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# ACADEMIC SUSTAINABILITY PROGRAMS OFFICE

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ANNUAL REPORT  
**2019 - 2020**



# Timeline of ASP Programming and Events, 2019/2020

<b>SEPTEMBER</b>	<b>SUSTAIN 1S03, 2S03, 3S03, &amp; 4S06 began</b>
<b>OCTOBER</b>	<b>Sustainability Week</b> <ul style="list-style-type: none"><li>• <b>Plant Upcycle Event</b></li><li>• <b>Nature at McMaster hike through Cootes Paradise</b></li><li>• <b>Trees for Hamilton planting events</b></li></ul>
<b>NOVEMBER</b>	<b>IT Collection Event</b>
<b>DECEMBER</b>	<b>SUSTAIN 3S03 Project Showcase</b>
	<b>IT Donations to Hamilton youth</b>  <b>SUSTAIN 1S03, 2S03, &amp; 3S03 ended</b>
<b>JANUARY</b>	<b>SUSTAIN 1S03 &amp; 2S03 began</b>
<b>FEBRUARY</b>	<b>Plant Upcycle Event 2</b>
<b>MARCH</b>	<b>Climate Change &amp; Health — Innovation Award opened</b>
	<b>Green Cleaning Event (virtual)</b>  <b>More Than Food Symposium (virtual)</b>



# Timeline of ASP Programming and Events, 2019/2020

<b>APRIL</b>	<b>SUSTAIN 1S03, 2S03, &amp; 4S06 ended</b>
	<b>Experiential learning project sourcing began</b>
	<b>Graduating students declared their Minor in Sustainability</b>
<b>MAY</b>	<b>SUSTAIN 3SS3 began</b>
<b>JUNE</b>	<b>100in1Day Hamilton</b>
	<b>SUSTAIN 3SS3 ended</b>
	<b>SUSTAIN 2SS3 began</b>
<b>JULY</b>	<b>Climate Change and Health — Innovation Award winners announced</b>
<b>AUGUST</b>	<b>SUSTAIN 2SS3 ended</b>
	<b>ASP Annual Report 2019-2020 released</b>
	<b>Experiential learning project opportunities announced</b>



## Our Team

### Administrative Team



**Kate Whalen**  
Senior Manager



**Abbie Little**  
Community Relations Coordinator



**Grace Kuang**  
Communications Assistant



**Mubariz Maqsood**  
Communications Assistant

### Faculty Members



**Greg Zilberbrant**  
Course Instructor  
SUSTAIN 1S03



**Sarah Precious**  
Course Instructor  
SUSTAIN 2SS3



**Peter Topalovic**  
Course Instructor  
SUSTAIN 2S03  
SUSTAIN 3SS3



**Michael Mikulak**  
Course Instructor  
SUSTAIN 3S03



**Kate Whalen**  
Course Instructor  
SUSTAIN 4S06

### Interdisciplinary Minor in Sustainability, Co-Chairs



**Kate Whalen**  
Senior Manager  
Committee Co-Chair  
ACADEMIC SUSTAINABILITY PROGRAMS



**Brent McKnight**  
Associate Professor  
Committee Co-Chair  
DEGROOTE SCHOOL OF BUSINESS

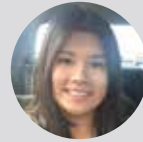


## Teaching Assistants

**SUSTAIN 1S03  
(Fall & Winter)**



Emily Martin



Michelle Chau

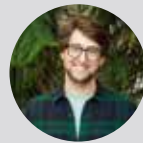


Shunmathi Shanmugam

**SUSTAIN 2S03  
(Fall & Winter)**



Anchana Kuganesan



David Zaslavsky



Hargun Grewal

**SUSTAIN 2SS3  
(Spring)**



Hargun Grewal

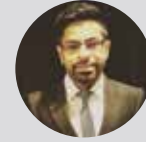
**SUSTAIN 3S03  
(Fall)**



Eric Howarth



Gabrielle Gonsalves



Garry Vinayak

**SUSTAIN 3SS3  
(Spring)**



Hargun Grewal

**SUSTAIN 4S06  
(Fall & Winter)**



Samantha Patrick

## Year in Review 2019/2020

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 considerable progress in advancing the Office's mission to inspire in all students a desire for continued learning and inquiry through experiential education about sustainability. To achieve this mission, through our various programs, students are provided with unique opportunities for interdisciplinary, student-led, community-based, and experiential learning about the complex issues of sustainability.

McMaster's commitment to sustainability is evident in its consistent placement in the top tier in international rankings to assess university impact related to the **United Nations Sustainable Development Goals (SDGs)**. McMaster ranked 17th in the world in the 2020 Impact Rankings by Times Higher Education and first among Canadian universities in two key SDG categories. As part of our ongoing commitment to the Goals, we have included the SDGs that connect most with each project in this report.

Projects are completed by our students in collaboration with their community partners. Projects from this past year include: Trash to Treasure, a program to refurbish campus computers and donate them to children in need (pp. 33-34, 60); Project Youth Voices, an initiative that uses art to create positive coping strategies for youth (p. 40); and Perceptions of Extreme Heat and Cooling Centres in Downtown Hamilton, a qualitative study to inspire municipal action through research on the impacts of extreme heat (p. 46). In total, student projects address 16 of the 17 SDGs, and we aspire to address all 17 next year.

Now, in its sixth year of existence, the **Interdisciplinary Minor in Sustainability** is McMaster's eighth largest minor by enrollment. Since our last reporting in the fall of 2019, five courses have been added to the Minor Course List, our Interdisciplinary Minor in Sustainability Student Committee has engaged with 65% more students, and there have been 27 more graduates with the Minor. The growth of the Minor is noteworthy, and I am particularly inspired by the collaboration between staff, faculty, and students to identify opportunities and act to implement positive changes for the Minor.

The **Sustainable Future Program** has also grown substantially since the first course was offered in the Winter of 2013. In response to continued growing demand, the Program has been further expanded through increased enrollment capacity and the addition of a new course. With expansion, we anticipate that over 1,000 students, representing all Faculties, will successfully complete a SUSTAIN course in the 2020/21 academic year.

Through the **Sustainability Internship Program** and **Graduate/Undergraduate Collaboration in Experiential Learning (GUCEL) Program**, we have supported 52 students to date in their self-directed learning. Each year, we are excited by their increasingly unique and diverse connections to sustainability. Given the intense interest in the Minor in Sustainability and the Sustainable Future Program, we chose to reallocate and further invest our resources into these programs. In order to make this investment, we have relaxed our focus on the Sustainability Internship Program and also placed the GUCEL Program on temporary hold. We will reevaluate these programs to determine if and how they can uniquely add value to our students' learning experiences.

To support our students' **community-based experiential learning**, we continue to enhance and grow our relationships within the community, through our focus on collaboration, reciprocity, continuity, and active engagement. This past year, through our educational programs, our students have meaningfully engaged with over 850 individuals from the McMaster and/or broader Hamilton community, as referenced in the report pages to follow.

This report includes information about each program and highlights the incredible work of students who have engaged with it. As you read the contents of this report, I hope that you are inspired by the students who have tackled complex problems and ambitiously strived to make **positive, sustainable change**.



**Kate Whalen, PhD**

Senior Manager

Academic Sustainability Programs Office



# Mission

## Mission

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

## 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 about sustainability.

## Priority Programs

Achieving our objectives and inspiring lifelong learning requires developing and fostering strong connections, both within the University and the broader community, and supporting students to develop the knowledge, skills, and abilities to be successful in their learning. We aim to do this through our four main 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 that complements their undergraduate degree and education.
- **Sustainable Future Program:** A suite of undergraduate sustainability courses within the Academic Sustainability Programs Office. Courses within the program are identified with the 'SUSTAIN' course code, are available to all students as electives, and are eligible for the Minor in Sustainability.
- **Sustainability Internship Program:** An opportunity for undergraduate 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 graduate students to work in collaboration with undergraduate students to develop and implement a real-world sustainability project and receive academic recognition upon successful completion.



Springtime flowers blooming at McMaster University  
Photo Credit: Georgia Kirkos

# United Nations Sustainable Development Goals

McMaster’s commitment to sustainability is evident in its consistent placement in the top tier in international rankings to assess university impact related to the UN’s Sustainable Development Goals (SDGs). McMaster ranked 17th in the world in the 2020 Impact Rankings by Times Higher Education. The university performed well across key SDG categories, including **Good Health and Well-Being** and **Decent Work and Economic Growth**, placing first among Canadian universities in both.

What distinguishes the universities in the Top 20 in the rankings, Times Higher Education says, “is a commitment to the Sustainable Development Goals that stretches across the entire institution, and takes in their research, their teaching, the outreach that they perform in their communities”.<sup>1</sup>

“  
***The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.***  
 United Nations, Department of Economic and Social Affairs  
 ”

As part of our ongoing commitment to the Goals, we have indicated the SDGs that align with each project in this report, which you will see depicted in the pages to follow. Listed below are the 17 Goals and a brief description of each.

 <p><b>1 NO POVERTY</b></p> <p>End poverty in all its forms everywhere</p>	 <p><b>2 ZERO HUNGER</b></p> <p>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p>	 <p><b>3 GOOD HEALTH AND WELL-BEING</b></p> <p>Ensure healthy lives and promote well-being for all at all ages</p>
 <p><b>4 QUALITY EDUCATION</b></p> <p>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	 <p><b>5 GENDER EQUALITY</b></p> <p>Achieve gender equality and empower all women and girls</p>	 <p><b>6 CLEAN WATER AND SANITATION</b></p> <p>Ensure availability and sustainable management of water and sanitation for all</p>
 <p><b>7 AFFORDABLE AND CLEAN ENERGY</b></p> <p>Ensure access to affordable, reliable, sustainable, and modern energy for all</p>	 <p><b>8 DECENT WORK AND ECONOMIC GROWTH</b></p> <p>Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all</p>	 <p><b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b></p> <p>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>
 <p><b>10 REDUCED INEQUALITIES</b></p> <p>Reduce inequality within and among countries</p>	 <p><b>11 SUSTAINABLE CITIES AND COMMUNITIES</b></p> <p>Make cities and human settlements inclusive, safe, resilient, and sustainable</p>	 <p><b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b></p> <p>Ensure sustainable consumption and production patterns</p>
 <p><b>13 CLIMATE ACTION</b></p> <p>Take urgent action to combat climate change and its impacts</p>	 <p><b>14 LIFE BELOW WATER</b></p> <p>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	 <p><b>15 LIFE ON LAND</b></p> <p>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>
 <p><b>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</b></p> <p>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels</p>	 <p><b>17 PARTNERSHIPS FOR THE GOALS</b></p> <p>Strengthen the means of implementation and revitalize the global partnership for sustainable development</p>	



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The background of the entire page is a photograph of a university building. The top half shows the upper portion of the building, partially obscured by the branches of a large tree with bright yellow-green leaves. The bottom half shows the lower portion of the building, which is a multi-story stone structure with arched windows and a central arched entrance. A sign in front of the building reads "University Hall". A paved walkway and a green lawn are visible in the foreground.

# **INTERDISCIPLINARY MINOR IN SUSTAINABILITY**





Gilmore Hall



# Interdisciplinary Minor in Sustainability

***Addressing sustainability in our society poses complex challenges that require interdisciplinary solutions.***

McMaster created the Interdisciplinary Minor in Sustainability in September 2014 with the goal to develop 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.**



**Foster engagement among students, faculty, and staff across campus, facilitating interdisciplinary learning.**

## Reporting

**6**  
Years

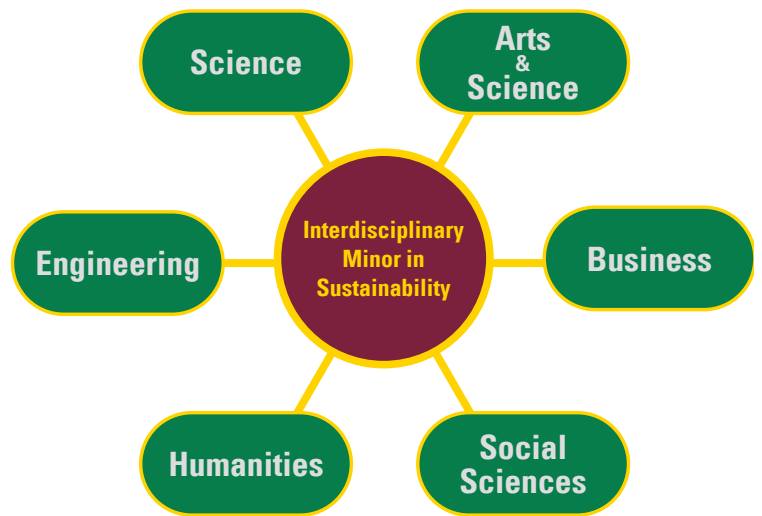
The Interdisciplinary Minor in Sustainability has been in operation for **six years**

**88**  
Courses

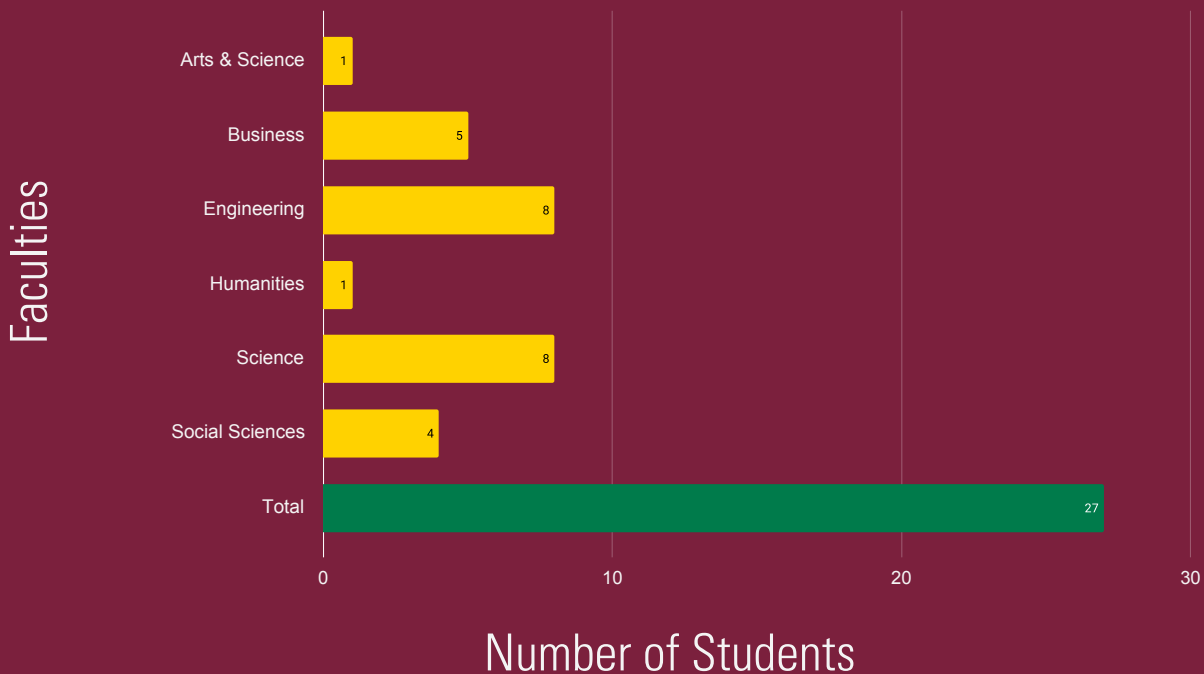
Students are currently now able to choose from over **88 courses** from all Faculties across campus

**115**  
Students

**115 students** have achieved an Interdisciplinary Minor in Sustainability



2019/2020 Minor in Sustainability Graduates





## Collaborators

First and foremost, we 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, Rebecca Bishop, and Madeline Van Impe. 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, including the Student Committee; the faculty members who have opened 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.

