for SoBi use on campus
2. Identify which factors contributed to the failure of the SoBi referendum and offer recommendations for SoBi to address these issues
3. Implement marketing strategies to address identified barriers and increase SoBi use by McMaster students

REPORTING

Our team launched an online survey asking students about barriers to SoBi use on or around campus. The survey was completed by 260 students and included questions about participant demographics, specific areas for improvement of the SoBi program, and the real or perceived barriers to SoBi use. Participants were offered the chance to win a free year-long SoBi membership in exchange for their participation in the survey. Upon analysis, our results indicated that the most common reason students do not use SoBi is that they are unsure of how the program works. Other common reasons included financial constraints, as well as feeling that they would not use it because they live far away. Furthermore, the 2016 referendum appeared to fail because students wouldn't use it enough, they didn't want to increase tuition, and that there weren't enough bikes on campus. Beyond the increased amount of bike racks, respondents also indicated other factors that would encourage them to sign up for a membership, including more information regarding the overall SoBi system, payment details, and the set-up process. Other suggestions include greater promotion, as well as more affordable and flexible payment plans that include pay-per-use or one-time user fees. To improve their experience with SoBi, the most popular recommendation made by students was increasing the number of bikes and bike racks on campus near residences, lecture halls, and densely populated student housing areas. In response to the primary factor of not using SoBi because of a lack of knowledge of the program, we created a video addressing the key barrier identified in our survey. By leveraging our student social media outlets, our video reached over 5000 people, was viewed 3000 times, received 203 total reactions, and had 19 total comments on Facebook within the first 24 hours.

COLLABORATORS

We would like to thank our Community Project Champions: Peter Topalovic, the Transportation Project Manager at the City of Hamilton; Chelsea Cox, the General Manager of SoBi Hamilton; as well as all those who helped share and participate in our survey and promote our video.

DESIGNING A MOBILE GREENHOUSE

STUDENT AUTHORS

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Emily Siskos, Arts & Science

CAD image of hoop-house style mobile greenhouse
Photo Credit: Nicholas Moss

OVERVIEW

Backyard Harvest is an urban agriculture business striving to increase the quality and sustainability of Hamilton's food system. Today, the community-supported organization operates out of 11 backyard farms in the Strathcona and Kirkendall neighbourhoods[1]. They sell ultra-local, organic produce at local farmers' markets and supply local retailers[1]. Many scholars believe urban agriculture to be the future of sustainability due to its ability to build the capacity of communities while mitigating the negative effects of our modern food system[2,3,4]. Studies found that residents of communities that participate in urban agricultural projects have increased access to healthy and affordable food, spend more time outdoors, and have more active lifestyles[2,3]. Likewise, Backyard Harvest aims to provide local, organic food while strengthening neighbours' social connectivity. Currently, the farm's productivity is greatly limited by the short growing season of the northern climate. Moving forward, Backyard Harvest requires a solution in order to expand their operations. Our goal is to help Backyard Harvest design a mobile greenhouse in this unique urban setting that will lengthen the growing season and expand the local business, while positively impacting the agricultural sustainability of the community.

OBJECTIVES

1. Investigate the regulatory requirements, including City by-laws and community values, pertaining to the construction of a mobile, backyard greenhouse
2. Provide design recommendations for mobile greenhouses that are cost effective and environmentally-friendly
3. Recommend granting options to fund the implementation of the greenhouse

REPORTING

Working alongside Backyard Harvest and Greenlight Projects Inc., our project developed blueprints for a 20' x 72' mobile greenhouse, customized to two backyards in the Strathcona neighborhood. Our project blends theoretical research with knowledge from experts we consulted, including local farmers, community members, engineers, and suppliers. In accordance with our objectives, we created three key deliverables: a report that investigates the legal requirements for zoning and building permits within Hamilton, a design write-up with blueprints for the greenhouse, and a grant application to be submitted to Carrot Cache for $5000 by February of 2018. In accordance with City regulations, community values, and our sustainable sourcing goals, we recommend a modular hoop-house design, with a galvanized steel frame, untreated pine foundation, and roll-up sides with a double polyethylene sheet covering. Optional fitted amenities include automatic windows controlled by electromechanical actuators, indoor heating and ventilation, and a rain barrel system. We modelled this structure in Autodesk Inventor, allowing us to create a 3D computer-aided design (CAD) to succinctly explain our final design and exact dimensions. After completing a financial analysis, we estimate that the project will cost approximately $6229-$6706, along with 100 hours of work to obtain, purchase, and assemble the mobile greenhouse. After approving and refining the design, Greenlight Projects Inc. aims to obtain building permits and begin construction in Spring 2018.

COLLABORATORS

We would like to thank George Sweetman, P.Eng at Greenlight Projects Inc., for his mentorship and support as our Community Project Champion; Russ Ohrt, owner of Backyard Harvest for his vision and guidance; Dr. Chad Harvey, professor at McMaster University for his advice on granting; Lucy Dubeckyj, co-owner of L&R Shelters for her advice on greenhouse framing; and our professors, teaching assistants, and classmates for their ongoing feedback and support.

FOOD WASTE AT MCMASTER: EXPLORING WAYS TO DISTRIBUTE EXCESS FOOD FOR CONSUMPTION

STUDENT AUTHORS

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Simren Rai, Science
Nikhita Stoimenov, Science

Leftover food remaining at Tim Hortons
Photo Credits: John Vu

OVERVIEW

Obtaining healthy food at a reasonable price can be a challenge for many students. It has been reported that 4 in 10 students in Canada lack food security[1]. Additionally, food waste is a prominent issue in Canada; $31B worth of food is wasted annually[2]. At McMaster, two on-campus organizations, NoLunchMoney and Mac Bread Bin, focus on alleviating the problem of food waste on campus. Specifically, there is often excess food available at on-campus eateries, however Hospitality Services has a number of policies in place that prevent the distribution of excess food. The goal of this project is to engage on-campus stakeholders as project collaborators and develop possible opportunities for distributing excess food from McMaster eateries, rather than discarding it at the end of the day.

OBJECTIVES

1. Identify on-campus eateries that have excess food at closing
2. Collaborate with various McMaster groups that focus on raising awareness of food waste on campus
3. Communicate with McMaster's Hospitality Services to gain a better understand of current food policies
4. Implement a Hack-a-thon workshop to raise awareness of food waste and facilitate discussion relating to solutions for distributing excess food
5. Present key solutions to Hospitality Services that were identified at the workshop

REPORTING

Our group identified eateries at McMaster that have excess food at the end of the day. From observation, the Tim Hortons in MDCL, BSB Café, and Thode Café all had food remaining. Thode Café was the primary eatery that our group decided to focus on for our project.

