Centre for Learning and Teaching
focus
on university teaching and learning

Note From the Director

A symbiotic relationship between universities and our communities is increasingly relevant in today's world. Community engaged learning informs and supports both student learning and skill development, as well as myriad community projects. Authors in this issue of *Focus* highlight the benefits, challenges and successes of such partnerships.

Suzanne Le-May Sheffield, Ph.D
Director
Centre for Learning and Teaching

DALHOUSIE UNIVERSITY

Community Engaged Learning at Dalhousie

Brad Wuetherick,
Executive Director, CLT

There is little doubt that universities play a critical role in helping shape the fabric of the communities in which they reside. The ways in which universities engage those communities is critical for both the communities and for the universities to thrive. Community engagement has been described as "the collaboration between higher education institutions and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity" (Driscoll, 2009). Dalhousie's institutional strategic directions, approved by both the Board of Governors and Senate, aim to "catalyze the intellectual, social and economic development of our communities" through our community engagement (Dalhousie University, 2014).

Within that broader context of community engagement, programs within our institution (and in higher education institutions across the world) are increasingly providing experiential learning opportunities within the academic curriculum for students to engage with community. Community engaged learning can be defined along a broad spectrum of structured work or community-based learning experiences, including internships, practica, and co-operative education through to community service learning. When these experiential learning opportunities are implemented effectively, they have been defined as particularly high impact "because of the substantial educational benefits they provide to students" (Kuh & Schneider, 2008, 1). They:

- demand students to devote considerable time and effort to purposeful tasks;
- often put students in circumstances where they interact with diverse groups of people;
- enable students to received frequent feedback on their performance;
- provide opportunities for students to see how what they are learning works in different settings; and
- can be transformative in their impact on the overall educational experience (Kuh & Schneider, 2008).

A key element of community engaged learning has been described in the literature as work-integrated learning (WIL). "WIL describes educational activities that intentionally integrate learning within an academic institution with practical application in a workplace setting, relevant to a student's program of study or career goals" (Peters, Sattler, & Kelland, 2014). WIL can be defined as "an intentional aspect of a university curriculum whereby the learning is situated within the act of working … The term integration is significant because the principal purpose is the nexus of work and learning; each informs and critiques the other." (Cooper, Orell, & Bowden, 2010, 1)

These WIL experiences often manifest themselves most visibly in student experiences with professional practica (supervised work experience required to become a practicing professional), internships (program-related experience in a professional work environment) or cooperative education (a formal program that alternates periods of academic study with periods of paid work experience). WIL can also include field experiences (practical experience in an authentic or simulated work setting), applied research projects (projects to address community or industry needs), and service learning (working with organizations in the non-profit or public sectors to address identified community needs or global issues). A recent study from Ontario explored these six different manifestations of WIL, and found that these types of experiences resulted in opportunities for students to apply theory to practice, develop marketable employment-related skills, increase civic engagement, increase self-confidence, enhance prospects for employment after graduation, and increase overall satisfaction with their post-secondary education (Sattler & Peters, 2013). While much of the recent focus at Dalhousie (and across the higher education sector) is on WIL, community engaged learning goes beyond WIL when the students' learning is taken into the community outside of workplace contexts.

Regardless of specific manifestation of the community engaged learning experience, reflection is a key element of making the experience impactful for the student (Boud, Keogh, & Walker, 1985). Reflection should be a key component of community engaged learning experiences at each of three stages – preparation for the activity, engagement in the activity, and in the processing of what has been experienced through the activity. It is through these reflective processes that the experience gained through the community engaged learning opportunity has the most impact on the students' development and learning (Boud, Keogh, & Walker, 1985).