### 2019/2020 Interdisciplinary Minor in Sustainability Committee

**Brent McKnight** (Co-Chair) - Associate Professor, DeGroot School of Business  
**Kate Whalen** (Co-Chair) - Senior Manager, Academic Sustainability Programs Office  
**Luc Bernier** - Assistant Professor, School of Geography and Earth Sciences  
**Cameron Churchill** - Director, Engineering and Society Program  
**Carlos Filipe** - Professor/Chair, Chemical Engineering  
**Chad Harvey** - Assistant Professor, School of Interdisciplinary Science  
**John MacLachlan** - Associate Director, MacPherson Institute  
**Judy Major-Girardin** - Professor, School of the Arts  
**Shanti Morell-Hart** - Assistant Professor, Anthropology  
**Dean Mountain** - Professor, DeGroot School of Business  
**Susie O'Brien** - Professor and Chair, 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 Education Services, and Faculty of Health Sciences.  
**Madeline Van Impe** - Program Administrator, Arts & Science Program

### 2019/2020 Interdisciplinary Minor in Sustainability Student Committee

**Maria Huicochea Munoz** - Health Sciences  
**Titi Huynh** - Social Sciences  
**Grace Kuang** - Health Sciences  
**Lindsay Lee** - Engineering  
**Andrés Nagy-Ossa** (returning member) - Science  
**Baraneza Pirabagaran** - Humanities  
**Shunmathi Shanmugam** (returning member) - Arts & Science

# Interdisciplinary Minor in Sustainability Student Committee

**Authored by the 2019/2020 Interdisciplinary Minor in Sustainability Student Committee**

Since the launch of the Interdisciplinary Minor in Sustainability in September 2014, the ASP Office has been exploring various avenues for student engagement. In September 2018, the Interdisciplinary Minor in Sustainability Student Committee was created and achieved wonderful success.

The goals of the Student Committee are two-fold: one is to generate awareness of the Interdisciplinary Minor in Sustainability, and the second is to create a community amongst students pursuing the Minor. The following objectives were of primary focus for us as the 2019 Student Committee members:

## Objectives:

1. Promote the Minor by delivering presentations in classes and at events
2. Increase the Minor's online presence through active participation on social media
3. Bring students together through co-hosting fun sustainability events

## Reporting

The 2019/2020 Student Committee consisted of seven undergraduate students from the Faculties of Arts & Science, Engineering, Health Sciences, Humanities, Science, and Social Sciences. Coordinated by Abbie Little, we met weekly to pursue our goals and objectives.

- Our group delivered ten class presentations in courses from five different Faculties. Each of these courses were specifically targeted because they were large, lower-level classes, and on the Minor Course List. Through these presentations, we were able to reach over 1,100 students.
- We presented at eight different events and spoke with over 600 students. While we reached fewer students through events, compared to class presentations, we were able to engage in valuable dialogue with them through this process. We learned about their barriers to taking part in the Minor as well as how we could best interact with them going forward.
- Our most enjoyable and interactive initiatives were our Plant Upcycle Events. We organized two plant upcycle activities, one in October and one in February, whereby students planted their own herbs and native species using upcycled coffee cups and soil amended with compost from McMaster food scraps. To further promote the Minor, we asked students to follow McMaster's ASP Office on Instagram in order to receive a plant. As a result, we gained over 125 new followers. Through these events, we had active and meaningful engagement with over 250 students.
- An overview of the events that took place from September to March is shown in Figure 1. Due to COVID-19, our two larger events, Green Cleaning and #MoreThanFoodMac Symposium, were transitioned online. Our weekly meetings transitioned into virtual meetings, held monthly in April and May.

Through team discussions over the past two years, our Student Committee members felt that we could have a larger impact if we increased our scope beyond the Interdisciplinary Minor in Sustainability. Since January 2020, Abbie has been developing a new program, the Student Sustainability Ambassadors Program (SSAP), in partnership with Hospitality Services that will support and promote sustainability initiatives, including the



Minor, across campus. The goal of the SSAP is to support student leadership, action, experiential learning, personal and professional development, and collaboration focused on sustainability. The SSAP will support student leadership and act to provide a collective sustainability presence across campus and the broader community. Through administrative support, the SSAP will provide continuity of projects and share resources so that student-led clubs and groups can collaborate on projects and events to further enhance their collective impact and reach.

## Collaborators:

This was a year of incredible growth, overcoming challenges, and perseverance, and we are grateful for the individuals who helped us through this journey. We sincerely thank our Coordinator, Abbie Little, for making each meeting a joy to attend, for inspiring us to dream bigger, and for being a great mentor and leader. We also thank Kate Whalen and Brent McKnight, Minor Committee Co-Chairs, for their guidance and support as well as the entire Minor Committee and the McMaster Students Union Sustainability Education Committee. We also thank the following groups for their collaboration on events including; the Biology Greenhouse, Engineers Without Borders, Facility Services, Hillel McMaster, Hospitality Services, Nature at McMaster, the Socrates Project, and Zero Waste McMaster. Finally, we thank the following instructors who allowed us to present to their students; Lynda Lukasik, Luc Bernier, Maureen Padden, Melanie Bedore, Mohammad Muzumder, and Alanna Bodo.



Members of the 2019/2020 Interdisciplinary Minor in Sustainability Student Committee pose together  
From left: Shunmathi Shanmugam, Titi Huynh, Abbie Little, Baraneza Pirabagaran, Maria Huicochea Munoz, Grace Kuang  
Photo Credit: Kate Whalen

### Sustainability Outreach 2019/2020

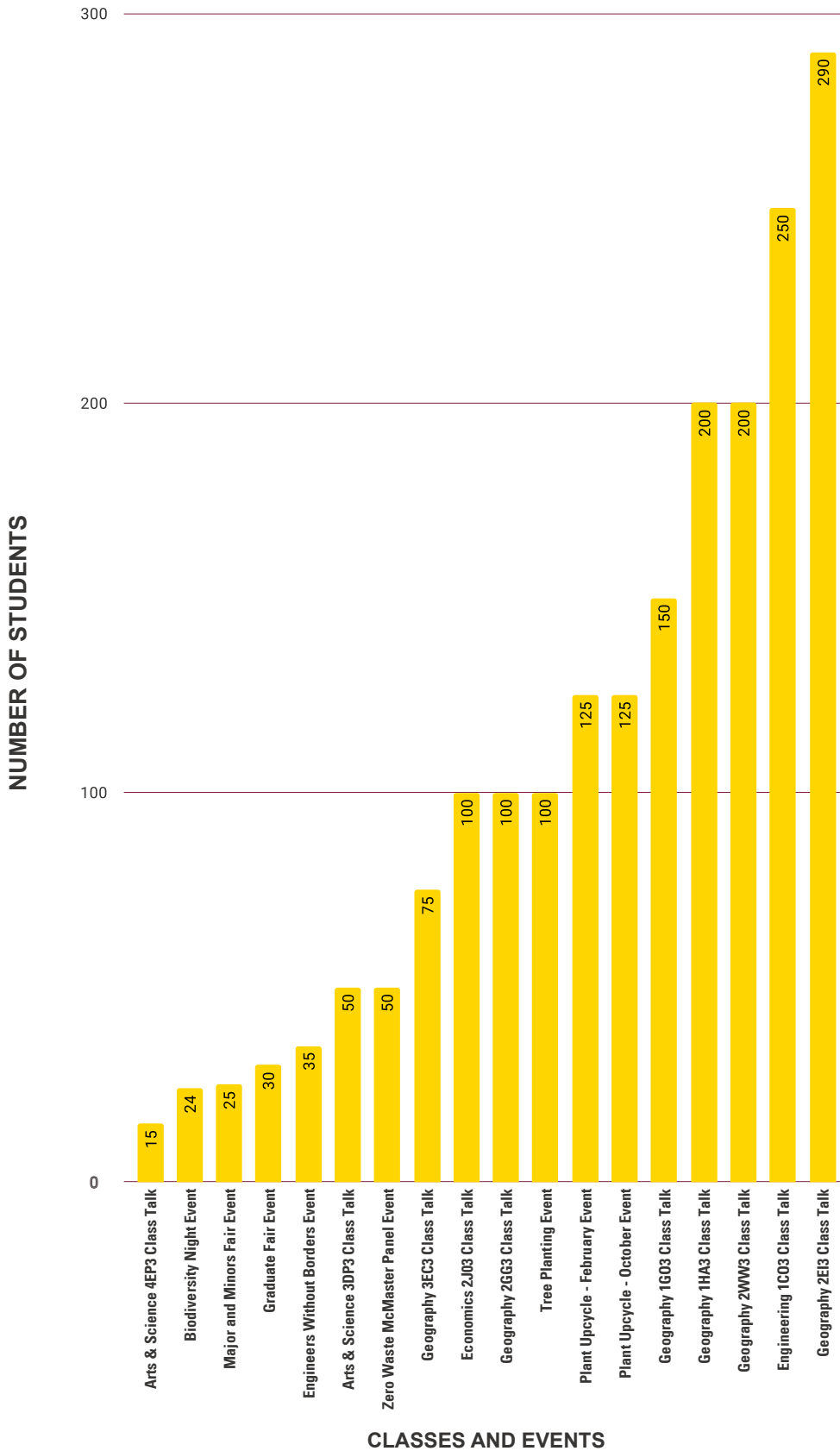


Figure 1: Sustainability events based on student reach, from September 2019 - March 2020



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# **SUSTAINABLE FUTURE PROGRAM**

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## Sustainable Future Program

The Sustainable Future Program consists of a suite of undergraduate sustainability courses within the Academic Sustainability Programs Office. Courses within the program are identified with the 'SUSTAIN' course code, are available to all students as electives, and are eligible for the Minor in Sustainability.

SUSTAIN courses provide students with opportunities for interdisciplinary, student-led, community-based, and experiential education about sustainability.

McMaster developed the Sustainable Future Program for students interested in learning about sustainability while having the opportunity to tackle complex sustainability challenges through real-world experiential learning.

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 to take 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 enrollment of 97 students, the Sustainable Future Program has grown to include six courses and has supported 813 students in the 2019/2020 academic year. The Program continues to grow each year, and enrollment is anticipated to exceed 1,000 students in eight courses in 2020/2021.

Annual Program growth has taken place through expanding current courses and adding new courses. The most recent SUSTAIN course, ***SUSTAIN 2SS3 - Advocating for Sustainability***, helps students to “gain knowledge, skills, and abilities to effectively communicate and influence decisions, which they [then] apply to current sustainability challenges within the community.”<sup>1</sup> The course was first offered in the Summer of 2020. The course reached its enrollment capacity of 50 students within two weeks of online promotion, suggesting student interest in the topic and continued demand for sustainability education.

Through an increase in student enrollment in the SUSTAIN courses, students of SUSTAIN 2SS3, 3S03, 3SS3, and 4S06 produced a total of 55 projects that contributed to sustainability on campus and/or in the community. Combined, these students collaborated with over 850 individuals to learn about sustainability through leadership and action. Each project from SUSTAIN 3S03, along with a sample from SUSTAIN 3SS3 and SUSTAIN 4S06, is reported on in the pages to follow.

## Collaborators

We thank the faculty and staff members, course teaching assistants, community members, City staff, and CityLAB partners 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 extend a special thanks to the Faculty of Engineering and the Engineering & Society Program for providing administrative support for the Sustainable Future Program.

Specific individuals who supported our students’ experiential learning projects are highlighted in the pages to follow.



# SUSTAIN 3S03

## IMPLEMENTING SUSTAINABLE CHANGE



From left: Shunmathi Shanmugam, Mehran Janatyani, Claire Logeais.

||

*When I selected this project on the first day, I would've never thought we would be able to achieve the results that we did in less than three months.*

Shunmathi Shanmugam  
ARTS & SCIENCE

||



# Mapping Community Desires for Friendly Streets

## Student Authors

**Bailey Chenier**, Science

**Hannah Feldman**, Arts & Science

**Teresa Rogalinski**, Social Sciences

## Community Project Champions

**Beatrice Ekoko**, Friendly Streets (Environment Hamilton)

**Waverley Birch**, Friendly Streets (Cycle Hamilton)



Map of Centennial (Riverdale) neighbourhood annotated by students with routes, obstacles, and possible solutions.

Photo credit: Hannah Feldman

## Overview

Walking and biking are critical modes of travel in the creation of a sustainable city. Through their work on the Friendly Streets project, Cycle Hamilton and Environment Hamilton describe a “friendly street” as both vibrant and safe.<sup>1</sup> Evidence suggests that street design has a powerful impact on the way people choose to travel.<sup>2</sup> For example, dense, gridded street networks with street features, such as benches and trees, lead to more walking and biking.<sup>2</sup> While much has been done to investigate the impact of

street design on adult mode choice, it remains unclear how street design affects how young people travel. The aim for this project was to understand travel routes and mode choices made by youth in Hamilton’s Centennial neighbourhoods, specifically the Riverdale neighbourhood. Further, this project seeks to understand obstacles faced by youth who use active modes of travel and capture their suggestions for making their neighbourhood streets friendlier.