On-campus groups Nolunchmoney and Mac Bread Bin have similar visions related to identifying solutions to deliver excess food. After meeting with the groups, we decided to collaborate and provide them with an opportunity to speak at our Hack-a-thon workshop. We also met with Director of Hospitality Services, Chris Roberts, to get an understanding of policies preventing the reallocation of excess food. Chris highlighted three policies: one related to food safety, another focusing on franchise policies, and a third connected to revenue generation.

The Hack-a-thon event was a success with the help of keynote speaker, Chris Roberts, and the participation of 15 students. Students at the workshop engaged in food-related activities, shared their responses to discussion questions, and stayed engaged through speakers and informative videos. Participants were also divided into teams to come up with solutions to the problem: "How can we distribute excess food from Thode Café to students?" The majority of the solutions were similar and simple in context. For example, you could just leave excess food on a table in the library for students. Surveys at our workshop also reported that 80% of students found that food was overpriced on campus.

While we could not implement the suggested solutions within our project timeframe, through reporting resolutions from the Hack-a-thon workshop to Hospitality Services, we hope that the ideas generated will help to facilitate future progress in food sustainability on campus.

COLLABORATORS

We would like to express our sincere thanks and gratitude to our Community Project Champions, Adam Chiaravalle (McMaster Alumnus) and Chris Roberts. Specifically thanking Adam for helping move the project in the right direction and guiding us with the implementation of the Hack-a-thon workshop. Additionally, thanking Chris for being the keynote speaker at our event and discussing policies in place by Hospitality Services. We would also like to thank John Vu from NoLunchMoney and Taylor Mertens from Mac Bread Bin for their collaboration and assistance with the promotion of the workshop and remaining as enthusiastic as us during the process, which was incredibly encouraging! Finally, we would like to thank all those who attended our Hack-a-thon workshop for their participation and constructive feedback.

SUSTAINABLE ACTION TO REDUCE ELECTRONIC WASTE IN THE MCMASTER COMMUNITY

STUDENT AUTHORS

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Diana Zuniga, Science
Tanzim Hoque, Life Sciences
Zil Nasir, Life Sciences

Photo Credit: Karen Carr[1]

OVERVIEW

Most people know how to recycle everyday items such as plastic and cardboard. Beginning in elementary school, the importance of recycling has been taught. However, nothing is discussed about electronic waste items. How are they recycled? Are the methods of recycling safe, reliable, and sustainable? Inadequate electronic recycling can have detrimental effects not only in the local community, but globally as well. One study found that e-waste items from developed countries such as the United States and Canada are shipped to developing countries such as China for recycling[3]. These areas do not have the infrastructure, policies, or procedures in place to properly recycle these products, and have been found to exploit young children for work[3]. Exposure to manual burning and breakdown of electronics has been linked to high levels of cadmium, mercury, and lead, which can cause high cytotoxicity in the blood during long periods of exposure[5]. Moreover, improper e-waste disposal has been linked to environmental pollution, impacting both the natural ecosystem and human populations[4]. With this knowledge, we teamed up to raise awareness at McMaster about why and how to recycle e-waste, as well as to provide feasible opportunities to recycle e-waste in safe and easily-accessible locations on campus.

OBJECTIVES

1. Raise awareness of e-waste disposal and educate students on how they can recycle electronic waste at McMaster
2. Increase the adoption of e-waste recycling by placing a recycling bin in an accessible location for students during Technology Support Week
3. Evaluate the success of our project and provide analysis for future e-waste projects at McMaster

REPORTING

Through our collaboration with the McMaster Students Union (MSU) and campus Facility Services, we were able to raise awareness about electronic waste and provide students with the opportunity to recycle their electronics and batteries.

First, we utilised social media and created brochures to raise awareness regarding electronic waste and recycling options on campus. We also used social media to promote our event, Technology Support Week, which was held November 13th to 17th. Technology Support Week provided students with the opportunity to learn about their electronics and recycle their e-waste. To promote the event and available electronic waste options on campus, we connected with over 38,000 people on social media, 2,000 students from class visits, and 100 students through individual conversations.

Our event's success was also attributed to Facility Services, who provided us with bins for electronic waste recycling, and the MSU, who provided us space to place the bins within the Student Centre during Technology Support Week. Students came to recycle their electronic waste throughout the week. By week's end, an estimated 320 kg was collected by Facility Services and sent for proper recycling. Moreover, numerous students collected items for reuse while the rest was recycled.

When evaluating the success and next steps for this project, there are key factors that can be addressed to make this project more sustainable. Our evaluation found that future events should assess the number of items reused by students, along with the initially recycled items. Furthermore, although semi-regular events such as Technology Support Week are important for raising awareness, it can be further supported by the addition of permanent accessible bins across the McMaster campus. Therefore, students will not be restricted in terms of when they can recycle their electronic waste.

COLLABORATORS

We would like to thank the following individuals for their support during the course of this project: our Community Project Champion and MSU President, Chukky Ibe; the Director of Custodial Services, Carlos Figueira; and the Facility Services staff and team. Our project would not have been possible without their immeasurable support.

FOOD WASTE AT MAC: SUSTAINABLE COMPOSTING INITIATIVE

STUDENT AUTHORS

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Amber van Druten, Science

Green bin located in MUSC
Photo Credit: Alicia Giannetti

OVERVIEW

Food waste is a crisis in many areas of North America. An annual report of the Value Chain Management International (VCMI) showed that $31 billion worth of food is wasted every year in Canada, which is about 40% of the food that is produced. McMaster University produces 902,378 kg of organic waste per year, which is 43.2% of the total waste by weight. Although the kitchens in McMaster University Student Centre (MUSC) are composting, there are no public facing compost bins. As a result, all of the food waste that is generated through the consumption of Hospitality Services offerings is likely to end up in the garbage. Our goal is to establish permanent public facing composting bins at McMaster University to ensure that food waste has an opportunity to be composted.

OBJECTIVES

1. Conduct a pilot study to determine infrastructure and educational needs for composting practices
2. Educate students on food waste and composting practices
3. Evaluate study results to determine the impact of infrastructure and education on composting practices and recommend program enhancements
4. Collaborate with campus stakeholders to ensure that the composting program becomes permanent

REPORTING

We conducted a pilot study by placing two compost bins in MUSC. One of the bins had signage and the other did not. We monitored the bin with signage during the first week in order to educate students on composting practices. We did not monitor the bin for the rest of the study to evaluate if composting was still done properly. Over the three weeks of our pilot study, we found an increase in collected compost and a decrease in contamination from non-compostable items. Furthermore, the bin with signage contained more compost and had less contamination compared to the bin without signage. This suggests that education resulted in a decrease in contamination. We collected a total of 101.34kg of compost during our three week pilot study. This illustrates the importance of implementing permanent public facing compost bins in frequently accessed campus spaces. We promoted the composting bins and educated people by monitoring the bins, displaying 3D signage above the bin, communicating through social media, reaching out to other student clubs, tabling at Sustainability Day, having an interview with the campus radio (CFMU), and writing an article for the student newspaper (The Silhouette). Through collaboration with Chris Roberts (Hospitality Services), Carlos Figueira (Facility Services), and Lori Diamond (MUSC Administrator), we were able to complete this pilot project and ensure that the program will be made permanent with newly designed bins and signage by Spring of 2018.