Successful community engaged learning is built on the mutually beneficial impact on the community, on the students' personal and professional development, and on the achievement of the academic program's learning outcomes. Our hope, is that through the examples provided by colleagues from across Dalhousie in this issue of *Focus* and through this year's Dalhousie Conference on University Teaching and Learning theme, 'The Significance of Community Engagement for Student Learning', we will spark conversations about the myriad of possibilities arising from partnerships between the university and broader community that can enrich and deepen the student experience across the disciplines, and contribute to the continued development of the community. Additionally, we seek to facilitate the sharing of evidence-based practices and authentic experiences so we can learn from one another to enhance how Dalhousie might enact community engaged learning for the mutual benefit of our students and programs, as well as our community.

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Embracing Communities in the International Food Business Program

Dr. Steven Russell[1]
Dalhousie University
Faculty of Agriculture

Universities are under increasing pressure to justify their levels of engagement with the community. Often, the definition of community engagement is limited to an economic impact analysis of the university within the local region (Gardner Pinfold, 2011) or the nature of the university's contributions to disadvantaged groups and the poor in the local community (James and Schmitz, 2011). Also important, however, considering the mandate of universities to create and transfer knowledge; is the engagement of students far beyond just local communities.

> *In an ever-increasingly multi-cultural world, students need skills, experience and knowledge to operate and compete internationally. Giving students the confidence to travel, seek out opportunities and become global citizens is of key importance in the higher education sector (Purcell, 2008).*

Millican and Bourner (2011), in their paper about student community engagement (SCE) and the changing role and context of higher education, discuss a number of the potential benefits of SCE. They report that it broadens students' horizons, enhances their social efficacy, improves their interpersonal skills and self-knowledge, provides opportunities to apply what is learned in the classroom and boosts employability.

But… all this begs the question: How can universities embed community engagement into the curriculum to connect students with a range of communities?

Purpose

The purpose of this paper is to demonstrate how one new academic program engages communities by describing the curriculum and requirements of the International Food Business Program (IFB) at Dalhousie's Faculty of Agriculture. Engaging the community at the Faculty of Agriculture (formerly Nova Scotia Agricultural College) has been a key curriculum focus for more than 120 years.

After briefly outlining the IFB program, the various communities impacted will be introduced, followed by a description of activities within the program related to each community. The paper will conclude with some suggestions for those designing new curricula with community engagement.

International Food Business Program

The IFB program[2] is a jointly developed, double degree program with Dalhousie's Faculty of Agriculture partnering with CAH Vilentum University of Applied Sciences in The Netherlands. Program development began 10 years ago in the Netherlands. The third cohort will graduate this year with their Bachelor of Agriculture degree from Dalhousie (in May or October) and Bachelor of Business Administration, honors from Vilentum (in July).

Both partners recruit students from their respective continents and they study for their first year in their home University - after an introductory week in Iceland. It is important for orientation and collaboration between the two groups of students that they meet early in the program. Iceland is an ideal choice with a vibrant food industry and its neutral location between Europe and North America. In the second year all students study together in The Netherlands. In the third-year all students study in Canada at the Truro campus, and in the fourth-year students return to their home campus for two specializations/minors and an undergraduate thesis. The specializations consist of the equivalent of four courses intended to broaden or deepen their study of IFB. For example, a popular specialization at the Truro campus is environmental studies. In addition, there are two, three month work placements; one in Europe at the end of second year and one in North America at the end of third year.

The curriculum model for IFB is shown in Table 1. This curriculum model follows the European framework suggested under the Bologna Accord, which attempts to bring consistency to higher education in the European Union countries (EAU 2015). Students complete 10 modules in the first three years of the program. Each module is worth the equivalent of 2.5

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[1]   Steven Russell is the IFB Faculty Lead and was instrumental in negotiating and guiding the IFB program from idea to reality.

[2]   http://www.dal.ca/academics/programs/undergraduate/international-food-business.html

semester courses. This allows the competency-based methodology to fully integrate real-world, practical problem-solving. Working in groups, students are given a series of learning tasks throughout the semester leading to a proof of proficiency for that particular area of IFB. Learning theories, concepts and skills training are taught as necessary and at the time they are needed for students to understand and complete each learning task. Each student also has a coach or mentor to facilitate and guide their studies. The IFB Coordinator provides this role. Instructors are assigned to modules on the basis of their expertise and business experience. The scheduling of lectures and seminars is flexible, allowing the subject matter to be presented when needed and subject to the instructors' other commitments.