## Objectives

1. Engage youth in fun and interactive data-collection workshop
2. Identify routes taken, modes used, and obstacles faced by Riverdale’s youth
3. Share findings and recommendations for improvement

## Reporting

We hosted nine workshops with roughly 200 Lake Avenue Elementary School students between grades four and eight. Through our engaging data-collection workshops, we gathered information about routes students take to get to major destinations; methods of transportation that students use to get to destinations; current obstacles students face when walking or cycling; and finally, their suggested improvements to make active transportation safer and more appealing in their neighbourhood. Students enjoyed being able to annotate the large-scale maps of their neighbourhood, expressing the things they like, problems they face, and ways to improve, all in a way that was easy for them to communicate. In addition to the workshops, we also conducted a neighbourhood walking audit to gain a deeper understanding of our study area. Ultimately, the students shared how they mainly walk to destinations and tend to travel within the local neighbourhood to the school, Eastgate Square, and nearby parks. The most prominent obstacles discussed related to crossing major streets, feeling unsafe with heavy traffic, litter on sidewalks, limited street lighting at night, poor snow removal, and poorly maintained equipment and fields in the school park. The largest barrier to biking was a fear that their bikes would be stolen. The children proposed small scale interventions, such as increasing crossing guards and trees, to large scale redesigns, such as building an ice-skating rink, transforming parking lots into parks, and creating a skateboard park. With the information and insights gained, we created a summary report of our findings, updated the interactive map on the Friendly Streets website with the students’ feedback, and shared a social media report on the Friendly Streets blog. We hope this information will enable Friendly Streets and the Hamilton community to continue their work on creating friendlier streets for all.

## Collaborators

We would like to thank our Community Project Champions, Waverley Birch and Beatrice Ekoko, from Friendly Streets, for their support, assistance, and guidance throughout the duration of our project. We would also like to thank the staff and students at Lake Avenue Elementary School for allowing us to conduct workshops with them and gain a better insight into the community.





# Piloting a Bicycle Buddy Program at McMaster

## Student Authors

**Rana Biabani**, Science

**Mateo Orrantia**, Arts & Science

**Molly Parker**, Social Sciences

## Community Project Champions

**Elise Desjardins**, Wilson Leader

## Overview

Cycling is a sustainable, convenient, and healthy mode of transportation that offers many short and long-term benefits to individuals and communities. University campuses are ideal locations to promote cycling, given that they attract a large number of trips from students who may form travel habits that continue later in life.<sup>1</sup>

Cycling mode share among McMaster students remains quite low at approximately 3%.<sup>2</sup> McMaster does not currently have any programs to support cycling adoption among students. Given that McMaster already has much of the necessary infrastructure, such as bike lanes on campus, connected routes to student housing, and bike share hubs, there is an opportunity to further promote cycling, which would also help the

## Objectives

1. Identify how best practices of other bike buddy programs can translate to McMaster
2. Identify barriers and opportunities to McMaster students choosing cycling as a mode of transportation
3. Pilot a bicycle buddy program on campus and determine areas for improvement
4. Create a toolkit for implementing a bicycle buddy program at McMaster

## Reporting

We began our project by consulting known literature and assessing how the information could translate to a bike buddy program at McMaster. We reached out to the well-established bike buddy program at the University of Washington Transportation Services, and they provided us with invaluable information on the logistics of their program.

To identify student perceptions of barriers to cycling and gauge their interest in a bike buddy program at McMaster, we also ran an online survey that got 50 responses. We found that the greatest barriers to cycling include not feeling safe when riding in traffic and not knowing about safe, comfortable bike routes. A bike buddy program is well-positioned to help remove these barriers through encouragement and education. Furthermore, 46% of student respondents would be interested in a bike buddy program at McMaster.

With the help of our project champion, we paired an experienced cyclist with a novice cyclist in order to pilot a bike buddy program. Following the pilot, the novice cyclist expressed a significant increase in confidence and knowledge. The novice cyclist explained that "I have always wanted to use cycling as my main mode of transportation but never felt comfortable or confident to do so. Now I feel I have gained the skills and knowledge I need to ride on my own, in and around the McMaster community", demonstrating the impact that a bike buddy program can have among university students who commute to or near the campus.

The information gained throughout this project has been compiled into a toolkit that includes recommendations based on our lessons learned. The toolkit was shared with campus stakeholders, including McMaster's Residence Life Office and the Student Wellness Centre. This toolkit can serve as a roadmap to guide the future implementation of a successful bike buddy program at McMaster.

## Collaborators

We would like to extend our sincere thanks to our Community Project Champion, Elise Desjardins, for her guidance and mentorship throughout the project. We would also like to thank Ma'ayan and Rosa for their enthusiasm to participate in the pilot program. Thank you to Alice Ven from the University of Washington Transportation Services, for her openness and willingness to share information about their program. Finally, thank you to Kate Whalen from McMaster's Academic Sustainability Programs Office and our teaching assistants, Gabrielle Gonsalves and Garry Vinayak, for their support and constructive feedback along the way.



From left, Rosa and Ma'ayan enjoying a chilly November bike ride!  
Photo credit: Rosa Stalteri

University meet its sustainability goals and the objectives of the Okanagan Charter<sup>3</sup>.

Encouragement and education have been identified as two best practices for promoting cycling among students.<sup>1</sup> Universities and municipalities alike have initiated bike buddy programs, which draw on both best practices. These programs involve pairing a new bicyclist with an experienced mentor to teach them the ins and outs of urban cycling. This has proven to be successful at increasing the confidence of new riders, cycling frequency, and fostering social bonds.<sup>4</sup> Thus, the goal of our project was to pilot a bike buddy program at McMaster.

# The Green Room Certification in Residence Program: Energy, Water, and Transportation

## Student Authors

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**Lisa Putter**, Science Exchange Student

## Community Project Champions

**Katie Fitzgerald**, Residence Life



Certificate and checklist  
 Photo credit: Nava Najafabadipoor

## Overview

Sustainability is a popular topic in many official sectors. There are many challenges around this topic globally, and students' roles are not out of this scope.<sup>2</sup> The Green Room Certification (GRC) Program, was initiated at McMaster in 2018 with the goal to educate students about their impact on the environment and to promote sustainable living to students in residence. Through learning about and using the GRC checklist, students can evaluate their level of sustainability, get green room certified, and live more

sustainably. Due to the success of the program in 2018, and with the GRC checklist already created, McMaster's Residence Life department chose to again partner with SUSTAIN 3S03 to expand the program in 2019. As such, the goal for our project is to inspire students to live more sustainably with a focus on energy, water, and transportation. We collaborated with the GRC group focused on food and waste (see p. 8) to increase our effectiveness.

## Objectives

1. Understand current students' habits as they relate to energy, water, and transportation
2. Provide Green Room Certification to students in accordance with the GRC checklist
3. Evaluate and measure the effectiveness of the program in fostering sustainable habits

## Reporting

We collaborated with the other GRC group, which focused on food and waste to survey students about their current sustainable lifestyle habits. With 25 respondents, the survey was used to refine the GRC checklist, placing emphasis on areas that require improvement based on the collected data. The data, which projected the most significant results, were around the topic of transportation and electricity usage. For instance, less than 10% of students take active modes of transportation (i.e. bike). In our workshops, we focused on introducing students to Hamilton's bike share initiative, SoBi, in our first workshop and featured a documentary about Water & Energy in our second workshop.

Through promotion and engagement efforts by means of a Facebook group, posters, and drop-in sessions, our group was successful signing up 50 students to complete the GRC checklist. In the end, 20 students in total were Green Room Certified for completing various requirements of the GRC checklist.

All 20 respondents of a follow-up survey reported that taking part in the GRC initiative was effective in helping them enhance their daily habits. Due to the success of the GRC project, we recommend to expand this project to other residence buildings on campus in order to have a more sustainable community at McMaster.

## Collaborators

We would like to thank our Community Project Champion, Katie Fitzgerald, for her extraordinary support throughout the project. Another special thanks to the students of Whidden Hall for being enthusiastic to participate in this project and being an inspiration for McMaster community. Last but not least, it was a great pleasure to work with members of the SUSTAIN 3S03 instructional team: Kate Whalen, Gabrielle Gonsalves, and Garry Vinayak.



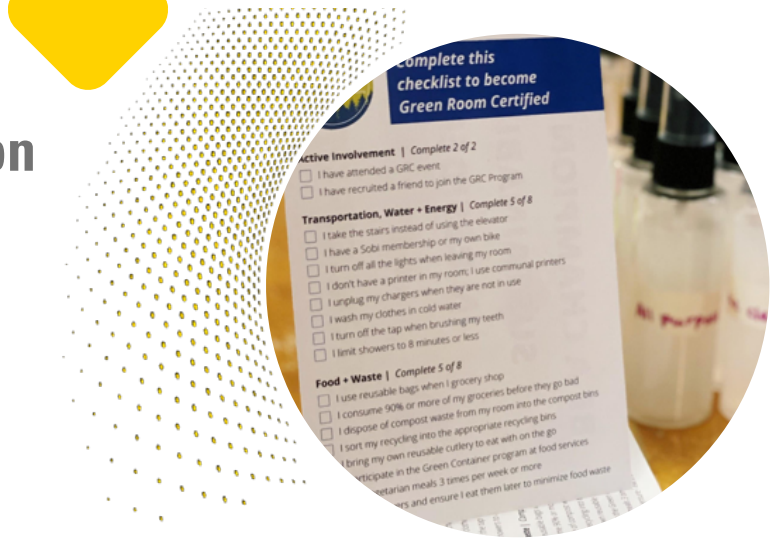
# The Green Room Certification in Residence Program: Food and Waste

## Student Authors

**Meghna Annapoorna, Science**  
**Anchana Kuganesan, Science**  
**Kavian Taghizadeh, Science**

## Community Project Champions

**Katie Fitzgerald, Residence Life**



The Green Room Certification Checklist and cleaning supplies made using all-natural ingredients, pictured during the drop-in session at Whidden Hall  
 Photo credit: Meghna Annapoorna

## Overview

McMaster University produces an astounding 902,378 kg of organic waste per year.<sup>1</sup> While education is listed as the fourth 'E', according to models of sustainability<sup>2</sup>, higher educational institutions are notorious for not weaving sustainability into their curriculum<sup>3</sup>. The Green Room Certification (GRC) Program was initiated at McMaster University in 2018 with a goal to educate students about sustainable practices while living in residence.<sup>4</sup> Due to the success of the program in 2018, McMaster Residence Life chose to partner with SUSTAIN 3S03 to expand the program

in 2019. The project challenge was presented as an opportunity to two student groups. It was decided that our partnering group would focus on energy, water, and transportation and our group would focus on food and waste. The goals of our project were to educate residence students about different food and waste strategies that they can implement to live more sustainably and to engage students in the process.

## Objectives

1. Create opportunities for students to learn about and implement sustainable practices in residence
2. Provide students with educational tools on how they can incorporate sustainability beyond residence
3. Certify students who complete the GRC through strategies relating to food and waste

## Reporting

Our group worked with the *Energy, Transportation, and Water* group (see p. 7) to survey students about their current sustainable lifestyle practices, which helped us tailor our educational and engagement strategies. Despite significant promotion and communication efforts, only two students attended our first event, Sustainable Spa Night. We cancelled our Sustainable Movie Night since only one person registered. We learned that it was difficult for students to invest a significant amount of time to attend an event. Thus, we planned one session with a series of activities, hosted in a casual drop-in style. Our activities included a waste sorting game, a quiz to test students' knowledge of campus composting locations, a community building activity for students to share their sustainable living tips, and a green cleaning workshop where students created natural cleaning supplies. The success of our drop-in session was incredible with 56 student participants. Upon completion of our project, 98 students signed up for the GRC program. We asked them to fill out the GRC checklist through an online survey, and through this 20 students participated and were successfully certified. From their responses, we were also able to identify areas of opportunity, including the provision of more information about composting on campus, which we hope can be included in a future GRC workshop or event.

## Collaborators

We would like to extend sincere thanks to our Community Project Champion, Katie Fitzgerald, for her guidance and support throughout our project duration. In addition, we would like to thank Gabrielle Gonsalves, Garry Vinayak, and Kate Whalen from McMaster's Academic Sustainability Programs Office, for providing guidance instrumental to our group's success. Furthermore, we would like to thank the first-year students living in residence at McMaster University for attending our events and taking part in the Green Room Certification Program.

# Catering Sustainable Events at McMaster

## Student Authors

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## Community Project Champions

**Catherine Young**, Hospitality Services



Sustainable Catering at the 3S03 Experiential Project Showcase  
 Photo Credit: Grace Kuang

## Overview

What we consume significantly contributes to climate change; we need to assess our consumption to reduce our impact. With respect to our diet alone, over 60% of agricultural greenhouse gas emissions come from meat (mainly beef) and dairy production.<sup>1</sup> By adopting a plant-based diet, which is based on foods derived from plants, with few or no animal products<sup>2</sup>, we could reduce food-related agricultural emissions by as much as 15%.<sup>1</sup> At

McMaster, Hospitality Services has implemented several sustainability measures, including adding more plant-based food options to their Student Value Catering Menu. In support of these efforts, the goal of our project is to inspire environmentally-friendly food choices by further enhancing plant-based options on the Student Value Menu.

## Objectives

1. Understand which plant-based food items are ordered most often
2. Incorporate enticing plant-based food items onto the Student Value Menu
3. Trial the newly-added plant-based items at a catered event

## Reporting

To achieve our first objective, we collected statistics from Hospitality Services indicating which plant-based items are ordered most often from the Student Value Menu. These items include the cookie platter, nacho platter, veggie platter, and combo pack. The plant-based items ordered least often include sandwiches, breakfast menu items, and pizza. We were surprised to see that pizza was not a popular menu choice made by students, and we learned that it was because the pizza was made without cheese. However, we also learned that plant-based cheese options are readily available.

Based on our findings and in collaboration with Hospitality Services, we identified opportunities for menu enhancement. For our second objective, we incorporated three more sustainable food items: vegan pizza, made with nut cheese; plant-based boxed salad served in compostable boxes; and a halal barbeque pizza. We indicated menu items as vegan, vegetarian, halal, and gluten-free, allowing consumers to deliberately choose items that are both environmentally-friendly and align with their dietary preferences.

Lastly, we worked with the Academic Sustainability Program Office to cater the SUSTAIN 3S03 Project Showcase using the Student Value Menu. We also designed and created ingredient cards so that attendees can make informed and sustainable choices.

## Collaborators

We want to thank our Community Project Champion, Catherine Young, for her guidance on the project and connecting us with our other collaborators. We would also like to thank Chef David Fisher, for his partnership on the new menu items. We also want to thank Abbie Little and Diana Romero Acosta for their partnership to arrange the catering for the Project Showcase. Additionally, we want to thank Kate Whalen, for her continuous support and advice throughout the entire project. Lastly, thank you to our course teaching assistants, Gabrielle Gonsalves and Garry Vinyak for their support throughout the term.