COLLABORATORS

We would like to thank Adam Chiavarelle, Chris Roberts, Kate Whalen, Carlos Figueira, Lori Diamond, and Fiona McGill for working with us to make this project a success. Also, we would like to thank all students and staff who took part in this program.

IMPLEMENTING A REUSABLE TAKEOUT CONTAINER: THE ECO-TO-GO PROGRAM

STUDENT AUTHORS

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Abigail Little, Social Sciences
Carolyn Stearns, Social Sciences

Marketing poster designed by the MSU to promote the program
Photo Credit: Sarah Conrad

OVERVIEW

According to the Environmental Protection Agency, 39 million tons of packaging and containers from restaurants enter the municipal waste services every year[1]. From our student experience, the majority of food purchased on McMaster campus is packaged in single-use takeout containers. Without widespread composting facilities on campus, most packages end up in the garbage. In recent years, McMaster implemented the Eco Takeout Container program, which enabled students and staff to purchase a reusable takeout container accepted at select on-campus eateries. Participants could reuse the containers, eliminating the need for the single-use alternative. However, the program was only available at three eateries, and participant adoption was low. Inspired by this opportunity to significantly alter behaviour and reduce waste production, the goal of our project, Eco to Go, is to reduce the single-use takeout containers by encouraging the adoption and use of the Eco Container Program.

OBJECTIVES

1. Understand current students' attitudes and behaviours about food-related waste
2. Decrease waste resulting from single-use takeout containers
3. Increase composting on campus by raising awareness that current takeout containers are compostable

REPORTING

To satisfy our first objective, we surveyed students and found that 92.8% respondents would be willing to switch to the Eco Takeout Container to save money and to help the environment. The students demonstrated their support for the program expansion by signing a public petition.

To encourage composting on campus, we worked with a Studio Art student to create a stamp with the words, "compost me" and were prepared to stamp 1,500 compostable takeout containers in the McMaster University Student Centre (MUSC) eatery. Unfortunately, the stamps did not transfer legibly onto the takeout containers, so we pursued promotion through social media instead.

There were two key unforeseen challenges that prevented our project from progressing as planned. The first challenge was that the design of the takeout containers allowed for food leakage. This proved to be a barrier not just for student adoption but also for the food vendors who showed concern for implementing a program that would not satisfy the students. Our second challenge was that although Hospitality Services thought they had the appropriate infrastructure to support the program, upon consulting with staff members to pilot the process it became apparent that there was not sufficient room to wash and dry the anticipated number of containers. While our intended plan did not come to fruition, potential next steps for this initiative would be to consider options for students to bring their own reusable container and/or promote the compostability of the current containers.
Due to these unforeseen infrastructural barriers, we were unable to satisfy all of our project objectives. However, our team was successful in developing a network of professionals, gaining valuable skills in real-world problem solving, and understanding the challenges involved in implementing sustainable change. One of the biggest takeaways was that we were successful in starting a conversation with Hospitality Services and the McMaster Students Union (MSU), and we hope that in future years a reusable container program will be implemented across campus. We are very grateful for each individual who helped us reach our goals in this project.

COLLABORATORS

We would like to thank Chukky Ibe, our Community Project Champion and the current MSU President, for guiding us throughout our project. We are also grateful for the support of Sarah Conrad, MSU Communications Officer; Chantelle Stringle, Level 4 Studio Arts Student; Ross Boustead, Manager, TwelveEighty; as well as Chris Roberts, Director, Hospitality Services and Christine Yachouh Sustainability Coordinator, Hospitality Services.

GROWING BRIDGES - IMPROVING REGIONAL FOOD INSECURITY BY INCREASING ENGAGEMENT AT THE MCQUESTEN URBAN FARM

Photo Credit: McQuesten Urban Farm during growing season.

STUDENT AUTHORS

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Katheleen Eva, Science
Jay Krause, Business
Ikra Saeed, Science

OVERVIEW

A 2010 report highlights that 24 million individuals in North America alone live in a *food desert*, locations in which access to affordable, healthy food options are limited or nonexistent.[1] Furthermore, many of these individuals were found to be of lower socioeconomic status[2].

The McQuesten neighbourhood in Hamilton, Ontario has been perceived by its community members to be a food desert, with the closest grocery store being over a 20-minute walk away[3]. The McQuesten Urban Farm was created with the purpose of building the capacity of the community, increasing food security, and reinforcing that everyone has a right to nutritious food[4]. However, there is lower than anticipated engagement among community members. This project's research focused specifically on those that live within CityHousing Hamilton (CHH) and nearby Melvin Avenue apartment buildings.

The goal of this project was to address food security in Hamilton by identifying barriers to and increasing engagement with the McQuesten Urban Farm by members of the local community.

OBJECTIVES

1. Understand all program offerings and current participation levels at the McQuesten Urban Farm
2. Identify and understand the barriers that prevent local residents from engaging with the Farm
3. Create and implement a method of tracking basic information on who is engaging with the Farm
4. Develop and implement an engagement strategy that meets the needs of local residents and the goals of the Farm, and assess it for effectiveness

REPORTING

We began this project by learning about the McQuesten Urban Farm, introducing ourselves to key leaders in the community, visiting the site, conducting secondary research, and establishing our project scope. One-on-one interviews were conducted informally with local experts and McMaster researchers on the topics of food insecurity and urban farming, as well as with McMaster student organizations in order to better understand the issues, both broadly and on a local level.

We continued our primary research to understand barriers to engagement with the Farm from the perspective of residents living in the McQuesten neighbourhood. We conducted a formal survey* of residents on their knowledge and opinions of the Farm, where they currently get food, and their demographic information. Within a 4-day period, we visited 281 residences in three CityHousing Hamilton communities and one apartment building, all within the McQuesten neighbourhood. We conducted a total of 76 interviews.