Table 1 IFB Curriculum Model

MODULE			
LEARNING TASK 1	LEARNING TASK 2	LEARNING TASK 3	Proof of proficiency
KNOWLEDGE (Learning Theories and Concepts)		**Exams**	
TRAINING (Development of Skills and Practices)		**Exams**	
COACHING (Facilitating and Guiding)			

IFB Communities

Jack Lightstone, President of Brock University, in a recent Globe and Mail article, referred to the value of "fusing … the world of academe, and the concentric circles of communities around the University" (2014). The IFB program embraces this concept as illustrated in Figure 1.

There are four main communities embedded in IFB: the local region within which the Faculty of Agri-
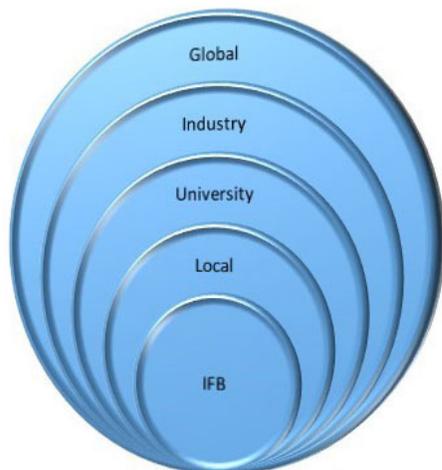
Figure 1 Embedded Communities

culture (Canada) and the IFB faculty (Netherlands) campuses reside, the university community campuses at Dalhousie and CAH Vilentum, the food industry, and the global or world community. The role of each of these in the IFB curriculum is discussed below:

Local Community

• In the third year when both Canadians and Europeans are studying in Canada, students complete Module 8 (Performing as a Leader and Manager). This includes a component on the management and operation of nonprofit organizations. The proof of proficiency for this module requires the students to select a local nonprofit organization, visit them, and learn about the purpose and operations of the charity. They must then create a unique fundraising event for the charity and implement it. Since the start of the IFB, over $10,000 in cash or product has been raised for various local charities including: Colchester Food Bank, United Way, Bible Hill Volunteer Fire Brigade, Maggie's Place, and KD Thursday.

• Students are assessed on the basis of how well they plan and implement the fundraiser, and how effectively they present the results in a public seminar.

• In the Netherlands, the government requires all professional University programs to include a module on personal and professional development. Part of this requirement at CAH Vilentum requires students to volunteer their time in the local community or on campus. The Dutch degree awards academic credit for these activities.

University Community

• All students in the program study full-time at two different universities, in different continents, and with two very different cultures and environments. This can be frustrating at times for the students especially in adapting to the more formal Canadian education structure. For example, the Dutch university evaluates primarily on a pass/fail marking system where exams are worth 100% of the course. Dalhousie, on the other hand, has a letter grading system and students receive marks for all requirements of the course, not just exams.

• Graduates of the program seemed to fully recognize the learning experience that studying under two different university systems provides for them. Primarily, this experience allows students to realize that there are several ways to accomplish simi-

lar results and they feel it helps them adapt readily to the dynamic global workplace.

Industry Community

- Industry exposure occurs very quickly in the first year of study. In Module 3 (Analyzing Business Processes), students analyze the logistical and food safety practices of a small Maritime food business. In this proof of proficiency, they visit the business, learn about its processes, and make recommendations for improvements. In Module 4 (Developing External Communication Strategies) students select a large, multinational food company and design a new product that fits synergistically within the company's product lines and markets. The proof of proficiency is a YouTube video targeted at the company's board of directors outlining an integrated marketing communication plan for this new product.