# Hungry for Knowledge: Student Food Insecurity at McMaster

## Student Authors

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**Rose Yazdan-Parast**, Science

## Community Project Champions

**Jaimie White**, Meal Exchange  
**Shemar Hackett**, VP Education MSU



Fresh produce at Mac Farmstand,, providing students nutritious and affordable food  
 Photo credit: Mac Farmstand

## Overview

Meal Exchange is a non-profit organization that focuses on tackling issues related to food insecurity on post-secondary campuses in Canada. Hungry for Knowledge is the largest cross-campus study conducted by Meal Exchange. Food insecurity is understood to be limited or inadequate access to food due to insufficient finances.<sup>1</sup> In 2018, a study conducted by SUSTAIN 3S03 students in collaboration with Meal Exchange and

McMaster Student Union at McMaster University found that 39% of students surveyed encountered moderate food insecurity; while 12% experienced severe food insecurity. However, only 24% of students utilized the supportive services offered on campus.<sup>2</sup> The goal of our project is to increase the efficacy of and access to food support services at McMaster University.

## Objectives

1. Conduct a needs assessment of student food support services at McMaster University and other Ontario universities
2. Create a report of findings, outcomes, and recommended next steps
3. Share the findings with the various campus stakeholders

## Reporting

We identified and consulted campus stakeholders from five groups and departments working towards tackling food insecurity at McMaster. We found that, for example, the Food Collective Centre provides students with fresh and budget-friendly produce, an on-campus food bank, and the Lockers of Love initiative; Hospitality Services has put in place services such as Cards for Humanity, a pay-it-forward initiative at Bridges, as well as budget friendly meals at all of their major locations; and the Student Wellness Centre provides students with cooking and gardening programs, breakfast during exams, and free fruit on Fridays. Through our stakeholder consultation, we also learned about various challenges, such as the barriers to communication with students and between stakeholders, and the stigma surrounding food insecurity that results in under-utilization of available resources.

We explored best practices by University of Western Ontario, Lakehead University, and Carleton University. Lakehead University has implemented the Food Security Committee, a multi-stakeholder committee that consists of students, faculty, and administration. The council addresses the issue of food insecurity inspiring us to recommend a food security council for McMaster.

To fulfill our second and third objectives we created a short report with our findings and recommendations and shared it with our stakeholders.

## Collaborators

We would like to give a special thanks to our Community Project Champions, Jaimie White and Shemar Hackett, as well as all the stakeholders involved. We would also like to thank the Sustainability 3S03 instructional team for their continuous support throughout the project.

# Greening The Grind

## Student Authors

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**Kunwar Karim**, Science

**Vivienne Lee**, Science

## Community Project Champions

**Alexandrea Johnston**, McMaster Students Union



Representation of the relative burden on the consumer to support re-use in our current culture

Photo credit: H.G Watson

## Overview

Canadians are the third largest global consumer of coffee per capita, consuming approximately 152 litres per person annually.<sup>1</sup> Coffee consumption also translates into coffee-cup waste generation from the shops that provide them and the customers who accept them. Established in 2017, the Grind Cafe is the newest coffee shop at McMaster. As of fall 2019, The Grind only served coffee in single-use, paper and plastic-lined cups, did not

provide an option to compost the empty cups, and did not advertise a discount for customers who brought their own. However, the 2019 McMaster Students Union (MSU) VP Finance was eager to improve the sustainability of The Grind and sought opportunities for support and collaboration with SUSTAIN 3S03. As such, the goal of our project was to recommend strategies that will help to eliminate coffee cup waste at The Grind.

## Objectives

1. Understand customer perceptions of behavioural nudges to bring their own cup
2. Analyze data to determine what will motivate sustainable behaviours
3. Identify and share proven sustainability strategies that could be adopted by The Grind

## Reporting

To understand customer perceptions of behavioural nudges, we surveyed 162 students about three different sustainable practices, which each had various levels of support: (1) implementation of various monetary incentives for bringing in a reusable cup, (2) the removal of single-use coffee cup lids, and (3) replacement of current plastic-lined cups with china or corn resin-lined, biodegradable cups.

Through our analysis, we saw support for all proposed behavioural nudges: the establishment of a loyalty punch card (87%), a discount for bringing in a reusable cup (79%), and the removal of single-use coffee cup lids (85%). Additionally, we identified that customers are more inclined to use a reusable cup over a single-use, biodegradable cup (63% and 37% respectively). Overall, these findings are consistent with literature demonstrating that a monetary nudge coupled with a social nudge are effective to encourage behavioural change.<sup>2</sup>

Based on our findings, we propose that The Grind implement a loyalty card where customers receive a free beverage after purchasing 10 beverages in a reusable cup to nudge sustainable behaviour focused on reuse. Additionally, we suggest the removal of coffee cup lids to reduce the unnecessary waste of single-use plastics. Lastly, as a next step, we suggest that The Grind offer their own in-house china that dine-in customers can use to minimize their waste production.

## Collaborators

We would like to give special thanks to our collaborators: Alexandrea Johnston, our Community Project Champion and the Vice President of Finance at the MSU; our SUSTAIN 3S03 instructional team, Kate Whalen, Eric Howarth, Gabrielle Gonsalves; Zero Waste McMaster, for their efforts in promoting the Greening the Grind Project; and Connor MacLean the Communications Officer at the MSU. Last but not least, the Greening the Grind Project could not have been completed without the help of McMaster students who participated in our survey.



# Compostable Containers and Cutlery

## Student Authors

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**Clémence Petit**, Engineering

## Community Project Champions

**Liana Bontempo**, Hospitality Services



Example of biodegradable utensil and plate.  
 Photo Credit: Plastic Action Centre

## Overview

The consequences of single use plastics have reached epidemic proportions. According to a UN Environment report, only 9% of global plastics produced are actively being recycled.<sup>1</sup> McMaster Hospitality Services has made impressive strides to reduce waste, which are reflected in the implementation of compostable cutlery and food containers. However, student education and awareness

are integral to this program’s success. Due to the number of food vendors and the high foot traffic, MUSC is one of the largest producers of waste on campus<sup>2</sup>. These factors are why we have selected MUSC as our model for campus. The goal of our project is to increase composting on campus through education and awareness.

## Objectives

1. Establish a baseline for student composting behaviour on campus.
2. Identify the most efficient communication strategy to reach the McMaster community.
3. Share our findings and recommend next steps.

## Reporting

The baseline rate of composting was compiled from 10 hours of observational data. It demonstrated that during peak meal times in MUSC, the compost was used 2.15 times per half hour on average. For comparison, the adjacent recycling and trash containers were used on average 22.8 times. Feedback surveys indicated that students believed posters would serve as the most efficient way to communicate with them about composting practices on campus. Following this feedback, we collaborated with the departments of Hospitality Services and MUSC Administration to implement composting education posters on the compost bins in MUSC. The posters helped to identify the compost bins, which were previously unmarked, and inform the public that the containers and cutlery were compostable. After implementing this strategy, our team observed an 11% increase in composting behaviour. Now, individuals who go to the waste-sorting area are 8.2% more likely to use the compost than they were prior to our project.

## Collaborators

We would like to extend sincerest thanks to our Project Champion, the Wellness and Sustainability Manager at the Hospitality Services, Liana Bontempo, who has offered us guidance and support throughout this process. Thank you to Nick Giammarco from Hospitality Services who designed the implemented posters. We would also like to thank the Academic Sustainability Programs Office and the teaching staff of the course for giving us the opportunity to positively impact our community and offering their feedback so that we may do so to the best of our abilities. We would also like to thank students who provided us with feedback as well as the Hospitality Services staff and Facility Services staff for their support.



# Sustainable Enhancement of the Essential Utensils Kit

## Student Authors

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**Eric Andreacchio**, Commerce  
**Arvin Sekhon**, Social Sciences

## Community Project Champions

**Sabrina Dasouki**, Essential Utensils  
**Diane Warwick**, McMaster Campus Store



Pictured is the final pilot design of the Essential Utensils Kit that is being sold in the Campus Store.

Photo credit: Sabrina Dasouki

## Overview

In 2018, Canadians disposed over 15 billion single-use plastic items, generating 3 million tonnes of plastic waste.<sup>1</sup> In 2018, a group of SUSTAIN 3S03 students tackled the problem of single-use plastics at McMaster, aiming to inspire a positive and sustainable behaviour change. They designed and produced the “Essential Utensils Kit” - a compact kit that includes reusable utensils and a reusable napkin, all contained in hand-sewn Eco-Felt material.

While created as a pilot, the business has received interest by consumers and distributors alike. Sabrina Dasouki, Founder of Essential Utensils, chose to pursue the project as a business that encourages sustainable habits in the McMaster community. To contribute to the next phase of mass sale and distribution of the kits, the goal of our project was to help sell the kits on campus, resulting in less plastic waste and a healthy behaviour change away from single-use plastics.

## Objectives

1. Establish the Kit’s brand identity by adding a logoed label
2. Introduce the Kit to the McMaster community by creating informational material
3. Advertise the kits for sale to a relevant audience

## Reporting

To satisfy our first objective, a local printing and embroidery business was contacted and provided logoed patches, which were stitched to the front of the kits for easy identification. On November 15<sup>th</sup>, 105 patches were delivered to be attached to the kits.

Continuing, to satisfy our second objective, a biography of the business was created as an informational hand-out/poster that was displayed at the Campus Store. The biography allows consumers to learn about the history of the Kit, its development, and its purpose of promoting sustainability on campus. The biography was printed locally and displayed at the Essential Utensils booth during two McMaster event exhibitions.

Sustainability Day on October 23<sup>rd</sup> and Engineers Without Borders on November 11<sup>th</sup> were the two events at which Essential Utensils was showcased. At these events, the Kit gained more notice, interest, and feedback from attendees. A survey about the Kit was presented to these attendees and yielded 33 responses. The survey investigated preferences regarding cost, components, and customizability. Many attendees were eager for more information and to get their hands on a kit for themselves.

Finally, on November 19<sup>th</sup>, 10 kits were introduced to the Campus Store and were sold out by December 3<sup>rd</sup>. Owners of the kit are actively reducing their consumption of single-use plastics, thereby achieving the ultimate goal of our project and the Essential Utensils Kit.

## Collaborators

We would like to give special thanks to our Community Project Champions, Sabrina Dasouki, Founder of the Essential Utensils Kit, and Diane Warwick, Merchandise Manager at the McMaster Campus Store. We would like to thank Cowhide Promotional Wear Inc. for working with us to provide the patches. Also, we would like to thank Kate Whalen, Eric Howarth, and Gabrielle Gonsalves, our SUSTAIN 3S03 instructional team members, for their mentorship and support. Last but not least, we want to thank everyone who supported the Essential Utensils Kit through its developed and continued growth.



# Eliminating Single-use Plastic Bags at the McMaster Campus Store

## Student Authors

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**Atiya Iqbal**, Health Sciences

## Community Project Champions

**Louise Walker**, McMaster Campus Store  
**Tyler Mah**, McMaster Campus Store



Plastic bag portrayed as an iceberg representing the effects of single-use plastics in the environment  
 Photo credit: iStock by Getty Images

## Overview

Plastic pollution is currently a global issue and single-use items like plastic bags significantly contribute to this problem. Approximately 15 billion plastic bags are used in Canada every year, yet only 10% are recycled.<sup>1</sup> As a response to plastic pollution, the McMaster Campus Store has eliminated the distribution of single-use plastic bags and is instead encouraging people to bring their own bag.<sup>2</sup> Research on plastic bag alternatives emphasizes that all bags have an impact and that the

best option is to use a bag as many times as possible to avoid unnecessary consumption.<sup>3</sup> Although the Campus Store is encouraging customers to bring their own bag or reuse a donated plastic bag, the Store still sells reusable tote bags, as a last resort. The goal of our project was to support the Campus Store in promoting and encouraging the desired behaviour signaled by their message to, "Bring Your Own Bag".<sup>4</sup>

## Objectives

1. Educate about the pros and cons of various types of bags
2. Increase the online presence of the "Bring Your Own Bag" initiative
3. Report on the impact of the initiative, based on customer behaviour

## Reporting

To accomplish our first objective, we collaborated with fourth-year Life Sciences student, Gabrielle Gonsalves, to create an infographic and list of Frequently Asked Questions (FAQs). The infographic highlights the pros and cons of common bag types and FAQs respond to common questions about the initiative. Both the infographic and FAQs are hosted on the Campus Store's 'Green Initiatives' webpage, which highlights the "Bring Your Own Bag" initiative as well as our project.

To achieve our second objective, we developed five Instagram posts featuring McMaster students using reusable bags at the Campus Store. The posts were shared on the Campus Store's Instagram page in conjunction with a prize giveaway aimed to increase initiative awareness and participation. Although we engaged over 2000 people\* on Instagram, our group recognized that determining success of our third objective required behavioural change, which occurs gradually over time.

As such, we worked with the Campus Store to track the number of tote bag purchases per total customer transactions each week. Since the Campus Store eliminated the sale of single-use plastic bags in August of 2019, the percentage of consumers who purchased their reusable bags decreased from 10.6% in September to 7.9% in November, signaling positive momentum of this initiative.

## Collaborators

Our team would like to extend sincere thanks to our Community Project Champions, Louise Walker and Tyler Mah from the McMaster Campus Store, as well as our Project Mentor, Gabrielle Gonsalves, for all of their support, encouragement, and direction throughout the duration of our project. We would also like to extend our gratitude to Kate Whalen from the Academic Sustainability Programs Office, our student Instagram models, and all of the individuals who liked and shared our posts -- your contributions were instrumental to the success of our project.