REPORTING CONTINUED

Key findings from the surveys suggest that, when marketing to the local community, clarity of message, accessibility for seniors and residents with mobility impairments, and affordability of produce were priorities for respondents (see Figure 1). Utilizing our findings and support from the staff at the Farm, we developed three strategies to increase community engagement at the Farm. First, we developed and implemented a process to track engagement of volunteers and customers to support ongoing program assessment and evaluation, to be further implemented and iterated upon throughout the summer months. Second, we developed a foundation for communication and marketing materials highlighting job skills and certifications gained through volunteering at the Farm, to be disseminated to the local McQuesten neighbourhood. Third, we compiled reports and communicated our findings with the McQuesten Urban Farm at a farm staff meeting in late April 2018, and further shared raw data with Farm employees for future use.

The next step will be for the Farm staff and volunteers to pilot the tools created during the upcoming growing season and begin collecting information about volunteer, customer, and community engagement. We hope that the information collected will enhance the work being done at the Farm, influence future decision-making, as well as provide a foundation for future collaborations, including a continued partnership with CityLAB.

*Research ethics was cleared for this study through McMaster Research Ethics Board.

COLLABORATORS

We would like to share our appreciation for all of the collaborators who supported and guided this project, including: Adam Watson, and Jocelyn Strutt, Project Managers at Neighbourhood Action Strategy, Healthy & Safe Communities Department, City of Hamilton; Patrick Byrne, Project Manager for CityLAB Hamilton; as well as the entire McQuesten Urban Farm Planning Team. Last, but certainly not least, we would like to thank the members of the McQuesten community for welcoming us into their neighbourhood and supporting this project.

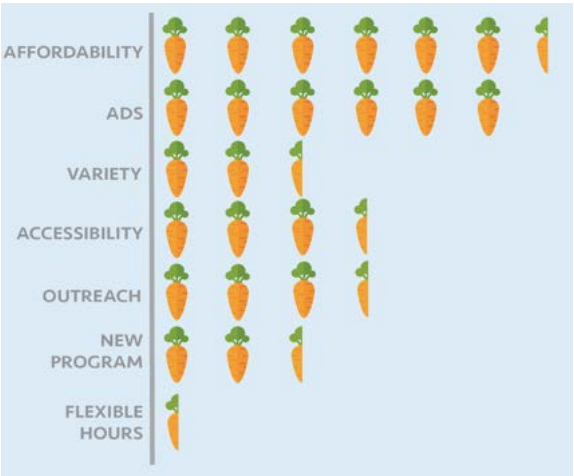

Figure 1: Response to the question, "Is there something in particular that you'd like them to do at the farm to help engage you?" (Carrot = 2 persons) *(Created By: Ikra Saeed)*

WELLNESS AND ENGAGEMENT IN CITYHOUSING HAMILTON

STUDENT AUTHORS

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Zoë Grant, Science
Coomal Rashid, Science
Gagandeep Saini, Health Sciences

Figure 2 Example wellness program poster using plain language and descriptive images. Created by student project team members.

OVERVIEW

Within the next two decades, the number of seniors (aged 65+) in Hamilton is expected to double[1]. As a community, we need to ensure that our senior population can age successfully. Successful ageing refers to the optimization of life expectancy, satisfaction, and wellbeing[2]. CityHousing Hamilton (CHH) provides site-specific wellness programs to some senior residents, with on-site services that address mobility and financial barriers. Programs including foot clinics and falls prevention exercise classes aim to support senior residents in leading healthy, independent lives; however, due to low resident turnout and subsequent decreases in funding, the sustainability of these programs is in jeopardy. Without the wellness programs, residents may miss out on information regarding chronic illnesses, which affect approximately 50% of adults over the age of 50[3]. In addition, 1 in 3 seniors are worried about falling, highlighting the importance of a fall prevention program[4]. Illness and fear can also lead to other issues, such as social isolation and depression preventing seniors from leading full and happy lives into old age[4]. Our goal is to help foster an environment that supports a healthy and flourishing lifestyle for the ageing community in CityHousing Hamilton.

OBJECTIVES

1. Identify past and current wellness programs, as well as strengths, shortcomings, and limitations to senior resident engagement and attendance
2. Implement and iterate on a sustainable, evidence-based solution that promotes engagement, wellness, and capacity building among residents
3. Analyze and evaluate the results of each iteration to determine the most successful strategy
4. Communicate our findings to residents and CHH staff, in order to support our transition and to ensure continuity between student groups and the wellness program promotional strategies

REPORTING

To address our first objective, we interviewed* residents, CHH staff, and current volunteers about past and current wellness programs to understand what could be done to increase resident engagement in the two chosen building sites. We interviewed 34 residents in two buildings. Our findings suggest that resident engagement in CHH-led programs can be enhanced through regular and reliable scheduling, consistent messaging, and the use of accessible communication (See Figure 1).

With feedback in hand, we designed a poster using plain language and descriptive images. We then translated it into the three languages most commonly spoken in the buildings (See Figure 2). In line with our second and third objectives, we ran two trials with a poster design that included English, Mandarin, and Russian to observe its effect on attendance. We saw a 10% increase in participation - across both trials - when compared to pre-trial numbers. Furthermore, a hands-up survey suggests that the increase can be attributed to our strategy; however, additional trials are needed to confirm the correlation. Overall, through this project we were able to identify potential barriers to engagement, and successfully increase program attendance by addressing some of those barriers.

REPORTING CONTINUED

To support continuity of our project, we compiled our findings, created a report of recommendations, and a toolkit to support CHH staff and volunteers in editing and re-creating our posters for future use. The final results of our project were presented in plain language and posted on public bulletin boards for all residents to see.

Lastly, we wanted to use our experience to assist future students. To accomplish this, we created a student/volunteer protocol and a transition report, both of which will prepare future students and volunteers for a successful experience within CHH. These documents will promote sustainability of the programs and ensure that others are able to learn from our experience.

COLLABORATORS

We would like to thank our Community Project Champion, Kelly Coxson, for her continuous support, guidance, and vision throughout this project. Our gratitude is also extended to the staff members of CHH and to Heather Mackenzie, owner of Strive Fitness, Inc. for helping with our data collection. We would also like to sincerely thank all the residents within CHH for their participation and making our project possible. This project would not have succeeded without such generous support.