- As previously mentioned, there are two work placements where students are exposed to various aspects of the food industry in two different work cultures and environments. The European placement is at the end of second-year and the North American placement is in the summer of the third-year. These placements are intended to be management experiences and many students complete special projects for their employers. In North America these are typically paid placements. However in Europe most placements are unpaid since the supplemental health insurance required for students in paid placements often costs more than their net pay.

- Students are assessed on the work placement by their company supervisor and also by the IFB coordinator based on the reports and reflections submitted by the students every three weeks. The logistics and food safety proof of proficiency is assessed on the basis of the quality of the analysis and the rationale used in developing the recommendations presented in a seminar and written project report.

Global Community

- The global community is reflected in the program in a variety of ways - both formally and informally. Part of the learning objective of the Iceland orientation is to learn about and appreciate Icelandic culture and its food industry. Students also take formal training in intercultural communication

and awareness. Of course there is also the formal requirement to study in another country, and students make full use of that opportunity to explore many countries. In fact, as I write this, two third-year European students are spending February break in Mexico visiting friends they met at CAH Vilentum.

It is worth noting that the curriculum was reviewed by both the Dalhousie/MPHEC accreditation process and the accreditation process in the Netherlands which is monitored by their national government. In addition, CAH Vilentum University has an international advisory group, the World of Work Committee, which also reviewed and made useful recommendations for the final curriculum. IFB was the first program assessed by MPHEC's newest process that requires identification of essential graduation competencies. The activities that engaged the various communities are essential in achieving several of the program's ten competencies. These include leadership, collaboration, communication, critical thinking, innovation, personal and professional development, globalization, and entrepreneurship.

Conclusion

The purpose of this paper was to provide examples of various ways to embed community engagement in the curriculum of a new program. The IMB Program impacts four major communities and the activities and requirements within each have been described. It was crucial to consider as many opportunities to interact and engage the various communities as possible in developing and delivering the IMB program.

Community engagement has certainly been embraced by our graduates of the last two years. While their numbers are small so far, the quality is high. Many received more than one offer of full-time employment related to their two degrees. Several are employed by their work placement employer and student evaluations have indicated that the work placement opportunities are an invaluable part of the program. Students also react very well to their local service learning work in third-year. The hours they spend on their learning tasks far exceeds expectations. It is too early to tell whether or not this exposure to their communities during their academic lives will translate into continued support and involvement in the community wherever they are in their future. But we are confident that they have become global citizens.

Finally, some suggestions from lessons learned to those designing curricula that engages the communities:

- Broaden your definition of community. There are numerous 'communities' and each can be important to students' learning.

- Engage your communities during the development of your program. This will help ensure the appropriateness of your curriculum and the acceptance by your various communities.

- Be creative and confident … many thought our idea to start the program in Iceland would turn students away because of the cost. Instead it has become an early highlight – students in an international program want to go places!

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Community Engagement for Medical Students: Reflections on Photovoice Youth Project

Anna MacLeod, Ph.D. Faculty of Medicine

Over the past summer, we (a group of medical students) engaged with teenage youth to discuss elements that make up a healthy community. The project involved youth participants at Needham Community Centre and St. George's YouthNet in Halifax. The aim of the project was to use photography as a medium to discuss important community issues while empowering the youth to develop political advocacy skills. We encouraged youth to consider positive aspects of their communities and identify areas for improvement.

Using the methods of Photovoice, the youth used disposable cameras to capture photos of their community and developed narratives that provided context for their photos [1]. Their work was showcased at a community exhibit in October 2014 at the Halifax North Memorial Public Library. Despite it being a cold and rainy evening, the community showed their strong support, as the room was filled with individuals from a variety of diverse backgrounds. Youth and their families, our classmates, university professors, politicians, media representatives as well as community members

Matthew To, Deep Jaiswal, Suzanne Kathleen Clarke, Brittany Cameron, Heather Hunter, Ciaran Lane, Cinera States, and Catherine Cox are medical students at Dalhousie University. Keisha Brown is a youth program coordinator at Needham Community Centre. Anna MacLeod is an Associate Professor and the Director of Education Research in the Division of Medical Education at Dalhousie University.

from the broader Halifax region were in attendance. Many were curious to hear what the youth had to say.