\*Total number of likes among five posts as of December 2, 2019 within a two week period

# Trash to Treasure: A Process for IT Collection, Reuse, and Donation

## Student Authors

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**Clare Benson**, Engineering

**Abanoub Gaber**, Engineering

## Community Project Champions

**Craig MacDonald**, Facility Services

**Richard Godsmark**, University Technology Services

**Ryan Johnson**, SLSH greenBYTE

## Overview

From McMaster University alone, it is estimated that more than 2,000 computers are sent for recycling each year, but many of them could still have a long useful life.<sup>1</sup> The aim of the Trash to Treasure project was to reduce IT waste\* and donate refurbished electronics within the local community. Working alongside McMaster's Facility



Laptop being put together at IT donation event  
Photo credit: Jessica Radko

Services; University Technology Services (UTS); our collaborating SUSTAIN 3S03 student team (see p. 15); and SLSH greenBYTE, a local social enterprise, we re-envisioned the lifecycle of IT waste at McMaster, with a focus on reuse. Specifically, our group's goal was to support adoption and long-term sustainability of the initiative at McMaster through optimizing the process for collecting, sanitizing,

## Objectives

1. Implement a process for quick and easy computer donation by faculty and staff
2. Create a process that instills trust and integrity with respect to data security
3. Shift the focus from IT recycling, by creating multiple avenues for IT reuse

## Reporting

Through working with our campus collaborators, we successfully implemented a convenient and process for upcycling electronic devices on campus. Our team implemented a short and easily accessible online form available through McMaster's Facility Services website, which enables staff members to request pickup of IT equipment from their office location. While the form is quick and easy, it also ensures that any data located on the collected devices remains securely with a University representative. The next step in the process involves hard drive removal and delivery to UTS for sanitization. Furthermore, to ensure the hard drives can be replaced in their original device, we designed a sticker system to keep track of hard drive and computer pairs. This process has already proven to foster trust amongst staff, demonstrated by feedback and the large number of donations received.

To provide multiple opportunities for reuse, we hosted a campus-wide IT collection event on November 13<sup>th</sup>, where we received more than 100 pieces of IT equipment. After sorting the equipment by its level of quality and potential for reuse in the community\*\*, we recognized that there was also a market for reuse by McMaster students. Thus, we hosted a donation event on November 28<sup>th</sup>, where over 200 students upcycled nearly all devices available within 30 minutes. Students expressed interest in the devices for standard operation, exploration, and creative projects.

Resulting from these various processes, over 70 devices were collected and donated to greenBYTE for distribution to local kids in need, and 150 were reused by McMaster students, which ultimately diverted over 1000kg of IT equipment from the recycling stream through shifting our focus towards reuse.

## Collaborators

We would all like to thank our Community Project Champions, Richard Godsmark, Ryan Johnson, and Craig MacDonald, for their thorough mentorship and tremendous support during our joint project. We would also like to thank Kate Whalen, Alexander Schaap, Melissa Cusack, Thomas Siuda, Joanna Zuk, Abbie Little, Grace Kuang, Reta Meng, Jessica Radko, Agnes Konopka, Carlos Figueira, Susan Millman, Adam Chiaravalle, Famke Alberts, Linda Jaskiewicz, Sue Mckinlay, and all of the Facility Services and UTS staff members who supported this initiative. Last, but not least, we want to thank all of the staff, faculty, and students who helped to promote and participated in the Trash to Treasure initiative. With the unflinching aid of these incredible individuals we were enabled to bring our ideas of a sustainable community into reality, here at McMaster University.

\*Devices that are no longer serving University operations, but still have significant potential within local communities

\*\*greenBYTE maintains a rigorous standard for devices donated within the community. Those offering a shorter lifespan are still valuable to McMaster students.





# IT Collection, Reuse, and Donation: Communication and Engagement

## Student Authors

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**Claire Logeais**, Engineering Exchange Student

**Shunmathi Shanmugam**, Arts & Science

## Community Project Champions

**Craig MacDonald**, Facility Services

**Richard Godsmark**, University Technology Services

**Ryan Johnson**, SLSH greenBYTE



From left: Shunmathi Shanmugam, Mehran Janatyani, and Claire Logeais. 3S03 students from the Communications team on IT Waste Collection Day  
Photo credit: Grace Kuang

## Overview

In 2016, Canada produced an estimated 725,000 tonnes of electronic waste.<sup>1</sup> At McMaster University, IT waste is either recycled or reused through semi-annual events hosted by Facility Services.<sup>2</sup> McMaster University and social enterprise SLSH greenBYTE were exploring opportunities to work collaboratively to reduce University IT waste\* and donate refurbished electronics within the local community.<sup>3</sup> Working in tandem with our collaborating 3S03 team (see p. 15), the overarching goal of our

joint project was to establish and implement best practices, with respect to both community engagement and operational process, for university IT reuse that enhances the lives of underserved members of the local community. Specifically, our team focused on community engagement and strategic communication that would encourage individuals from across campus to donate their unwanted IT equipment and support youth in our community.

## Objectives

1. Engage staff and understand their attitudes and perceptions towards IT reuse and donation
2. Generate support and participation from staff, faculty, and students
3. Disseminate the collection and donation results to the McMaster and broader community

## Reporting

We began our project by engaging McMaster staff, and we learned about opportunities, barriers, and potential concerns towards IT reuse and donation. Working with the Process team members, we were able to apply staff member feedback in both the design and communication of our pilot program. With respect to communication, our team created a webpage on the Facility Services' website, which included a FAQ section.

With the pilot program developed and our communication strategy in place, we established our goal to collect at least 100 computers within a three-week period for community reuse and donation. We sent mass emails to the campus community; published a story on the McMaster Daily News; sought support from various ambassadors across campus through Technology Roundtable meetings and Sustainability Day; and co-hosted an IT collection event. At the event, we engaged in dialogue with attendees and did a takeover of the University's Instagram. Through these efforts, 50 computer systems were collected within two weeks of our first mass email, our article was the most read Daily News article published that week, our collection event saw over 50 attendees, and our Instagram takeover generated an overwhelming positive response.

We concluded our project with a press release highlighting the collaborative efforts that led to over 70 computers being donated to greenBYTE for distribution to local kids. Through our experience, we learned first-hand about the complexity of sustainability challenges, the importance of collaboration when creating sustainable solutions, and what is meant by the proverb, "If you want to go fast, go alone. If you want to go far, go together".

## Collaborators

We would like to thank all of our collaborators which we have jointly recognized on page 15.

\*Devices that are no longer serving University standards, but still have significant potential for reuse within local communities.

# Community Permaculture Lab

## Student Authors

**Marvel Ekwuribe**, Social Sciences  
**Teagan Konig-Hession**, Social Sciences  
**Clara Myhrman Nilsson**, Engineering

## Community Project Champions

**Adrian Hodgson**, Design Process Facilitator CPL  
**Brody Meyer**, Project Coordinator CPL  
**Cynthia Myer**, Permaculture Project Champion CPL



Sample ring-book page, laser-printed on wood  
 Photo credit: Teagan Konig-Hession

## Overview

Modern food production is one of the major contributors to environmental degradation and to the current climate change crisis.<sup>1</sup> As such, it is necessary to transition to a more sustainable means of food production. Permaculture is a sustainable solution to food production as it absorbs more carbon dioxide than it creates, unlike conventional agricultural practices.<sup>2</sup>

Specifically, permaculture design is a brand of systems design based on ecological principles and regenerative cultural practices. In working with the Community Permaculture Lab (CPL), the goal of our project was to teach a broad audience about the importance and the elegant utility of permaculture design in our world today.

## Objectives

1. Understand the importance of specific plants and their relation to permaculture design
2. Compile the information in a comprehensive and systematic way
3. Disseminate the information in a user-friendly and accessible format

## Reporting

To achieve our first objective, we received a list of six primary plant species that are integral to the CPL, as well as an additional list of 14 plants, which each support one of the primary plants listed. We consulted academic literature and obtained first-hand knowledge from members of the CPL to gain a deep and fulsome understanding of each plant on the list, their relation to each other, and their importance to permaculture design.

We compiled and organized our information of the primary plants by their location in the CPL, each followed by their respective supporting plants. We described each of the 20 plants based on their connection to the 12 principles of permaculture design<sup>3</sup>, as well as the justification for inclusion in the CPL.

To ensure easy access to the compiled information, we created a well-designed electronic report that can be published and shared online and could also be produced in hard copy. In our own attempt to apply our understanding of permaculture design and how it could be applied to create a hard-copy children's book or reference guide, we created a small (5" x 3.5") laser-printed, wood, ring-book (see image). By leveraging the laser printer from McMaster's Thode Makerspace and printing on sustainably sourced, Canadian wood, such as cedar, this method could be used to build upon our project in the future collaborations with the CPL.

## Collaborators

We would like to thank our Community Project Champions: Adrian Hodgson, Brody Meyer, and Cynthia Myer, as well as the engaged members of the CPL. The continuous guidance, support, and education we received from them provided a solid foundation to help us achieve our goals. We would like to thank the members of the SUSTAIN 3S03 instructional team: Eric Howarth, Gabrielle Gonsalves, and Kate Whalen for their unending support and help throughout the creation process of this project. Last but not least, we would like to thank the staff members of the Thode Makers Space for their patience and tremendous support in creating our pilot ring-book.



# Sustainability Day Tree Planting and Student Education

## Student Authors

**Aniqa Chaudhry**, Health Sciences

**Mubariz Maqsood**, Science

**Karan Taghizadeh**, Science

## Community Project Champions

**Martha Killian**, Nature at McMaster

**Wayne Terryberry**, Nature at McMaster

**Abbie Little**, Academic Sustainability Programs Office



Student volunteers planting trees at 10 Acre Field  
Photo credit: Anna Verdillo

## Overview

In today's state of environmental emergency, trees are a source of sustenance, acting as biological filters, storing carbon, and harbouring wildlife.<sup>1</sup> Climate change and soil erosion are a few of the many issues being exasperated through the permanent removal of trees. Annually, this removal amounts to the cutting of 15 billion trees through deforestation, forest management practices, and land use changes.<sup>2</sup> Locally, this removal, especially of native tree species, disrupts ecosystem balance and the ability of native organisms to survive. Planting native trees promotes the

rehabilitation of local areas and re-establishment of homeostasis.<sup>3</sup> Experiential learning-based activities, including tree-planting, can establish positive attitudes towards the environment, thereby sustaining long-term conservation efforts.<sup>4</sup> The goals of this project were to address the issue of tree decline directly by involving the Hamilton community in rehabilitation practices like tree-planting, and to sustain such efforts by educating individuals on the importance of long-term sustainability.

## Objectives

1. Engage the Hamilton community through multiple tree-planting events
2. Develop a media campaign to increase public awareness of environmental sustainability
3. Educate individuals on the importance of trees, environmental health, and sustainable practices
4. Support continuity of tree-planting events through the creation of a transition package

## Reporting

Working alongside local non-profit, Trees for Hamilton, we organized two educational tree-planting events at McMaster. Prior to the events, a media campaign was launched to educate individuals on the importance of sustainable practices and simultaneously promote the event. During the first drop-in tree-planting event, 40 volunteers learned proper planting techniques and helped to plant 125 native trees. The second tree-planting event brought together 60 volunteers from the community, environmental organizations, and media outlets. Volunteers planted 115 native trees, removed over 100 invasive species, and learned about the importance of rehabilitation throughout the process. Results of a post-event survey\* showcased that participants enjoyed tree-planting the most (80%), compared to those (20%) who preferred native species removal. Furthermore, 90% of survey participants said they would recommend this event to a friend, demonstrating the value of continuing the event in future years. To ensure continuity of this initiative, we created a transition package consisting of marketing resources, research, proposed timelines, graphic packs, and a personal video conveying our lessons learned. We hope that future groups can use our transition package to build upon our work and enhance the event in years to come.

## Collaborators

We would like to give special thanks to our Community Project Champions: Martha Killian, Abbie Little, and Wayne Terryberry from McMaster University for their logistical support and guidance in helping us organize our tree-planting events. We would also like to thank Eric Howarth and Gabrielle Gonsalves, our course Teaching Assistants and mentors, for providing insight and sharing their past experiences in regards to this project. We would also like to extend appreciation to Myles Sergeant from Trees for Hamilton for his guidance, funding, and promotion of the events. Finally, we would like to thank the community members and volunteers who attended and supported the tree-planting events.

\*75 survey participants

# The Solitary Bee Project

## Student Authors

**Kevin Mattes**, Engineering  
**Robert Sager**, Science  
**Isaac Yeung**, Science

## Community Project Champions

**Craig MacDonald**, Facility Services



SUSTAIN 3S03 students in front of McMaster solitary bee homes.  
 From left: Kevin Mattes, Robert Sager, and Isaac Yeung.  
 Photo credit: Kevin Mattes

## Overview

With the rise of pesticides, parasites, disease, and habitat loss, the world is seeing a rapid decline in one of nature's most important pollinators, solitary bees.<sup>1</sup> In 2018, high school student and Founder of The Solitary Bee Project, Simran Jolly, established her social enterprise with the mission to increase the population of endangered pollinator species. She began working with local governments and universities to place bee homes in green spaces.

As part of 100in1Day Hamilton, The Solitary Bee Project and McMaster co-hosted a workshop to construct 50 bee homes from various up-cycled materials and placed them throughout campus. In an effort to continue this work, the goals of our project were to enhance the bee home design and educate the public about the importance of solitary bees.

## Objectives

1. Understand which materials, locations, and design components are most effective
2. Share our findings and recommendations publicly
3. Educate about the importance of solitary bees and this broader initiative



A solitary bee visiting one of McMaster's bee homes  
 Photo credit: Kevin Mattes

## Reporting

With the help of McMaster's Facility Services, we surveyed all 50 bee homes on campus and evaluated them based on the degree to which solitary bees nested in each. When surveying the bee homes, we found evidence that the homes with bamboo had the most activity. Houses with mixed fillings and paper had much less activity, and cork and sticks had none. A general trend we noticed was that bee homes closer to Cootes Paradise were more active than those surrounded by artificial structures and away from natural forestry. With the help of Luc Peters from Humble Bee, we created a list of the tree and plant species solitary bees need to thrive. Tree species such as Basswood, Honey Locust, and Crabapple are native and can be easily introduced to Cootes Paradise and around campus.

With the help of Craig MacDonald, from McMaster's Facility Services, we created and installed five educational plaques, which highlight the importance of solitary bees and bee homes and acknowledge the various collaborators who contributed to this initiative.

## Collaborators

We would like to thank our Community Project Champion, Craig MacDonald, Director of Maintenance Services; Abbie Little, Community Relations Coordinator, Academic Sustainability Programs Office; and the SUSTAIN 3S03 instructional team for their guidance and support throughout the entirety of the project. We would also like to thank McMaster Facility Services for their aid in accessing the bee homes and Luc from Humble Bee for advising us about bees and tree species. Last, but not least, this project could not have been possible without the volunteers from 100in1Day Hamilton 2019 intervention, and we thank them for their integral support in creating the inaugural bee homes.