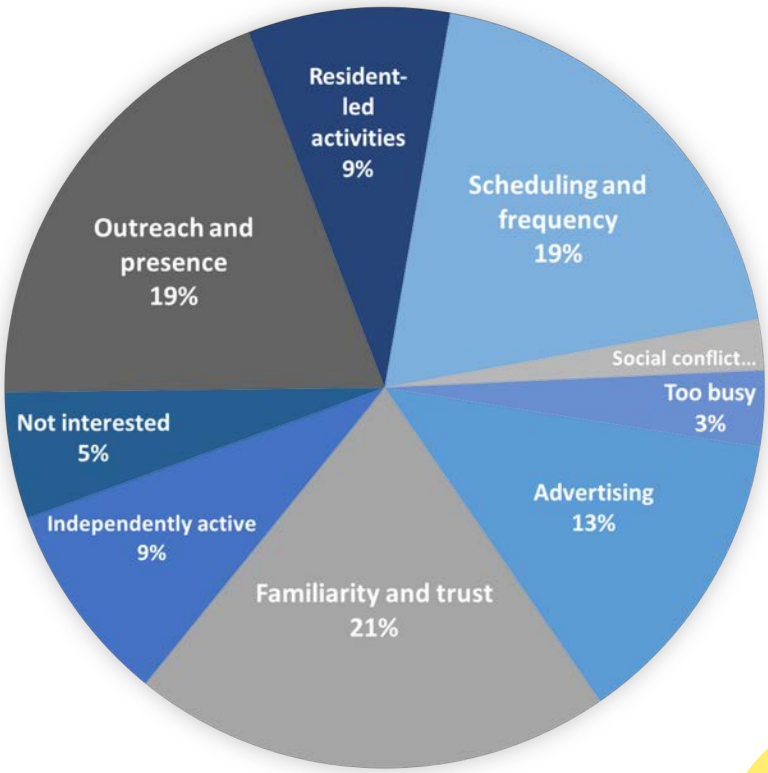


Figure 1 Results of resident survey highlighting the barriers to accessing the wellness programs. Created jointly by student project team members.

SUSTAINABILITY INTERNSHIP PROGRAM

SUSTAINABILITY INTERNSHIP PROGRAM

McMaster's Sustainability Internship Program was created in 2009 in collaboration with s group of highly engaged faculty members and their students. The program was developed with the purpose of enabling all students to apply their theoretical knowledge of sustainability to address a real-world problem.

OBJECTIVES

The objectives of the Sustainability Internship Program are as follows:

- Engage all Faculties in working together to provide opportunities for undergraduate students to gain academic credit for experiential learning
- Support collaboration between students, faculty, staff, and the broader community
- Highlight the achievements of students who have successfully completed their sustainability internship

REPORTING

Through annual revision and enhancement, the Sustainability Internship Program has evolved over the past eight years and has supported more than 100 students in experiential learning at McMaster. Starting in 2013, all ASP Annual Reports include a full section highlighting the work of students who have successfully completed their Sustainability Internship.

Past reports can be found at asp.mcmaster.ca/publications

COLLABORATORS

The Sustainability Internship Program is made possible through collaboration with Faculties from across campus with support from faculty, staff, community members, and especially the students who devote their time and energy into self-directed, community-based, and experiential learning about sustainability.

YEAR IN REVIEW

During the initial offering of the Sustainability Internship Program, there were approximately eight to ten students taking part each year. However, with the development of the upper year SUSTAIN courses, which all include a community-based experiential learning project, we now see between two and five students taking part in the Internship Program each year. We still welcome and encourage students to pursue an internship through our department, but fewer students in the program is a positive shift because it suggests that the courses are satisfying a latent demand for this type of learning on campus. While the SUSTAIN courses provide richer opportunities for interdisciplinary learning between student classmates, the Internship Program offers greater flexibility and the opportunity for more independent study and robust research. The goal in recent years is to support student- directed learning of various forms and also support students in gaining meaningful learning experiences that are unique to other courses and programs offered at McMaster.

OBJECTIVES

The objectives of the program are as follows:

- Maintain flexibility in program structure to support student-directed learning
- Develop resources to support student-directed learning and inquiry
- Provide opportunities for mentorship throughout the student's learning process

REPORTING

This past year, two students took part in the Sustainability Internship Program. Talia Moretti focused her project on strengthening awareness and use of sustainable standards for the submission of written work, specifically within courses offered by the Faculty of Science. John Vu aimed to better understand students' experience with on-campus food recovery programs in order to address issues of food insecurity and food waste at McMaster.

Each student project is reported on in the pages to follow.

COLLABORATORS

The individual student interns designed, developed, and created fantastic work through their self-directed learning. Integral support was provided by the Arts & Science program and the Faculty of Health Sciences, as well as the students' Academic Supervisors, Community Project Champions, and project mentors, who are each mentioned in the pages to follow.

SUSTAINABLE SUBMISSIONS STANDARDS IN SCIENCE

STUDENT AUTHOR

Talia Moretti, Arts & Science
ARTSCI 3X03 - Individual Study

Photo Credit: Talia Moretti

OVERVIEW

As public awareness of climate change has grown, a parallel concern for the sustainability of cities, communities, and institutions has arisen. McMaster has demonstrated a commitment to financial and environmental sustainability via the University's most recent Strategic Mandate Agreement and ratification of the Okanagan Charter. Nonetheless, some methods to reduce resource use are currently being overlooked or resisted. Most Arts & Science courses operate under sustainable methods based upon Melissa Gallina's pilot project in 2011 to introduce sustainable written work submission guidelines in this program. My aim this year was to strengthen awareness of and use of sustainable submission standards in the Faculty of Science, and to ensure the longevity of this project. Beyond the simple change sustainable submissions standards require, they more broadly represent awareness and valuation of sustainable practices at McMaster.

OBJECTIVES

1. Collect and analyze undergraduate students' perspectives on the present sustainability of written and electronic submissions
2. Build awareness of sustainable course methods amongst students and professors
3. Engage professors' interest and commitment to sustainability and submission practices
4. Make substantive change to professors' course outlines and submission methods to reduce paper usage and unnecessary waste
5. Ensure the long-term sustainability of this initiative

REPORTING

I began by collecting student perspectives on the Faculty of Science's present level of sustainability. My primary finding was that there is inconsistency in sustainable standards between courses. Nonetheless students readily affirmed their support for this initiative (see Figure 1). With this data, I created an informational video to engage the interest of Science students and professors alike. To engage professors' interest, I collaborated with the Dean of Science to distribute an email to department chairs and specific faculty, which included the video and encouraged professor participation.

Some professors allowed me to make classroom presentations to inform and engage Science students. Through these presentations, I also encouraged students to share and recommend the standards to their professors. Some professors demonstrated great enthusiasm toward my project. Four professors were very receptive to the project, and willing to include the sustainable standards in the course outlines requested.

Given my anticipated graduation, to extend the longevity of sustainable submission standards at McMaster I collaborated with Macademics, the McMaster Student Union operated faculty award committee. The new award will be introduced in Winter 2019, to be presented to a professor demonstrating exemplary environmental, economic, and social sustainability in their courses. This award not only insures the sustainability of this project, but also celebrates leaders in sustainability and helps stimulate more professors to act.