Through creative photos and reflective narratives, the youth made insightful observations about what makes a healthy community. Their photos captured a wide variety of positive and negative aspects of their neighbourhood. The youth emphasized the impact of safe roads and reliable transportation. One photo showed

a pylon covering a large pothole in the middle of the road that had not been fixed. This glaring problem was obvious to the youth. Another theme that emerged through the photographs was safe places for the community to gather together. One of the youth captured a beautiful image of a flower at a local park. Another youth shared a love for basketball and captured a photo of the court nearby. The teen hoped that the issues of rats, noise pollution, and broken glass in the park would be addressed and explained that the basketball court was a great place for youth to stay active and connect with others.

There was also an opportunity for those in attendance to voice their own opinions about the community, the artwork, and the project. At each display, viewers were encouraged to write down their thoughts on sticky notes and place them in a matching jar. These community comments reiterated many of the same feelings the youth presented while praising their insight and maturity. One comment left by a community member expressed regret that they were not able to make the important changes necessary in order to keep an outdoor public space. Another described how they were working to replace the much needed lighting at a public basketball court described in one of the youth's photos. Through this feedback, community members were able to take an active part in moving the project forward.

Reflecting on this experience, we feel that it has been one of the highlights of our time at medical school. This initiative was not part of the formal medical school curriculum, but it was birthed out of a common interest for classmates to learn about the determinants of health and engage directly with youth in the community. Using a participatory-based action approach helped us to learn about the perspectives of the youth directly [2]. The project taught us to value the insights of people with lived experiences related to their social

determinants of health [3]. We were impressed with the depth of insights that the youth showed and their artwork helped reinforce what we had learned in the classroom about the determinants of health. The emphasis on accessible transportation and clean public spaces shaped our understanding of what it meant to be part of a healthy community.

We also enjoyed the opportunity to work together on a meaningful initiative outside of the classroom. We were able to appreciate talents and skills that other team members had, and e engaged in shared decision-making. Through identifying and organizing tasks based on each team member's strengths and interests, we were able to carry out the project efficiently.

Through hearing the youths' perspectives and organizing subsequent events, we gained a deeper appreciation for the importance of health advocacy and developed valuable collaborative skills for our future careers as health professionals [4]. We hope that this will be the first of many initiatives that we work on together, as it is important for students in the health professions students to continue to have opportunities like these to engage in community initiatives. Currently, we are reflecting on our Photovoice experience through writing an article of practical tips for medial educators and trainees who may want to organize a similar project and planning a research project to gather qualitative evidence of our perceptions as medical student facilitators.

Ultimately, our experiences allowed for the application of lessons learned in the classroom, while opening students' eyes to different lived perspectives. Our Photovoice project reminded us why we decided to go into the medical profession, keeping us grounded in the process.

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New Clinic Develops Professional Practice Through a Social Justice Lens

Cyndi Hall and Jeff Karabanow, School of Social Work

Social Work is one of the helping professions with a mandate to foster and build healthy communities, families and individuals. Social Work is a dynamic and broad reaching profession in that we are employed in most sectors of the economy: public, private, and non-profit sectors; community planning and development; direct practice with individuals and families; teaching; policy analysis and program development. Social workers in various sectors try to have an impact on multiple issues with the goal of creating a more equitable and socially just society, at the individual, family, community and political level.

The inception of the Clinic was the outcome of numerous discussions and collaboration, at the School of Social Work, between Professor Jeff Karabanow and Field Education Coordinator, Cyndi Hall. Our vision was to build a method of teaching practice that strengthens students' knowledge of social justice work while also providing a meaningful and much needed service to our community. Jeff's work and research with homelessness, combined with Cyndi's previous Social Work experience and current involvement with social service and health care organizations locally and nationally, has reinforced our belief in this model.