# SUSTAIN 3SS3

FOSTERING SUSTAINABLE COMMUNITIES  
THROUGH 100IN1DAY HAMILTON



“

*I found it to be a really enriching experience in learning alongside peers who came from such diverse academic backgrounds.*

Fairuz Karim  
SCIENCE

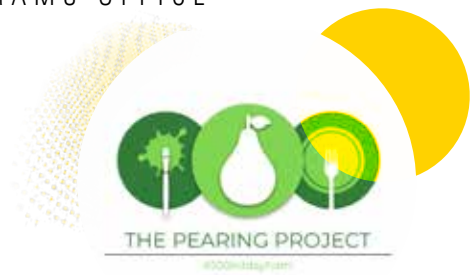
”

# The PEARing Project: Matching Creatives and Local Businesses

## Students Authors

**Chiara Choi**, Engineering

**Lindsay Lee**, Engineering



Pearing Project Logo  
Photo Credit: Lindsay Lee



## Overview

Due to the COVID-19 pandemic and the associated lockdown mandates, small businesses are disproportionately affected, facing reduced business and the possibility of having to close down all together.<sup>1</sup> Specifically in Hamilton, many small businesses depend on in-person interaction and foot traffic as a means of generating business and attracting customers, and have been struggling to make the pivot of providing the same services online or from a distance.<sup>2</sup> We chose to focus our project on supporting small businesses in Hamilton, while simultaneously supporting local creative professionals and students who were experiencing lost work and internships for the same

reason. The goal of our project was to form an online platform to connect local businesses with creative students and professionals to develop new social media content to promote small businesses and to raise awareness of supporting local businesses.

## Objectives

1. Create meaningful connections between local creatives and local businesses in Hamilton
2. Encourage community involvement in supporting local businesses
3. Promote and spotlight Hamilton small businesses

## Reporting

We addressed our first objective by pairing 13 local businesses with talented students and creative professionals who volunteered their time to create various promotional material, such as business cards, posters, and Instagram-based content. Through these partnerships, we were able to foster continued relationships, in which 63% of the businesses stated they would consult their partnered creative for future work. We contacted 60 businesses and reached out to 30 student associations through platforms such as LinkedIn, Yelp Communities, and our personal accounts.

For our second objective, we hosted a community-wide design challenge and received 14 submissions, 1500 impressions, 260 reshares, and 780 likes on our Instagram social media. The design challenge encouraged community members to design marketing material for their chosen businesses, promoting beautification of the local community. Over 30 people were involved in sharing their experiences through the hashtags #takeouttuesday and #tryitoutthursday.

Finally, our third objective was achieved through the creation of Instagram Stories and posts that spotlighted specific categories of local businesses in Hamilton, such as "Local Comfort Food" and "Local Stationery Stores". This content was our most popular and was responsible for 75% of our total outreach as our followers were able to continuously reshare the material to their own followers. Many businesses that were actively engaged on social media were able to reshare our content and benefit from the free advertisement and traffic that came from the posts.

## Collaborators

The PEARing Project could not be possible without the support and guidance of our course instructor, Peter Topalovic, and assistance from Abbie Little. We would like to thank our classmates who helped refine our ideas and provided invaluable feedback throughout the duration of the project. We would also like to credit @blckownedham for providing us with access to their list of Black-owned businesses in Hamilton to assist in celebrating and highlighting these establishments.

N.B. Currently, we are not continuing with more original content, however, we are leaving the content up to allow viewers to continuously reference the content in the future.



# Project Youth Voices: Using Art to Create Positive Coping Strategies for Youth

## Students Author

Fairuz Karim, Science



A drawing submitted to highlight the importance of taking care of your mental health  
Photo Credit: Midusa Nadeswarathanan

## Overview

Since the advent of the COVID-19 pandemic, youth have reported increased feelings of daily hopelessness, sadness, and exhaustion.<sup>1</sup> These significant changes in mood and behaviour in youth can be early indicators of mental health challenges.<sup>1</sup> Establishing coping strategies for the mental well-being of children and youth during the pandemic is important. Project Youth Voices creates a platform for youth to cope with feelings of mental exhaustion, stress, and unease during the COVID-19 pandemic through engaging in creative expression. Studies have identified that expression through art and viewing art can help to relieve feelings of anxiety and mental exhaustion.<sup>2</sup> Supporting mental well-being can have positive effects on the

health and sustainable development of communities.<sup>3</sup> The goal of Project Youth Voices is to encourage youth between the ages of 13-25 to creatively express themselves and establish positive coping strategies amidst the COVID-19 pandemic.

## Objectives

1. Establish an Instagram account and website focusing on creativity, coping, and mental health
2. Provide youth with tools, prompts, and resources on how they can engage in creative expression
3. Create a video that shows how creativity can support positive mental health in youth

## Reporting

To achieve my first objective, I created a website and Instagram account called Project Youth Voices. Using these platforms, youth between the ages of 13-25 were invited to publicly share and submit their creative work that focused on kindness, self-care, coping, positivity, resilient communities, and visions for a sustainable future. A goal of 40 submissions was set; however, an incredible 52 submissions were received.

To achieve my second objective, I created a mini-series called, "Create Through COVID" which provided youth audiences with prompts to engage in creative expression. Additionally, I created a guide called, "A Non-Artists Guide to Creative Expression", which broke down general misconceptions surrounding creativity and helped foster an inclusive social media community.

To achieve my third objective, I compiled all submissions into a summary video. This video was published on 100in1Day (June 6th, 2020) and as of July 2020, amassed 552 views, 70 likes, 60 shares, and 20 comments. At the beginning of this project in early-May, I set a goal of 100 Instagram followers. By June, I had 520 followers and as of July my Instagram following had grown to over 1,100. These outcomes were made possible through social networking with peers, youth groups on Instagram, the Boys and Girls Club of Hamilton, and the Canadian Mental Health Association of Hamilton.

This project was and will continue to be based on collaboration and community engagement to promote youth mental well-being and creative expression.

## Collaborators

I would like to thank the 100in1Day organizers, McMaster's Academic Sustainability Programs Office, Boys and Girls Clubs of Hamilton, and the Canadian Mental Health Association of Hamilton for helping me bring awareness to Project Youth Voices. A very special thank you to everyone who submitted their creative work and inspired me to continue highlighting the creative voices of youth. It was a great pleasure to work with the SUSTAIN 3SS3 instructional team: Peter Topolovic, Hargun Grewal, and Abbie Little.

N.B. As of September 2020, Project Youth Voices Instagram account (@projectyouthvoices) has grown to 56 posts and 1,230 followers. The initiative continues to support youth mental health and building community through creativity.



# Mental Health Resources for Students' Coping During COVID-19

## Students Authors

**Alakshiya Arumuganathan**, Science

**Thivishah Rajsekar**, Science

**SELF-CARE**  
#COVIDSELFCARE101

Campaign name, Instagram logo, and hashtag  
Photo Credit: Alakshiya Arumuganathan and  
Thivishah Rajsekar

## Overview

The COVID-19 global pandemic has caused anxiety, stress, and confusion amongst many people.<sup>1</sup> In particular, post-secondary students experienced disruptions in their academics and may face challenges adapting to a new normal.<sup>2</sup> The current situation is taking a toll on their mental health and lifestyle, so addressing these consequences is vital.<sup>3</sup> As the world shifted online amid COVID-19, many students are struggling to cope with physical distancing, accessing resources, and getting support for their well-being.<sup>4</sup> However, fostering independence through exploring self-care practices has shown promising results.<sup>5</sup> The goal of our project is to help students cope with their mental

health needs through an online platform, by encouraging self-care while educating, and inspiring them to value their own well-being.

## Objectives

1. Develop an Instagram account that includes self-care challenges, positive habits, and inspiration post-secondary students' perspective on self-care
2. Create a website with self-care tips, mental-health resources, and an online community
3. Understand post-secondary students' perspective on self-care

## Reporting

Our urban intervention, #covidselcare101, ran from May 18th to June 6th, 2020, and involved sharing self-care ideas and resources for students through our online platforms.

To achieve our first objective, we developed an Instagram account that, as of September 2020, has 760 followers and 72 posts. In addition, we created a 20-day self-care challenge that highlighted sustainability-focused self-care practices.

To achieve our second and third objectives, we created a website, which received more than 400 views. To understand student perspectives on self-care, we included an anonymous, online survey where 25 participants completed a checklist on how they are practicing self-care during quarantine. The survey helped us tailor our content and allowed students to understand the interests of their peers. Moreover, to encourage engagement, we included a submission box where students could upload a picture/video of their self-care practices; we received 20 submissions.

We were interviewed, and featured on McMaster's Academic Sustainability Programs Office Instagram page. From this opportunity, we were able to engage a larger diverse audience, educate others on our campaign, and highlight the importance of self-care. The video totalled to 400 views.

Through our campaign and future initiatives, we hope to see students continue to practice self-care, and value their mental health beyond COVID-19.

## Collaborators

We would like to extend our sincerest thanks to everyone who helped pave the path to our success. We are beyond grateful for McMaster's Academic Sustainability Programs Office, 100in1Day Hamilton, and all the teams of our SUSTAIN 3SS3 course for constantly promoting our campaign. We would also like to extend our gratitude to Peter Topalovic, our course instructor, for his expertise, and Abbie Little for her support. Through Abbie's support, we were connected with Academic Sustainability Programs Office Communication Assistant, Mubariz Maqsood, who took the time to compile our interview clips and create an engaging, informative video. We would like to extend our thanks to Kate Whalen, Senior Manager of the Academic Sustainability Programs Office, for thoroughly reviewing our work and ensuring that we strive for perfection. Additionally, we would like to thank everyone who has participated, engaged with, and followed this project through our online platforms.

# Building a Community through Acts of Kindness

## Students Authors

**Gabrielle Gonsalves**, Science

**Thalia Quelal**, Science

PRESENTING  
100In1  
Random Acts of  
Kindness

#100IN1DAYHAM

#30DAYSOFHAPPY

Image of @100in1actsofkindness Instagram page  
Photo Credit: Gabrielle Gonsalves & Thalia Quelal

## Overview

Sexual assault and sexual violence are persistent forms of gender-based violence that are supported by systemic inequities.<sup>1</sup> In April 2020, Canada's Minister for Women and Gender Equity, Maryam Monsef, revealed that the COVID-19 pandemic has exacerbated the rise of women, racialized folk, and minority gender identities experiencing sexual assault and violence.<sup>2</sup> In Hamilton, SACHA is a feminist, non-profit, community-based organization that helps support survivors who have experienced sexual violence through education, advocacy, and community partnerships.<sup>1</sup>

Research<sup>3</sup> has shown that collaborative efforts are a key component for sexual violence prevention and violence towards minority groups. The goal of our project is to develop an educational platform to offer support, community,

and solidarity for marginalized communities. Furthermore, we hope to contribute to a community that engages in educational discussions and maintains a culture of consent, and community support by establishing a network and place for all to do good deeds and support community members.

## Objectives

1. Develop online educational content to raise awareness of sexual assault and violence, advocacy, and intersectionality
2. Create a platform of positivity where individuals may share and collaborate on actions, events, or artwork related to acts of kindness
3. Promote SACHA and their events as a free community resource

## Reporting

We created an Instagram account (@100in1actsofkindness) where individuals can share their artwork, be notified of community events, and also find a sense of community through positive acts of kindness that people can engage in. To achieve our first objective, we created an infographic that explained the importance of consent and the rise of sexual assault and violence cases due to COVID-19 and posted it on our account. In light of the Black Lives Matter Movement, we decided to increase dialogue on systemic racism and how it has tied into social injustices and health gaps. We shared and created 12 posts on how people can support the BIPOC community, educational documentaries to watch, supporting Black-owned businesses and more.

To achieve our second objective, our account grew to a community with more than 140 followers, receiving over 40 submissions of artwork and ideas for active allyship with ideas ranging from donating food, to support groups held on Zoom, creating artwork, to peaceful protests in support of the Black Lives Matter Movement held on front lawns.

To achieve our third objective, we connected with SACHA to learn more about what we can do and share their educational resources and events. We received engagement across North America, through our platform from Toronto to New York City and Massachusetts!

## Collaborators

We are beyond grateful and would like to sincerely thank Miranda, the Community Education Coordinator from SACHA, and Hargun Grewal, our Teaching Assistant. Their constant support, mentorship, and knowledge provided guidance that was instrumental to the success of our project. We would also like to thank Peter Topalovic, our course instructor, for his constant support and ideation sessions to help us get creative in the way we approach these unprecedented times. Additionally, our immense appreciation goes out to everyone near and far who participated and engaged with our social media and for allowing us to engage in insightful discussions to enact change within our community.

N.B. While our campaign has concluded, we hope that this short-term intervention played a role in empowering others to promote and support advocacy for themselves and others through both large and small acts of kindness.



# The Grand Prix: Exercise for Happier and Healthier Communities

## Students Authors

**Danny Nguyen**, Engineering

**Laurie Yang**, Health Sciences



The Royal Waltz - one of the trails we recommended on our Instagram account.  
Photo Credit: Danny Nguyen



## Overview

For many individuals, the COVID-19 pandemic has caused feelings of loneliness and anxiety.<sup>1</sup> In addition to feelings of isolation, the closures of gyms, workplaces, and public spaces can increase our sedentary behavior, posing a threat to our mental health.<sup>2</sup> The relationships between exercise, access to greenery, and one's well-being have been recognized as important by the City of Hamilton in their latest Community Vision Final Report.<sup>3</sup> Our initiative, The Grand Prix, addresses each of these key concerns and municipal objectives by promoting healthy behaviors and well-being for 15-30 year olds on social media. The goal of our project is to provide an easy, accessible, and adapt-

able solution for individuals of every fitness level in order to increase physical activity and use of green spaces during the pandemic.

## Objectives

1. Create and share a list of ten adaptable exercises on our Instagram account
2. Share five running routes of various difficulties located near Hamilton's cultural and natural heritage
3. Obtain 100 followers by June 6, 2020 and interact with our followers daily

## Reporting

To achieve our first objective, we consulted our friends and family to compile a list of ten exercises, each accompanied with adaptable modifications for individuals of different fitness levels. We enlisted the help of a fellow fitness influencer, Geoff Bryan, to record video demonstrations of these exercises. The video format allowed us to clearly explain each exercise whilst considering possible language barriers or different learning abilities within the community. These exercises were posted daily on our Instagram account (@the.grandprix).

To achieve our second objective, we mapped running routes of various difficulties throughout Hamilton. These routes were located near greenspaces and broadly showcase Hamilton's diverse sights. We categorized the routes by estimated duration, distance, number of steps, and elevation in consideration of people of all fitness levels. We exceeded our expectations by posting six trails and one bike route courtesy of our partnership with Peter Topalovic's intervention.

Our final objective was to obtain 100 followers by June 6, 2020. To build our following, we used hashtags and tagged relevant accounts. These techniques helped us accumulate 2,000 impressions on our audience, 1,500+ views on our videos, 120+ views on our trails, and a handful of positive comments. As of July 2020, we received 54 followers on Instagram - falling short of our 100 follower goal. Nonetheless, we are proud of our efforts and the impact of our short-term intervention.