COLLABORATORS
Thank you to Dr. Maureen McDonald, the Dean of Science, Jacob Brodka, and the Office of the Dean of Science for supporting this initiative. Thank you to Dr. Dick Day, Dr. Luc Bernier, Dr. Michael Brook, Professor Peter Topalovic, and Professor Greg Zilberbrant for allowing me to make class presentations in their courses. My deepest appreciation to the student societies that promoted my survey: McMaster Actuarial Society, McMaster Kinesiology Society, McMaster Biology Society, McMaster Math & Stats Society, and McMaster Biochemistry and Biomedical Sciences Society. Thank you to all of the students who supported this project by participating in my survey. Additional thanks to professors who have agreed to promote and adopt sustainable standards, Dr. Daniel Yang, Professor Krista Madsen, and Dr. Bruce Milliken. Thank you to Abigail Little for technological assistance in sharing this project. Thank you to Ive Velikova, Sarah Maude, and Macademics for eagerly supporting sustainable submissions standards and collaborating with me to design the new sustainability award. Last, my deepest gratitude and thanks to Dr. John Maclachlan and Kate Whalen for their constant guidance and encouragement. Their supervision had an inordinate impact on my learning and the culmination of this project.

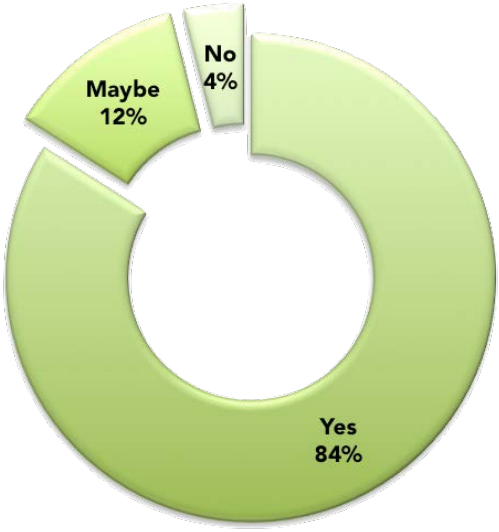


Figure 1 Support for Sustainable Submission Standards

EVALUATION OF A NOVEL FOOD RECOVERY PROGRAM

STUDENT AUTHOR

John Vu, Health Sciences
HTH SCI 4B06 - Senior Thesis

Photo Credit: McMaster Bread Bin Media Team

OVERVIEW

Although enough food is produced to feed every Canadian, food insecurity affects up to 12% of Canadian households[1,2]. At McMaster University, 55% of students have worried about running out of food with no money to purchase more[3]. As a result, campus food banks have seen spikes in recent years[4]. Despite these alarming statistics, in 2014, food waste costed Canada $31 billion and is one of the leading causes of pollution[5,6].

Food recovery programs have shown great promise in reducing food waste and food insecurity[7]. Second Course is a novel food recovery program at McMaster, where unserved baked goods are recovered, organized, and served to students at a central location on campus. Led by the student groups NoLunchMoney and Mac Bread Bin, Second Course is a collaborative effort between multiple stakeholders including McMaster's Hospitality Services.

The goal of the project was to better understand the student experience with Second Course. Qualitative and quantitative evidence was gathered from each event and used to build and expand upon food recovery infrastructure at McMaster University. With a robust food recovery system, the issues of food insecurity and food waste can be addressed simultaneously.

OBJECTIVES

1. Explore the potential impact of food recovery on food insecurity and food waste at McMaster
2. Gather demographic information about event attendees
3. Gather and identify areas of improvement based on student feedback
4. Facilitate conversations around food waste and food insecurity to address stigmatizing attitudes

REPORTING

Second Course was run once a week beginning in November until the end of the school year; however, some weeks the event was not possible due to a lack of food (months of February and March). With regards to food saved, over 1000 baked goods were recovered and served to students. Over 50% of survey respondents (N = 43) indicated they had experienced feelings of food insecurity during their time at McMaster. When asked to rate the impact the program had on their feelings of food insecurity (1=no impact, 5=significant impact), an average rating of 3.52 was obtained. Attendees came from a diverse background of academic programs and years of study, although there were considerably more Science students than Humanities/arts students. The attendees were split evenly between male and female. A future step would be to understand the reason for this imbalance in Science versus Humanities/arts students and identify areas for improvement in outreach/awareness.

There was predominantly positive feedback from each event, with most respondents expressing their content and gratification for the service. There were two common areas for improvement: to increase the frequency of the events, and to include more variety/nutritious foods (See Figure 1). Future steps will be to understand the barriers preventing such expansions and to work closely with the stakeholders involved to create tangible solutions. Respondents indicated they were happy to attend the event, even stating they invited their friends to attend. While there, some engaged in conversations around the stigma of food insecurity and learned of the various services offered by McMaster Bread Bin for students. These data suggest that this model for food recovery could serve to decrease the stigma of accessing food-related services. Overall, this report demonstrates promising evidence for expansion of food recovery at McMaster to combat food waste and food insecurity.

COLLABORATORS

Chris Roberts and other members of the McMaster Hospitality team recovered and donated the baked goods each week. Taylor Mertens, Director of Mac Bread Bin (MBB), and the volunteers at MBB facilitated pickup and distribution every week and bought fruits and vegetables out of pocket. The NoLunchMoney team was responsible for promotion. Finally, Kate Whalen provided guidance throughout the entire process. I would also like to thank all the students who attended Second Course. Without their participation and enthusiasm, this event would not be possible.

Figure 1. Most common themes in the feedback survey

A display of the food served at a Second Course event on November 13, 2017
Photo credit: John Vu

EVALUATION OF ELECTRONIC WASTE RECYCLING AT MCMASTER UNIVERSITY

STUDENT AUTHOR

Karen Taggar, Science

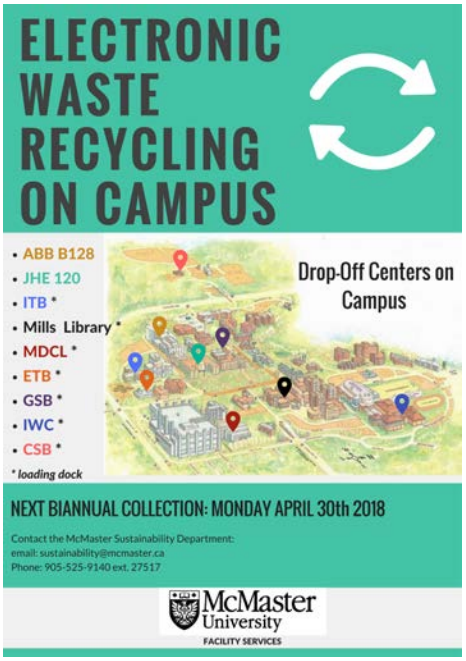


Photo Credit: Karen Taggar

OVERVIEW

Inadequate electronic waste recycling can contribute to environmental pollution and have disastrous effects on the environment and human populations. At McMaster, there is a pressing need to educate about and increase the accessibility of electronics recycling services on campus to make the University a more environmentally friendly space. The goal of this project is to ensure that students and staff have increased electronic waste recycling literacy, an easily-accessible bin to recycle their electronic waste, while making sure that the solution maintains longevity within the McMaster community.