A review of the literature highlights several shifts in the quality and quantity of placements for Social Work students and other professions. Contributing factors include reduced resources, increased caseloads, and restructuring of health care resulting in lack of dedicated time for supervision (Bogo, 2005). Competition from expansion of distance delivery options and Human Services Programs at community college and private trade schools continue to rise. As a result, it is increasingly more difficult to secure placement opportunities locally and nationally. Student-run clinics have been increasingly used to mitigate this situation in medicine and other health professions. Our Social Work Learning Clinic is the first of its kind in North America whereby we are building a Social Work foundation of fieldwork and then integrating collaborative practice with our own paid staff and students working together (Eslinger, 2013).

These factors have resulted in the conceptualization of our model that was piloted in June 2014. The approach to its creation involved individual meetings with key stakeholders and a partnership with Saint Paul's Church, whose contribution has been free space in the parish hall. As a result of this partnership, all of our start-up funding could be allocated to Coordinators' wages and operational costs. Our funding has been provided by various sources from Dalhousie, the Innovation Fund, the Dean of Health Professions, School of Social Work, VP Academic and the President's office. Jeff and Cyndi, the Directors, have been dedicated to seeing this through to fruition and are now focused on sustainability and expansion. An interdisciplinary Advisory Committee has been established including faculty from Nursing, Law, Occupational Therapy, Pharmacy as well as the IWK Social Work Practice Chief.

The Clinic is focused on providing case management and basic counselling services to anyone in need, supporting people that don't fit traditional social service and health care settings or who are not yet connected. The community has responded with overwhelming support and the Clinic has received referrals from a broad range of organizations. The case management incorporates navigation, needs assessments, accompaniment, advocacy, basic counselling and case conferencing. Numerous organizations have reinforced the need for our services and the students' value experiences in the field. Referrals can be made by an organization or individuals can be self-referred. The Clinic provides opportunities for students in various professions to experience and integrate the broader societal structures that contribute to social problems. Our students work with clients under the supervision of two Master of Social Work prepared Coordinators, Sarah Oulton and Andrea Donovan.

The Clinic has the ability to expose students to many systems, both informal and formal, and engage with the wider community. We have no target client base, unlike most organizations in the social service and health systems, so students are able to work with clients who have varying needs and challenges. It enables students to better understand the integration of theory and practice, while enhancing their other fieldwork experiences that usually have a specific client group and/or legislated mandate. There is a deep appreciation of the value of real world experience for our students. They further develop practice skills and knowledge by actually providing help, through a case management and social justice approach, to people in the context of what they are identifying as their primary issues.

There are many individuals and families in our communities that struggle with activities of daily living, circumstances that many of us handle without huge effort or thought. The first line of defense in a personal crisis is usually family and friends along with the ability to access health and social service systems and financial resources. For a multitude of reasons many people do not have supportive social and family supports or the ability to navigate the complex processes of formal and informal systems they require. Client's needs can include the management of a situational crises or more chronic mental and physical health conditions. The primary goal of the Clinic is to support such individuals so that they can begin to build a solid foundation and have support in navigating external systems.

Teaching practice skills for any profession depends on the commitment of various sites offering their workplaces to students, providing mentorship and support in an often too busy workplace. This valuable exposure to the professional discipline creates a foundation for building specialized expertise gained after graduation. Professionals often develop 'on the job' skill sets and become good at their craft only after gaining that real world experience over time. The Clinic is set up to augment that learning curve by exposing students to real clients and real struggles in the context of navigating both formal and informal systems.