## Collaborators

Thank you to Peter Topalovic, our course instructor; Hargun Grewal, our teaching assistant; and Abbie Little from McMaster's Academic Sustainability Programs Office for their mentorship and guidance throughout this process. Thank you also to Geoff Bryan for his consultation and for filming demonstrations for our exercise videos. Finally, thank you to our friends, family, followers, and classmates from SUSTAIN 3SS3 for their support, advice, and for engaging with our project on social media.

# Rethink Everyday Waste: An Exhibit of the Future

## Students Authors

**Martina Amova**, Business

**David Pajtondziev**, Business



Rethink Everyday Waste Diorama  
Photo Credit: Martina Amova

## Overview

According to Plastic Oceans Canada, there will be more plastic than fish in the ocean by the year 2050.<sup>1</sup> With only 9% of plastic products recycled globally, single-use plastics are becoming an increasing threat to our environment.<sup>2</sup> Our intervention was inspired by these alarming figures and became the foundational concept behind Rethink Everyday Waste. The goal of our intervention was to create a vision for future ocean ecosystems with the intent to engage the community and foster positive conversation about making sustainable change. Although Hamilton is not a coastal city, rainwater and wind carry plastic from

our streets and landfills to our water systems, (for example, our harbor and lakes) eventually leading it to our oceans.<sup>3</sup>

## Objectives

1. Create a diorama to inspire Hamiltonians to make sustainable lifestyle changes
2. Inform Hamiltonians about the harmful effects of plastic consumption and reduction techniques
3. Partner with a local organization to increase our community outreach

## Reporting

To achieve our first and second objectives, we created an ocean ecosystem diorama upcycled from single-use plastic to raise awareness about plastic pollution. We shared our diorama on our website and social media to inspire community members to make changes in their daily lives. In order to better engage viewers with our exhibit, we included the message, "by 2050 there will be more plastic than fish in the ocean," which connected our installation to our message. Our website included reduction techniques, educational infographics, photos, an article summary about microplastic effects locally, references to sustainable organizations, and an overview of our 100in1Day installation. The cumulative outreach of our channels amounted to 56 website visits, and 460 Instagram impressions.

To achieve our third objective, we collaborated with Environment Hamilton to increase the reach of our project and gain invaluable insight about the local problem. Our partnership also helped us facilitate aspects of our project, including sharing our message on their social media platforms. This resulted in another 2,856 impressions. While this is a larger global issue, we hope that our intervention inspired a more sustainable and collaborative community that demands change in both legislation and social reform. Although our website is no longer being monitored as our course has come to an end, we hope that our efforts inspired viewers to rethink their everyday waste!

## Collaborators

We would like to thank Peter Topalovic, our course instructor, as well as Abbie Little and Kate Whalen from McMaster's Academic Sustainable Programs Office, for their support and feedback throughout the process. We would also like to thank Juby Lee from Environment Hamilton for her amazing support and ideas and for helping us facilitate aspects of our project. Last but not least, we would like to thank those who engaged with our website and social media content!

# SUSTAIN 4S06

## LEADERSHIP IN SUSTAINABILITY



From left: Melissa Downey, Natalie Ciancone, Bill Slowka, Josephine Agueci, Elly Bowen, Molly Parker



*The project was so rewarding. It truly made me feel like I was in drivers seat and able to make change first-hand.*

Josephine Agueci  
SCIENCE





# Perceptions of Extreme Heat and Cooling Centres in Downtown Hamilton

## Students Authors

**Anna Gorman**, Arts & Science

**Moriah Greenhaw**, Science

**David Zaslavsky**, Science

## Community Project Champion

**Matt Thompson**, Beasley Neighbourhood Association



## Overview

With climate change, Ontario has seen an increase in extreme weather - namely, prolonged heat events.<sup>1</sup> This has significant implications for public health and service provision in the City of Hamilton.<sup>2</sup> In addition to formal cooling centres provided by the City, residents also find informal places and ways to cool down, such as going to the mall or shaded parks.<sup>3</sup> Residents living in older homes and apartment buildings have first-hand experience living in extreme heat during the summer, because their houses are built to retain heat and often lack air conditioning.<sup>4</sup> The Beasley Neighbourhood Association (BNA) has been very engaged in the issue of extreme heat and cooling centres in their neighbourhood.<sup>4</sup> The goal of this study was to contribute to the field of extreme heat research, in the hopes of inspiring municipal action on urban heat.

## Objectives

- Determine where people go during extreme heat events and what characterizes these places
- Gain detailed accounts of their experiences at these informal cooling centres
- Disseminate findings publicly, including sharing them with Hamilton City council

## Reporting

Throughout this study, we interviewed residents, mapped locations they frequented, and conducted thematic analysis to understand their perceptions and experiences. In particular, health and safety were seen to be of interest when it comes to extreme heat events, with participants citing concerns about heatstroke, personal safety, and comfort. Through our research, we identified two recommendations on how the City can better serve citizens most vulnerable during extreme heat events. Current City protocol is the Community Heat Response Initiative, which opens municipally owned 'cool places' to the public during severe heat events.<sup>5</sup>

Through our study, we found that residents rarely, if ever chose official cooling centres. This suggests a need to rethink how official services are provided. Our primary recommendation is to review and revise the existing response plan to better meet the concerns we have outlined. We also recommend including the voices of Beasley residents and, by extension, citizens of Hamilton, in the creation of a public emergency response policy.

To achieve our main goal of inspiring municipal action, we prepared a delegation to City council sharing our findings and requesting a review and revision of the current heat related response plan to better reflect the needs of the community.

## Collaborators

We would like to give special thanks to Matt Thompson, our Community Project Champion and Beasley resident, who supported and helped facilitate our work. Furthermore, we would like to thank all of our community participants for their time and contributions, without which this research would not be possible. We would also like to give a big thank you to the SUSTAIN 4S06 instructional team for their unending support and providing us with the opportunity to conduct this research.



An apartment during an extreme heat event.  
Photo Credit: Getty images

# Enhancing Accessibility through the Everyone Rides Initiative

## Students Authors

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**Garry Vinayak**, Science

## Community Project Champion

**Chelsea Cox**, Executive Director of the Everyone Rides Initiative (ERI)



## Overview

Bike sharing systems have become popular in many cities around the world as a way to make cycling more accessible to residents and visitors alike.<sup>1</sup> Hamilton Bike Share operates a fleet of 825 SoBi Bikes in much of the city's downtown core.<sup>2</sup> The Everyone Rides Initiative (ERI), Hamilton's bike share equity program, is currently enhancing the accessibility of the city's SoBi fleet by introducing adaptive bikes so that individuals with various accessibility needs can take advantage of biking as a mode of transportation.<sup>3</sup> However, there is a recognized need for increased community consultations concerning barriers to accessing the current SoBi bike share system and opportunities for enhancement.<sup>4</sup> As such, the goal of our project was to contribute to a more accessible bike sharing system by applying a disability justice and equity lens by way of citizen consultation through an online survey and in-person interviews.

## Objectives

- Gain the perspectives of individuals within the accessibility community
- Identify key themes through thematic analysis
- Communicate findings to stakeholders and the broader Hamilton community



## Reporting

To achieve our research objectives, we first collected data through two methods: (1) an online survey open to all Hamilton community members, and (2) interviewing people with a disability or those working directly with people who have a disability. We had 156 survey respondents and seven interview participants. We conducted a theoretical thematic analysis of the entire dataset to determine if our data aligned with themes present in the academic literature. The following three themes were present in both:

- 1. Adaptive Solutions:** Mentioned 61 times, participants suggested increasing accessibility by expanding the current fleet of adaptive bike share bikes. Participants specified the need for low-step bikes, electric-assist bikes, cargo-bikes, tricycles, and/or mobility aid attachments to increase their independence and accessibility.
- 2. Enhancing Infrastructure for Safety Concerns:** Indicated 46 times, participants recommended improvements in bike infrastructure to address their safety concerns. The importance of more physical space for adaptive bike usage and physical barriers to protect people biking in bike lanes were emphasized.
- 3. Disability Justice and Equity:** The significance of an affordable bike share system was highlighted 43 times, especially for individuals reliant on public and low-cost modes of travel. Recommendations included placing bike hubs in transit-friendly locations to complement other modes of transportation. Maintaining subsidized costs for adaptive bikes was also emphasized.

With our research findings shared with the Executive Director of ERI, additional stakeholders, and community members, in-depth discussions have been facilitated to further aid ERI's mission and support their goal to remove barriers in accessing bike share in Hamilton.

## Collaborators

We are beyond grateful for the support we have received during this project and would like to sincerely thank Chelsea Cox, our Community Project Champion and the Executive Director of the Everyone Rides Initiative (ERI), as well as our course instructor, Kate Whalen. Their constant support, mentorship, and knowledge provided guidance that was instrumental to the success of our project. Additionally, an immense thanks goes out to Hamilton Bike Share Inc and the ERI for allowing us to engage in insightful discussions and to enact change within our community. Finally, yet most importantly, we would like to thank all of the individuals who took the time to provide support and collaboration for this project by participating in our survey and in-person interviews.



The adult tricycle is a part of SoBi's adaptive bike share fleet.  
Photo Credit: Dan Taekema - CBC

# Millennials at the Market

## Student Authors

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**Melissa Downey**, Business

**Molly Parker**, Social Sciences

## Community Project Champions

**Bill Slowka**, Hamilton Farmers' Market Manager

**Elly Bowen**, Hamilton Farmers' Market Board of Directors Member

## Overview

The Hamilton Farmers' Market is one of Hamilton's hidden gems and has been looking for ways to continue to succeed logistically and economically<sup>1</sup>. The Market Board commissioned a survey in 2019 that looked at addressing barriers to customer satisfaction. This quantitative study was inclusive of all age groups and captured perspectives of regular and non-marketgoers alike. We aimed to compliment this study with qualitative data by further investigating barriers to regular participation and suggestions for enhancements through the perspective of the Market's current target demographic - millennials<sup>2</sup>. Millennials are currently the largest demographic in Hamilton<sup>3</sup> and are considered active and engaged participants in community life<sup>4</sup>. As such, the goal of this research was two-fold: (1) to give voice to the data through interviewing new or current market-going millennials and (2) to provide opportunities for data-driven decision-making to enhance the Market and, as a result, bring the Hamilton community together.

## Objectives

1. Understand millennials' attitudes and perceptions towards the Hamilton Farmers' Market
2. Identify key themes in the data to serve as the foundation for suggestions to decision-makers
3. Share findings, results, and recommendations with the Market Board of Directors

## Reporting

To satisfy our first objective, we recruited 21 millennial participants to take part in a shopping period where they were asked to visit and purchase a variety of items from the Market. They visited the Market at least once per week for three consecutive weeks in November and December, 2019. Following each visit, they completed an online survey about their experiences. Afterward, 19 of the 21 were interviewed to gain insight into their experiences as first-hand marketgoers. This feedback highlighted the main barriers to regular participation and investigated future enhancements for the Market.

Through thematic analysis, the following key themes were identified:

- 1. Dependability & Accessibility:** 95% of interviewees mentioned concerns with Market operating hours, and suggestions regarding compliance and accountability for vendor work hours were provided. Cash-only payment options were a barrier for 60% of interviewees, and benefits of mobile card reader adoption were presented.
- 2. Experience & Community:** 75% of interviewees discussed the importance of establishing the Market as a community hub and the need to increase advertisements and promotions, especially on social media. Suggestions for a variety of regularly scheduled programs and events were presented that align with practices of other successful markets in Canada. Marketing initiatives were also explored.

To meet our final objective, findings were compiled into a report, shared with our project champions, and made available online. We presented our findings and recommendations to members of the Market Board on April 7<sup>th</sup>, 2020 and we look forward to experiencing the positive changes to come.

## Collaborators

We would like to extend sincere appreciation to Bill Slowka, Hamilton Farmers' Market Manager; Elly Bowen, Member of the Board of Directors; and Andrea Pohlmann, 2019 Chair of the Hamilton HIVE. Thank you to Kate Whalen, our course instructor, for providing guidance that was instrumental to our group's success. Last but not least, we would like to thank all our millennial and vendor participants for taking the time to engage in our study and provide honest perspectives and feedback to help benefit both the Hamilton Farmers' Market and, by extension, the Hamilton community.



Research team and collaborators posing with produce sold by local Market vendors  
From left: Melissa Downey, Natalie Ciancone, Bill Slowka, Josephine Agueci, Elly Bowen, Molly Parker  
Photo Credit: Kierin Gorlitz



# Employee Leadership in Office Greening

## Student Authors

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## Community Project Champions

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**Vikram Hardatt**, Transportation Planner, IBI Group

## Overview

The City of Hamilton issued a climate change emergency on March 18, 2019<sup>1,2</sup>, and established a task force to meet a net-zero emission goal by 2050<sup>3</sup>. While the challenges of sustainability are complex and multifaceted, finding solutions requires ideas, actions, and leadership from all.<sup>4</sup> One area of opportunity is within office buildings, which are a major source of emissions.<sup>5</sup> We chose to explore two separate office environments for our project: the City of Hamilton's Transportation Planning department located in the Hamilton City Centre and IBI Group located in LIUNA Station. Both groups had implemented green initiatives and were looking to do even more. The goal of our project was to further support these groups through engaging staff members in identifying opportunities for employee leadership in office greening.

## Objectives

1. Understand current staff attitudes and perceptions towards office greening
2. Identify best practices in support of key themes presented by employees
3. Share results and recommendations to inspire action towards more office greening

## Reporting

Six employees from each group were individually interviewed and later attended a focus group at their office. Conversations explored staff attitudes towards office greening initiatives as well as current and future sustainable practices implemented at their workplace. Following data collection, we conducted thematic analysis and identified that recycling and sustainable commuting were practices of greatest interest and that improvements in infrastructure and education were areas for greatest impact, as described below:

1. **Recycling:** The importance of recycling education and/or infrastructure was discussed 65 times. Participants highlighted their uncertainty about office recycling procedures.
2. **Sustainable Commuting:** Being unable to use a sustainable mode of transportation to travel to work was brought up 52 times. External factors such as family needs and distance from their office location were mentioned, as well as factors such as infrastructure and education.
3. **Infrastructure:** The presence and/or lack of office infrastructure were brought up 32 times. Interviewees felt that building layout, office location, and lack of natural lighting served as roadblocks to their ability to act sustainably.
4. **Education:** With a total of 27 mentions, participants requested adequate education on topics such as recycling, sustainable commuting, and general sustainable practices.

