

CURQ Web Vignettes

Sustainability-related, Experiential Learning at McMaster University

Kate Whalen, Melissa Gallina, *McMaster University*, whalenk@mcmaster.ca

In 2009, the Office of Sustainability at McMaster University, in Hamilton, Ontario, Canada, established the Sustainability Internship Program with the goal of providing undergraduate students with the opportunity to address a real-world sustainability problem related to their academic studies. In doing so, students engage with academic knowledge in an applied, experiential manner. The internship program promotes engaged student learning and also fosters the engaged participation of McMaster staff and/or community members. The program was developed by the sustainability office in collaboration with a group of highly engaged students, faculty, staff, and members of the community.

Objectives of McMaster's Sustainability Internship Program

- Provide the opportunity for self-directed, interdisciplinary, and experiential learning.
- Support student learning within the university and local community.
- Engage undergraduate students in meaningful, experiential research.
- Foster opportunities for students to place local knowledge and local action within a global context.
- Provide an avenue for collaboration and information sharing among students, faculty, staff, and the broader community.
- Support career exploration.

Since the program's inception, more than 20 students across campus have successfully completed sustainability projects and received academic credit for their work. The following example of a recent internship project illustrates the effort put forth and accomplishments achieved by the interns.

In the fall of 2012, Justine DiCesare, a fourth-year science student, undertook the research and initial planning of the McMaster Outdoor Learning Space. She engaged key stakeholders through focus groups that included members of the McMaster community identified as having an academic, administrative, and/or operational interest in use of the space. Participants included undergraduates, graduate students, faculty, and staff. DiCesare obtained additional feedback from the broader McMaster campus community through an online survey. Feedback was compiled and used to propose

a design for the space, which ultimately encompassed a community-oriented vision. Through a successful grant application, this initiative received \$28,000 from the Student Life Enhancement Fund, and her recommendation for the space was submitted to and approved by McMaster's Facility Services Department, to be implemented in the summer of 2014. During her project, DiCesare worked in collaboration with faculty and students from all faculties, as well as with individuals and campus departments, from Security & Parking Services to Athletics & Recreation. (A full list of collaborators can be found in the McMaster University 2013 Sustainability Annual Report.)

How the Program Works

- First, the student intern identifies both an academic and non-academic supervisor.
- With guidance from the supervisors, the student establishes the sustainability project based on his or her personal interests. The student prepares a project plan outlining the research process and all steps for implementation, which includes the goals, objectives, and deliverables. This practice of student-led and supervisor-supported education is intended to promote sustained enthusiasm and ensure the experience satisfies the goals and expectations of the individual student.
- The academic supervisor designates disciplinary concepts, readings, and evaluation techniques that will support the student's learning as it relates to the project and also relates them to the specific course for which academic credit will be given.
- Upon successful completion of the project requirements, a grade is awarded by the supervisors and academic credit is given by the student's home faculty.

Internship Program Expanded

In the spring of 2013, the Sustainability Internship Program was expanded to provide graduate students with the opportunity for similar sustainability-related experiential learning. Melissa Gallina, a graduate student and former undergraduate sustainability intern, worked with McMaster's Office of Sustainability and various members of the community to plan and implement this expansion, now called the Graduate/Undergraduate Collaboration in Experiential Learning (GUCEL) Program. Successfully tested in the summer of 2013 as a one-year pilot program, GUCEL encourages graduate and undergraduate students to work together on an interdisciplinary project, resulting in the creation of novel intellectual communities through



Student Intern, Janelle Trant, with Engage with Waste project supporters.

the exchange of ideas, knowledge, and perspectives. The arrangement gives students the opportunity to expand their existing intellectual community to include individuals from across campus in a variety of disciplines and levels of study.

Gallina secured \$2,000 from a fund for student research and also obtained support from the School of Graduate Studies. She then drafted documents to effectively facilitate the administrative aspects of the program's operation and engaged in cross-campus consultation with each faculty's experiential education office or its equivalent.

GUCEL Program 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.

In the GUCEL Program, each student defines an individual experiential-learning project related to sustainability. Students then form interdisciplinary project groups based on their overall project goals. Through this approach, students have the opportunity to work within a team environment and contribute to the group's collective goals. Says Gallina, "Students learn how individual initiatives contribute to a larger system, and through effectively working together, they have the ability to achieve results that are greater than the sum of their parts."

An example of this approach is a project known as Engage with Waste, which undertook several separate initiatives. One initiative involved active management of McMaster's

data on the waste generated on campus. Janelle Trant, a master's student in Earth sciences, worked with the university's internal and external stakeholders to make McMaster's reports on waste more user-friendly. By including stakeholder engagement and collaboration in her project planning, she was able to identify substantial opportunities for improvements in waste-handling processes at building loading docks. Trant worked closely with managers in the Department of Facilities Services and external waste-removal companies to understand their goals, the challenges they face, and the opportunities they see.