The first phase of the project has involved our second year BSW students who are out on placement in various agencies. Students have been scheduled in to the clinic for two week rotations and involvement is growing. Social work student interest has been steadily increasing and other disciplines have expressed interest in getting involved as well. As we expand and become better known by the wider community, additional student groups can be included to foster collaborative practice learning. Feedback from our learners has been positive. One student wrote:

> "The Dalhousie School of Social Work Clinic was a great learning experience! I had opportunities to participate in activities that I have not had in my current placement, and gained knowledge about different populations that I have not had the opportunity to work with thus far. The Social Work Clinic has a wide variety of people who access its services, which makes it a great learning environment for students…In my opinion the clinic is extremely beneficial to the community, for those accessing the service, as well as those who are learning from it."
>
> ~Katelyn Armstrong, 2nd year Dalhousie University BSW student, 2015

Our strategic plans include the addition of our Master of Social Work students who want to enrich their direct practice skills through supervised therapeutic interventions. This will involve the professional practice community, our faculty and agencies with wait lists that want to partner with us to help alleviate back logs. Finally, we plan to incorporate other health professions in order to build a more holistic care model.

We have well established connections with many of these groups already so anticipate cooperation and the development of mutually beneficial relationships. We are deeply rooted in the theories of accompaniment approaches and collaborative practice embedded in the understanding of the social determinants of health including the impact of poverty and marginalization.

As such, we are extremely excited about our work to date. We have been overwhelmed with clients and have steadily built a strong relationship in the community. Rooted in social justice and anti-oppressive foundations, the Clinic continues to provide meaningful and caring supports to marginalized populations while simultaneously offering a dynamic environment for community development student training. We have been approached by several universities and community organizations across the province and country for information about development and implementation. There is strong interest in replicating a model that includes both the service delivery and teaching and learning aspects of our project.

The Clinic has a bright future as an integral bridge between the university and the broader community. Students from many disciplines can learn and develop their professional skills and their collaborative approaches to solving complex, often challenging health and social issues that exist in our postmodern society.

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Giving Back to the Community One Project at a Time: Students in the Faculty of Computer Science Community Outreach Course

Grant Wells, Faculty of Computer Science

James Fleming, Faculty of Computer Science

What do the following organizations have in common: The Freetown Initiative, Dalhousie's School for Resource and Environmental Studies, and the World Wildlife Fund Canada? They have all had problems of a computer or technical nature solved by students enrolled in the Faculty of Computer Science's Community Outreach Course. These are just a few of the groups whose initiatives have been supported by student work through the Community Outreach Course over the past decade. Each semester—fall, winter and summer—students are connected with organizations, ranging from not-for-profit organizations to community groups to Dalhousie clubs and societies. The organizations receive much needed computer-related work that they often cannot afford otherwise, while the students get the experience of putting classroom theory to work on real-world problems for real clients.

The Freetown Initiative, a local not-for-profit dedicated to helping the people of Sierra Leone move toward a better standard of living, needed a website that could raise awareness with a variety of stakeholders (including the general public), document the activities of the charity in a transparent manner, and support projects within the organization's vision through crowdfunding efforts. Students provided research information on the best uses of crowdfunding for charities and developed a website that is easily maintained with minimal training and technical proficiency.

The School for Resource and Environmental Studies' Biodiversity-Friendly Farming Project wanted to help Nova Scotia landowners successfully implement conservation practices on their own land. Led by a Bachelor of Informatics student majoring in sustainability, our student team developed a mobile-friendly website to enable distribution of information to landowners

that adapts how it displays information and works well on a variety of platforms, including phones, tablets and desktops. In addition, the content can be easily updated as new information becomes available and old information is no longer needed.

World Wildlife Fund Canada wanted to replace their out-dated method for identifying by-catch species of sharks, skates, rays, and chimaeras while at sea. The student team developed a touch-enabled electronic field guide prototype app that could be run on an Apple iPad. This app offers many benefits over the previous identification method, including a powerful search feature, reduced information maintenance costs, and the elimination of printing costs.

The Community Outreach Course is uniquely structured. The class actually consists of students enrolled in eight separate academic courses, with each student bringing different technical skills to the mix. The project groups are vertically integrated, made up of students from the second, third, and fourth years of study and from two different undergraduate degrees. Students in the Bachelor of Informatics contribute skills in technical communication, website design, database creation and project management, while those in the Bachelor of Computer Science bring expertise in algorithms, programming, and software development.