Applying the findings, we created a list of recommendations and an action plan for our Community Project Champions at each location. We hope that further distribution of these findings to senior leaders at each organization will initiate necessary steps to implement positive sustainable change that both eliminate barriers and foster employee leadership in office greening.

## Collaborators

We would like to extend our sincere thanks to our Community Project Champions, Peter Topalovic and Vikram Hardatt from the City of Hamilton Transportation Planning and IBI Group Hamilton offices for their guidance throughout the duration of our project. In addition, we would like to thank Kate Whalen and Samantha Patrick from the McMaster Academic Sustainability Programs Office for providing support, mentorship, and advice instrumental to our group's success. We would also like to extend our gratitude to the employees who participated in our study for their contributions and leadership.



Image depicting Hamilton City  
Photo Credit: Nadine Shaabana on Unsplash

# Navigating Client Needs and Resource Access

## Student Authors

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## Overview

Community health centers are not-for-profit organizations that aim to provide primary care to clients and promote healthy communities.<sup>1</sup> Within such organizations, community healthcare workers are often tasked with helping clients access resources and services.<sup>2</sup> However, clients, communities, their needs, as well as the resources and services available are continually changing. A community health center located in the Greater Toronto and Hamilton Area (GTHA) responds to health needs within a city through a range of services. Given that communities and their residents change over time, the organization is taking stock of the current trends so that they can continue to provide excellent support to their clients and their communities. In hopes of supporting the organization's work, the goal of this study was to help staff members in navigating their clients' needs and access to resources.

## Objectives

1. Interview staff members to understand challenges and opportunities in supporting clients
2. Determine key themes amongst staff perspectives through qualitative thematic analysis
3. Share findings and recommendations with the organization's staff and leadership team



Client accessing services at a healthcare organization  
Photo Credit: CDC on Unsplash

Continued on next page



## Reporting

Twelve staff members who work in different areas of healthcare within the organization were interviewed for our study. Through qualitative thematic analysis of participant interviews, we identified the following three main themes: (1) Communication, (2) Transportation, and (3) Poverty.

In total, 67% of interviewees mentioned communication as a challenge, with various barriers including language and how it can be effectively translated, lack of client awareness about available health resources, unmet client needs for social connection, and the challenge for staff to consistently apply self-management skills. As a second key theme, 83% of interviewees mentioned transportation as a challenge, particularly with respect to their clients' reliance on public transportation to access the organization, which is becoming ever more common as the organization's services extend to residents beyond their catchment area. As our third main theme, 42% of interviewees mentioned poverty as a complex challenge that creates an indirect barrier for their clients, such as not having appropriate footwear required to travel to the organization for their appointments in the winter.

To satisfy our third objective, we created a research report complete with six recommendations based on a review of literature, best practices, and guided by our study findings. In hopes of supporting the organization to serve their clients, we trust that our findings and recommendations will spark additional thoughts, discussions, and actions in service of their communities.

## Collaborators

We would like to extend our sincerest thanks to everyone who collaborated with us on this study. We are beyond grateful for the organization's staff members who shared their opinions with us through their participation in our study. The information they provided to us was extremely valuable towards achieving our goal. We would also like to extend our gratitude to Kate Whalen, our course instructor and the Senior Manager of McMaster's Academic Sustainability Programs Office, for her expertise and support. Additionally, our team would like to thank the organization's leadership team for providing approval to conduct and publish our study.



Staff member working at a healthcare organization  
Photo Credit: Shopify Partners from Burst

N.B. References made to the organization, and any information that would make them identifiable have been omitted to ensure confidentiality and anonymity of the organization and our study participants, upon their request.



# **Sustainability Internship Program**







## Sustainability Internship Program

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

The Sustainability Internship Program supports the mission of the Academic Sustainability Programs Office of inspiring student learning by providing opportunities for interdisciplinary, student-led, community-based, and experiential learning about sustainability.



Brighter world banner located on campus along Scholars Rd  
Photo Credit: Georgia Kirkos

### Objectives

- Support all Faculties in providing opportunities for undergraduate students to gain academic credit for experiential learning
- Foster 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 ten years and has supported more than 44 students in experiential learning at McMaster. Starting in 2013, all ASP Annual Reports include a section highlighting the work of students who have successfully completed a sustainability internship.

This past year, three students took part in the Sustainability Internship Program:

- **Ana Rivera** worked with the MSU to investigate opportunities for 'Greening the Grind'. Given the nature of the study, the data and findings have been shared solely with the MSU and ASP Office.
- **Melissa Cusack Striepe** conducted primary and secondary research to identify needs and opportunities for IT reuse.
- Through critical evaluation of current social and scientific literature, **Gabrielle Gonsalves** supported the McMaster Campus Store on their strategic initiative to reduce waste generated by both single and multi-use shopping bags.

## Collaborators

The Sustainability Internship Program is made possible through collaboration with Faculties from across campus, and 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.

The individual student interns designed, developed, and created fantastic work through their self-directed learning. Integral support was provided by their respective academic departments, as well as the students' academic supervisors, community project champions, and project mentors, who are each mentioned in the pages to follow.

# Identifying Needs and Opportunities for IT Reuse on Campus

## Student Authors

**Melissa Cusack Striepe**, Engineering

## Academic Supervisor

**Kate Whalen**, Senior Manager, Academic Sustainability Programs Office

## Overview

McMaster University's new 'Trash to Treasure' pilot program seeks to reduce the amount of recycled Information Technology (IT) through leveraging opportunities for reuse. The program collects old IT from campus and re-directs it to at-risk youth through a local not-for-profit. Any remaining IT is made available to McMaster students for their day-to-day work, creative pursuits, or school projects. However, the criteria for what types of equipment students might find useful, as well as opportunities to reach students who need this equipment, had not yet been identified. The goal of this project was to identify the needs and opportunities that exist for on-campus student reuse of IT.

## Objectives

1. Identify students' needs for reused IT equipment
2. Pilot opportunities for IT reuse by students through the Trash to Treasure project
3. Share recommendations for a long- term reuse program that supports McMaster students



## Reporting

Data was obtained through focus groups, informal student engagement and consultation, and observations from IT collection and distribution events. Through thematic analysis, the following three themes were identified:

1. The IT must meet a certain threshold for use, such that the equipment is clean, compatible with other equipment students are using, and fast enough for specific computing needs.
2. Preferences are diverse, meaning that for each student trade-offs such as the threshold for use, sustainability, equipment cost, and popularity factor of a product have a different impact.
3. Program accessibility matters, since students desire both access and knowledge in order to feel confident about using a program. This came both in the form of the desire for a physical space where students could stop by and interact with equipment before taking it, as well as the option for a database of available reused IT, so that students could check from home before heading to a pick-up location.

Based on these themes, and through research of best practices, recommendations were shared with staff leads in a full research report. One specific recommendation made to support themes numbers 2 and 3 is to partner with existing student groups who have large student networks and an interest in IT. Moreover, keeping student voices anchored in program development and operation can ensure the program is addressing current student needs and leveraging opportunities for IT reuse on campus.

## Collaborators

I want to thank Kate Whalen for her mentorship and guidance on my inquiry project, and for her active role in supporting the Trash to Treasure pilot program. I want to thank the two SUSTAIN 3S03 student project groups who collaborated with me and shared their findings as they created and ran the first Trash to Treasure pilot in the Fall 2019 semester. I also want to thank Abbie Little for her support in advertising my focus groups. Additionally, I want to thank greenBYTE, University Technology Services, and Facility Services for bringing me into meetings, providing guidance, and building out the Trash to Treasure pilot program. I want to thank Alexander Schaap, whose knowledge of potential IT reuse application was invaluable for the project, and whose commitment to the McMaster student population is evident. Lastly, I want to thank all of the students who supported the project by sharing information, taking part in the focus groups, and attending the reuse events.



McMaster students at the IT donation event  
Photo Credit: Jessica Radko

# Investigating the Dichotomous Role of Education and Communication in Sustainability, Consumerism, and Plastic Use

## Student Authors

**Gabrielle Gonsalves**, Science

## Academic Supervisor

**Kate Whalen**, Senior Manager, Academic Sustainability Programs Office

## Overview

Climate change is an undeniable force, and many studies cite plastic pollution, such as the use of single-use plastic bags, as a source<sup>1</sup>. While plastic bags offer many benefits -- durable, lightweight, and affordable -- they are made from fossil fuels and emit greenhouse gases through their production<sup>2</sup>. The Canadian government has reported over 15 billion plastic bags being used annually with a mere 10% recycling rate<sup>3</sup> and landfill decay periods spanning from 10 to over 1,000 years<sup>4</sup>, calling many to take action<sup>1</sup>. Following this movement, McMaster University's Campus Store is raising consciousness on an individual consumer level by looking for environmentally-friendly alternatives. The goal of this project is to determine the most sustainable retail bag for the Campus Store through investigating the social, environmental, and economic impacts of available alternatives.

## Objectives

1. Understand the social, environmental, and economic impacts of different bag types
2. Advise the Campus Store on best practices
3. Inform individuals to act as sustainability-conscious consumers

## Reporting

Through a comprehensive literature review of the environmental, social, and economic impacts and attributes of five of the most common bag types\* I determined that all bags have an impact. For example, while jute bags are sturdy and made from natural material, they require overseas shipping and are not compostable locally, and therefore end up in landfill<sup>5</sup>. Conversely, while synthetic bags are made from plastic and found to have a short useful lifespan, they are often produced locally, can be reused to fit different niches from carrying items to being repurposed as a garbage bag<sup>5</sup>. My conclusions were two-fold: (1) all bags have an impact, so the best bag is the one you already own, and (2) knowledge is power, and consumers can benefit from understanding the pros and cons of each bag and making the choice that is right for them.

To support retailer and consumer awareness, I created a pros and cons list comparing different bag types along with a Frequently Asked Questions document and infographic (see pp. 64-65) on the various life cycles and environmental impacts various bag types may have. The infographic was posted on the Campus Store's website to help educate their customers, was published on the McMaster Daily News, was then shared more than 137 times. I then partnered with the Bring Your Own Bag SUSTAIN 3S03 student team (see p. 32) to ensure continuity of the project and related dialogue.

As sustainability remains a complex problem, both retailers and consumers are faced with the challenge of choosing the 'most sustainable options'. However, the lesson that I learned, and I hope others will take as well, is to reduce consumption by taking only what I need and using what I have first.

## Collaborators

I would like to extend sincere thanks to Kate Whalen and Abbie Little from the Academic Sustainability Programs Office for providing guidance, support, and mentorship that was instrumental to the project's success. Thank you to the Campus Store team members, including Store Manager, Louise Walker; to the Daily News for publicizing this initiative; to the Bags at the Campus Store SUSTAIN 3S03 student team, Hugo Foraison, Hargun Grewal and Atiya Iqbal, and to all of the individuals who chose to engage with this content and inform themselves about sustainability.



Campus store team posing with extra bag drop boxes  
Photo credit: Tyler Mah

\* The following bag types were researched: plastic bags, non-woven polypropylene bags, paper bags, reusable jute bags, and biodegradable plastic bags.



# Know your impact, and be a part of a sustainable Mac



## Biodegradable Plastic

- Can biodegrade
- Requires special treatment in order to break down
- Energy intensive
- Creates harmful microplastics

## Paper

- Made from a renewable resource
- Recyclable
- Resource intensive
- Creates a lot of solid waste
- Not durable



## Conventional plastic

- Manufactured locally
- Lowest carbon footprint and lifecycle impact compared to other bags
- Creates harmful microplastics

## Reinforced Plastic (Polypropylene)

- Durable
- Made from recycled material
- High carbon footprint due to shipping
- Not recyclable in Canada







## Jute/Canvas Fibre

Made of natural plant fibres, can break down naturally  
Durable

Resource intensive

Sourced from global south

Not recyclable or compostable in Canada

### ... But where do all of these bags end up?



All bags have an **impact**.  
We need to think critically and  
ask ourselves:

- How is this bag produced?
- How many times will you use it?
- How can it be disposed of?

Bring Your Own Bag:  
*the most sustainable bag is the  
one you already own*

FOR MORE INFORMATION VISIT:  
[WWW.CAMPUSSTORE.MCMASTER.CA](http://WWW.CAMPUSSTORE.MCMASTER.CA) > INFO &  
FAQS > GOING GREEN



**Campus  
Store**

Created in collaboration with the McMaster Academic Sustainability Programs Office and Sustainability Intern, Gabrielle Gonsalves, 2019

Bring-Your-Own-Bag Campus Store Infographic  
Credit: Gabrielle Gonsalves

Graduate/Undergraduate

# **Collaboration in Experiential Learning (GUCEL) Program**







## Graduate/Undergraduate Collaboration in Experiential Learning (GUCEL) Program

The GUCEL Program encourages graduate and undergraduate students to work together on an interdisciplinary project, resulting in the creation of novel intellectual communities. This dynamic interaction facilitates the development of an intellectual community through the exchange of ideas, knowledge, and perspectives. Furthermore, students have the opportunity to expand their existing intellectual community to include individuals from across campus, representing a variety of disciplines and levels of study.

The GUCEL Program supports the mission of the Academic Sustainability Programs Office of inspiring student learning by providing opportunities for interdisciplinary, student-led, community-based, and experiential learning about sustainability.

### Objectives

- Enhance the student experience by contributing to an intellectual community and encouraging engaged scholarship
- Encourage interdisciplinary and multi-level collaboration between graduate and undergraduate students
- Foster a culture of collaboration among students, faculty, staff, and members of the broader community



Melissa Gallina, creator of the GUCEL program, with supporters from the School of Graduate Studies (circa 2013)  
From left: Andrea Cole, Melissa Gallina, Peter Self  
Photo Credit: Kate Whalen

## Reporting

As of the Fall of 2020, the GUCEL program has provided an opportunity for eight McMaster graduate students to take part in experiential learning through working with undergraduate students, faculty, staff, and members of the community. Starting in 2013, all published ASP Annual Reports include a section highlighting the work of students who have successfully completed a GUCEL project. Past reports can be found at [asp.mcmaster.ca/reports](http://asp.mcmaster.ca/reports).

Given the intense interest in the Minor in Sustainability and the Sustainable Future Program, we chose to reallocate and further invest our resources into those programs. In order to make this investment, we have relaxed our focus on the Sustainability Internship Program and placed the GUCEL program on temporary hold. We will reevaluate these programs to determine if and how they can uniquely add value to our students' learning experiences.

## Collaborators

The GUCEL Program was developed by past graduate student, Melissa Gallina. The Program would not have been possible without Melissa and the support from the School of Graduate Studies. A special thanks also goes to the students, staff, faculty, and members of the community who have supported the GUCEL Program.





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