OBJECTIVES

1. Assess and evaluate the student body and campus management staff for their understanding and opinions of the current e-waste recycling programs at McMaster
2. Raise awareness of what e-waste is and how/where to recycle electronics at McMaster
3. Design and implement an enhanced, sustainable e-waste recycling program

REPORTING

To assess and evaluate students understanding and opinion of current e-waste services on campus, I held three focus group sessions with 35 students from a variety of programs and levels of study. All student surveys agreed on the following: 1) there is an interest for e-waste recycling opportunities on campus, 2) there is a lack of knowledge surrounding the remote collection cages and biannual collection events, 3) more promotional and educational material is needed to increase e-waste recycling literacy on campus.

Given that there is an existing e-waste recycling program at McMaster, I created user-friendly and educational material that was shared on social media and throughout campus to inform students and staff where they could deposit their e-waste. Additionally, I helped to promote the upcoming biannual collection event held by Facility Services. Given that none of students surveyed were aware of the existing e-waste recycling programs, this demonstrated an overwhelming need for a more accessible and identifiable drop-off hub on campus. To satisfy this demand, I worked with the McMaster University Student Centre (MUSC), Facility Services, and an external provider to secure a mobile e-waste collection bin which will be installed in the Student Center in September of 2018. The next steps are to assess the effectiveness of the program, with respect to uptake by students and staff and its economic viability.

COLLABORATORS

Thank you to Kate Whalen (Senior Manager of Academic Sustainability Programs) for offering me superb guidance throughout the duration of this project. Thank you to Carlos Figueira, Director of Facility Services, and Lori Diamond, Director of McMaster University Student Centre, for providing constructive feedback for all project ideas and for expressing a passion to work on this project. Thank you to Elizabeth Irwin, IT Management at Greentec, for being a liaison between McMaster University and Greentec to assist in the design and implementation process. I would also like to thank Chukky Ibe, MSU President, for championing and providing financial support for the project. Finally, thank you to all the students who took part in the focus groups and for joining this movement for sustainable change at McMaster.

TREE PLANTING AT FIFTY POINT CONSERVATION AREA

Student planting a tree at Fifty Point Conservation Area
Photo Credit: DeGroote Commerce Society

STUDENT AUTHOR

Anita Bharji, Commerce

Note: Although Anita did not receive course credit for her project, she demonstrated significant leadership in this volunteer initiative and we felt it was valuable to include within the Sustainability Internship Section.

OVERVIEW

Trees play an important role in contributing to the ecological health of cities; they help control temperatures, reduce pollution, prevent soil erosion and runoff, and support biodiversity by providing food and shelter for wildlife.1To engage students in local tree planting initiatives, McMasters Academic Sustainability Programs Office partnered with Trees for Hamilton, a charitable organization that coordinates volunteers to plant native trees in local areas of need. The goal of this project was to shed light on the importance of planting trees and to provide students with a hands-on opportunity to build leadership and teamwork skills through engaging the community in an environmental initiative.

OBJECTIVES

1. Identify opportunities for collaboration
2. Acquire resources and funding to support a free to attend event
3. Recruit volunteers group to plant trees at Fifty Point Conservation Area
4. Ensure continuity of an annual, student-led tree-planting event at McMaster University

REPORTING

With only one month to plan the tree planting event, forming collaborations with existing groups was key to the events success. Fortunately, the idea of a tree-planting event quickly gained support from the DeGroote Green Committee, a group of environmental advocates for the DeGroote Commerce Society. The committee worked alongside Kate Whalen, Senior Manager of McMasters Academic Sustainability Programs Office, for guidance in creating an event budget and drafting a project plan. Once the event plan was approved by the Faculty of Business, the DeGroote Commerce Society was able to allocate funds to cover the event's expenses and promote the event on their website and through social media.

Members of the DeGroote Green Committee recruited volunteers through classroom announcements, information tables, and email marketing during the two weeks before the event. The event was scheduled for the afternoon of Friday, October 20, 2017 at Fifty Point Conservation Area. Twenty-four students registered to attend the event through Eventbrite and fifteen of the registrants attended the event, most of whom were Commerce students looking to complete their volunteer hours for the Jeux du Commerce Central Competition (JDCC). The volunteers had a positive experience at the event and were able to plant 150 trees within the 1.5 hours given.

REPORTING CONTINUED

The final objective of this project was fulfilled by demonstrating that the project could be easily planned and executed by students and that it provided students with a valuable experience. The first-year representative of the DeGroote Green Committee, William Stephenson, was able to showcase his leadership skills through helping to promote the event and was selected as the chair of the committee for the next academic year. The success of this pilot project also led to the development of a SUSTAIN 3S03 course project, which will engage students in planning a tree-planting event with Trees for Hamilton in the fall of 2018. The Academic Sustainability Programs Office Coordinator, Abigail Little, will serve as the project champion for the new course project.

COLLABORATORS

I would like to thank the members of the Board of Directors of Trees for Hamilton: Myles Sergeant, Rob Booth, Lorraine Moir and Simon Liang, as well as Shelley McKay, Director of Communications & Development at Forests Ontario for providing their time and resources to ensure the event was a success. I would also like to express my gratitude to Kate Whalen, Abigail Little, and the volunteers of the DeGroote Commerce Society for their diligence in supporting this project and its continuity.

Volunteers representing the DeGroote Commerce Society at the tree-planting event
Photo Credit: DeGroote Commerce Society

COMMUNITY-BASED LEADERSHIP IN SUSTAINABILITY (CLS)

SUSTAINABILITY INTERNSHIP PROGRAM

The CLS initiative was created in the fall of 2014 as a joint initiative between a number of groups and organizations with the goal to develop a culture of sustainability through education, community engagement, and collaboration that inspires practical implementation. The central focus of the initiative was to host a series of educational and networking events each year. The events were designed to take a unique approach to teaching and learning about, as well as engaging in, sustainability that would provide value to individuals, groups, organizations, institutions, businesses, and the City of Hamilton alike. Furthermore, we hoped that through this initiative, connections were made, and new ideas generated that may provide benefit to the city a whole. One of the main objectives of the CLS initiative was to offer these educational and networking events without barrier. The events were open to all and free of charge.