For the computer science students, the Community Outreach Course provides a third-year elective that gives them experience applying the theory they learn in other classes to a real-life project. The emphasis is different for the informatics students. The course has been a fundamental component of the informatics degree since its inception in 2006, providing students with experience and readying them for their mandatory co-op work terms.

The course has evolved over time. In the early days, informatics students took the course eight times – twice in each of the four years of their degree, and project planning was done using a document-heavy, traditional model of project management. Now, the students take the course five times, joining the course in winter of their second year after taking courses in programming, website creation, and a course that teaches the concepts needed to run a software development project. Project planning is done using an agile project management and software development model, which requires less time up-front to gather requirements and develop plans for the project. This way, more time is left to actually execute on the plan in short iterations. This allows the client to see progress at more frequent intervals and to have a greater role in the development of a possible solution.

Before the beginning of each semester, a potential client submits a request for proposals (RFP) through the course website. The instructor meets with the potential client to discuss the project in more detail, to get a general sense of project scope, and to understand the overall goals for the project. In addition, expectations are reviewed with clients in terms of their commitment to the students and to the process, which includes regular meetings, attendance for student presentations, and the adoption of a coaching/mentoring perspective with students.

At the beginning of the semester, the instructor reviews enrolment and forms teams based on the students' current academic year, degree and major, completed courses, and other relevant criteria. This process yields teams that are as diverse and technically balanced as possible when compared to self-forming teams. The groups mirror actual workplace dynamics with teams formed around people with diverse backgrounds, skill sets, and experience. Group lead-

ers are expected to perform managerial tasks: meeting with and keeping the client well-informed on progress made within the project, leading the group as the first among equals, mentoring junior students, and making sure that the project will either be completed within the one-semester time limit or seamlessly handed off to the next student group to continue development. Group members must meet their weekly assigned tasks, while developing collaboration skills as they progress through their academic program.

These groups read the RFPs, listen to client presentations, and bid on the projects on which they would like to work by submitting project charters. This competitive process helps build strong team relationships early in the course. The project charters are graded by the instructor and distributed to clients for ranking based on feasibility, completeness, clarity, and other criteria relevant to a balanced assessment. Once project charters are ranked, clients and student groups are matched and work begins on project planning and development in the form of a lengthier project proposal.

The next few weeks are spent reviewing agile project management and the software tools to help them plan and control their projects. Information, coaching, mentoring and advising activities by the instructor help teams develop their project proposal. The proposal builds on the project charter using a series of activities designed to increase communication between the project group and the client. The result is a final document that contains input from all project stakeholders.

By the end of the first month, the students are ready to begin executing on their plan in weekly iterations. At the end of each iteration, they submit reflective progress reports, an assignment that helps everyone understand what progress was made and any challenges or obstacles experienced by the group members or team in the iteration. The instructor takes any necessary action to facilitate, advise or otherwise support the students moving forward. Class time is spent meeting with students one-on-one and circulating to each

group in "stand-up" meetings. This ensures that concerns raised in the progress reports have been addressed and the necessary advice and support to develop skills to handle adversity within projects has been received. Students who wish to receive additional advice or support may meet with the instructor outside of class hours.

Marking for this course strikes a 50% balance between individual and group assessment. Weekly progress reports, presentations, and individual responsibilities provide much of the individual assessment while shared team documents such as the charter, proposal and final deliverables comprise the remaining shared assessment to arrive at each student's final grade. While client feedback is important to understanding individual and group performance, clients do not have direct influence over a student's grade. As part of the semester closing activities, the instructor circulates an online assessment form to each client for their feedback on their experience with the group and with the course delivery. This is valuable feedback that helps the instructor continually improve the course for both the students and clients in future semesters.

To learn more about the Faculty of Computer Science's Community Outreach Course, visit cs.dal.ca/binf or email informatics@cs.dal.ca.