A number of easy changes were identified. One was to redevelop the data-reporting process for McMaster used by one outside company. Along with the new reporting process, which includes an easy-to-read and interpret template for reports, a new active-management strategy was developed by McMaster's Facility Services Department. The developments made through this initiative will be used to track and measure changes in McMaster's recycling of waste, which will be reported within McMaster's 2014 report on waste. The new waste-management system will also facilitate the use of relevant data for future undergraduate and graduate research and experiential learning.

Another project focused on "e-waste," which is discarded electrical or electronic devices that may contain lead and other contaminants. Two students enrolled in McMaster's Sustainable Future Program, Aliya Satani and Carolyn Willems, facilitated an event that collected and recycled equipment during McMaster's annual Campus Sustainability Day. A total of 4,285 pounds of e-waste was diverted and generated \$340 of revenue from rebates received through the Ontario Electronic Stewardship Program. Additionally, the university saved \$260 by avoiding the costs of waste haulage and landfill fees for this material. The students engaged with students, faculty, and staff during Sustainability Day, and Twitter and Facebook pages were established to sustain communication regarding future collection events and broader collection initiatives.

Yet another project focused on employee education and engagement. Jeffrey Chan, a fourth-year life science major, is currently working with custodial staff to engage faculty, other staff members, and students in recycling of waste through improvements in infrastructure, education, and community engagement. Working closely with faculty and staff to facilitate educational presentations and incentive-based quizzes, Chan reports seeing a marked improvement in knowledge of McMaster's recycling program and processes for effective recycling. He hopes to see evidence that the

increased knowledge results in measurable improvements in McMaster's recycling of waste.

Through collaboration, information sharing, and peer support, these students were able to achieve their individual as well as group goals and objectives. The second GUCEL project, Green Jobs: Bridging the Gap, began in January and is currently under way.

The Sustainable Future Program

Initiated in January 2012, the idea of creating an interdisciplinary course on sustainability was proposed based on work being undertaken by the Task Force on Sustainability within the Faculty of Engineering. Popular support for the idea of a course led to the creation of a working group composed of stakeholders from each of the various faculties, along with members of the university administration. The goal was to develop an interdisciplinary course that would engage students in learning about sustainability through experience, research, and community involvement. The group's early discussions led to the focus on providing students with a solid understanding of sustainability from an interdisciplinary perspective, while also including experiential education, community engagement, and student-directed learning. The group realized it would take more than one standalone course to achieve this overall goal.

Throughout calendar 2012, the inaugural course, Sustain 2A03—The Sustainable Future Project, took place. A course instructor was brought onboard to develop the course content. Community outreach began with the goal of obtaining support and mentors for students' experiential-learning projects.

The primary goal of creating a standalone course on sustainability rapidly evolved into the project's becoming a program within a larger framework. The goal of this broader

Objectives for the Sustainable Future Program

- Teach students about sustainability from an interdisciplinary perspective.
- Provide the opportunity for self-directed, interdisciplinary, and experiential learning.
- Support student learning within the university and local community through:
 - Engaging undergraduate students in meaningful, experiential research.
 - Fostering opportunities for students to place local knowledge and local action within a global context.

program was to guide the direction of the inaugural course, as well as future additional courses.

The first course, Sustain 2A03, was successfully launched in January 2013 and quickly was offered for a second term. Approval to develop a second course under the Sustainable Future Program was granted. In its first offering, Sustain 2A03 engaged more than 250 people as partners and mentors who aided students' experiential learning. In all, 38 initiatives were planned, developed, and implemented by the students in the course. The second course within the Sustainable Future Program, titled Sustain 3A03—Societal Tools for Systemic Sustainable Change, was offered for the first time in September 2013.

The development of these courses was made possible through the support of many faculty—especially the Faculty of Engineering, which provided funds to administer the two courses—and staff members involved in the planning and implementation of the courses, along with members of the community who helped guide students in their experiential learning. The hard work of the students enrolled in the inaugural course, as well as the informative feedback they provided throughout, has been integral to the program's success and continued development.

For further information, see the following: McMaster Office of Sustainability, <http://asp.mcmaster.ca/>; McMaster University 2012 Sustainability Annual Report, <http://asp.mcmaster.ca/documents/Reports/Annual%20Report%202012.pdf>; McMaster GUCEL Program, <http://asp.mcmaster.ca/documents/Reports/Annual%20Report%202012.pdf>; McMaster Sustainable Future Program, <http://asp.mcmaster.ca/sfp.html>; Sustain 3A03 Course Report, <http://asp.mcmaster.ca/documents/Reports/3A03%20CR.pdf>.

Please note that the thoughts and opinions expressed within this vignette are those of the authors, and do not necessarily reflect those thoughts and opinions of McMaster University.



Sustainability Research Through the Lens of Environmental Ethics

Daniel Fouke, Sukh Sidhu, Robert Brecha, *University of Dayton*, rbrecha1@udayton.edu

Two core courses in the curriculum of the University of Dayton's Sustainability, Energy, and the Environment minor, Sustainability Research I and II, were developed out of the frustration one author, Daniel Fouke, experienced while teaching a traditional course on environmental ethics for the Department of Philosophy. The often-overwhelming nature of environmental problems tended to demoralize both the instructor and the students. Seeking a way to