OBJECTIVES

- Develop a culture of sustainability through education, community engagement, and collaboration that inspires practical implementation
- Form and foster a collaborative and formal working relationship between individuals, groups, institutions, and organizations who share a common mission to advance sustainability within the city of Hamilton
- Offer opportunities for sustainability education and involvement that is inclusive of various groups and individuals within the city's diverse and unique communities
- Communicate and report on the outcomes of each event and the initiative as a whole

REPORTING

In the four years since launch there have been 14 events in total, all of which have been hosted at local and accessible locations. Through these events, we engaged over 1,300 individuals, including 45 speakers, and 195 volunteers. Over $22,000 in sponsorship and donation has been generously provided to enable us to continue to offer these engaging, community-based, and barrier-free events.

COLLABORATORS

The CLS initiative is a product of the hard work and dedication from the Hamilton Sustainability Professionals Network Executive Board members; various individuals and departments of McMaster University; our volunteers, speakers, sponsors, and donors; as well as the engaged community members who supported the initiative by attending and investing their time through active participation in the various events.

YEAR IN REVIEW

Continuing with the recent shift in how we delivered the CLS events, we moved away from the lecture-style delivery that we initially started with in 2014 and instead continued to place emphasis on participant engagement through active participation. To support the continued shift to a higher degree of participant engagement, we relaxed our objectives to maintain the large number of attendees at our events and to focus on quality of engagement over quantity of people.

OBJECTIVES

The objectives of the CLS Program are as follows:

- Ensure each event maintains a focus on participant engagement through active participation
- Experiment with new event formats to increase participant engagement
- Focus on quality of participant engagement and learning rather than quantity of event attendees

REPORTING

Through the summer of 2017, the CLS working group identified a need to educate and engage people on the topic of mentorship in Hamilton. The group worked with SUSTAIN 3S03 students to create a workshop entitled Ment-It: Cultivating Mentorships and community in an Ambitious City (see page 17) that focused on "…teaching young people how to cultivate positive mentorship relationships and provide information, tools, and resources to support and sustain mentor-menthe relationships." This workshop was delivered as a concurrent session for the annual HIVEX young professionals conference. Approximately 40 participants attended the workshop, and support was provided by 10 volunteer table facilitators and 4 student speakers at each event.

For our second event, we chose to deliver our Green Cleaning Workshop which we piloted with great success in Spring 2018. We found this format to be highly engaging due to a significant focus on hands on learning through the creation of homemade green cleaning products.

On March 20, 2018, 23 participants and 5 volunteers traveled to the Evergreen Collaboration Station on James St. North to learn about the health and environmental impacts of traditional household cleaning products and about sustainable alternatives, as well as for the opportunity to make their own. The feedback from both participants and volunteers suggested that

Participants and volunteers provided feedback that the event was fun, enjoyable and that the activity was highly valuable[1].

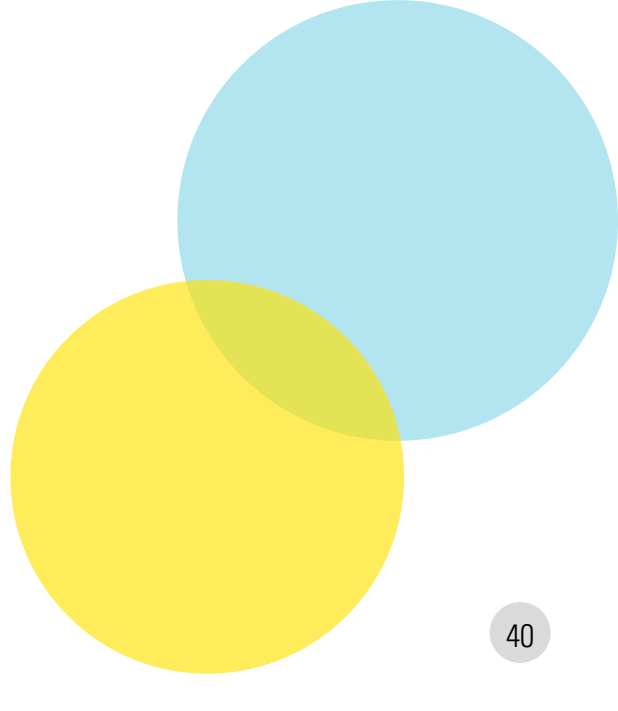
The third and final event was the annual Green Jobs Networking event, which was hosted at One James North on the morning of April 4th, 2018. The event highlighted a keynote speaker and 17 sustainability professionals from across Hamilton. A highly engaged group of 4 volunteers and 8 student facilitators supported the 51 attendees who joined us in facilitated roundtable discussions about green jobs in Hamilton.

REPORTING CONTINUED

Each of the events listed above focused on offering participants more access to event facilitators and/or volunteers and included a larger focus on facilitated discussion and participant engagement. For example, last year our Green Jobs Networking saw 55 attendees and 16 sustainability professionals, a 3:1 ratio between participants and professionals. This year, with 51 attendees and 17 professionals we were able to maintain a similar ratio of students to sustainability professionals. We incorporated student facilitators at each table to keep conversation on track and encourage students to ask thoughtful questions. Survey feedback confirmed that attendees noticed the comfortable environment that was created. Our attempt to experiment with different event formats to increase participant engagement was highly successful through the Green Cleaning Workshop. Survey response was overwhelmingly positive with participants noting the value of being able to make something that will help them action sustainability in their daily lives. Through feedback surveys, following each event, we found that, on average, 75% were Very Satisfied, 25% Satisfied. This is an improvement from last year's response of 55% and 45% respectively. No respondents report being Dissatisfied or Very Dissatisfied. Furthermore, many of the open responses mentioned the interactive components as well as the comfortable and/or engaging atmosphere as things they enjoyed most. Finally, 100% said they would attend another CLS event in future. Again, this is an increase from 99% last year. A full reporting of each event in the 2016/17 CLS series can be found at asp.mcmaster.ca/our-story/reports-publications/. After four years of running the CLS initiative, we have made countless community connections, developed valuable skills in collaboration, event planning, and leadership, and laid the foundation for others to continue leading similar sustainable initiatives. We look forward to working with on-campus and community partners as well as students through groups and project based courses.

COLLABORATORS

We would like to thank the Hamilton SPN Executive Board members who also make up the CLS working group; our volunteers, speakers, and neighbourhood and community leaders; the HIVEX planning team; the many partners who have provided financial or in-kind support, which includes McMaster's W. Booth School of Engineering Practice and Technology, McMaster's Student Success Centre, McMaster's Centre for Continuing Education, and Evergreen Hamilton. Last, but not least, we thank the engaged community members who supported the initiative through attending and investing in a sustainable Hamilton through active participation in these events.



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