DEPARTMENT OF KNOWLEDGE INTEGRATION ANNUAL REPORT
MAY 1, 2018 TO APRIL 30, 2019
Faculty of Environment General Assembly, May 2019

Fall 2018 was the 10th anniversary of the first term of the Bachelor of Knowledge Integration. To mark this milestone we invited one person from each graduating class to speak at our weekly seminar series. Reflecting the diversity of career paths of KI alumni, they spoke about their work as a professor in emergency and disaster management, product manager at a tech start-up, designer at a consulting firm, analyst at a strategic consultancy, medical school student, and data scientist at an e-commerce company.

We also celebrated the convocation of the seventh group of Bachelor of Knowledge Integration students, held the ninth annual KI Exhibition of our third-year design course, and the eighth annual senior research project symposium.

The Bachelor of Knowledge Integration (BKI) students continue to do well, with strong academic performance and involvement in a wide range of collaborative projects.

We had another strong group of first year students entering KI in September, and maintained our application numbers for Fall 2018. Despite these successful stories, figuring out how to target and market the program remains a challenge, and will be a focus for the next few years.

Our graduates also continue their successes, and continue to stay connected with and supportive of the KI community. They went into post-secondary education or into the workforce in diverse fields including designers, consultants, researchers and strategists.

We recently updated our curriculum, and have made changes to enhance the KI experience. The breadth electives were tweaked in order to add a conflict management requirement, and some course weights were adjusted to better reflect student workload.

The first offering of INTEG 210 Making Collaboration Work, developed by Katie Plaisance and KI students, had 33 students from all 6 faculties enrolled, from Drama and Psychology to Engineering and Computer Science. This course is open to all students outside KI and is intended to bring some of the collaborative theory and best practices that we teach and learn in KI to the rest of campus. It has been a big success, sharing KI skills with students outside of KI, and we look forward to offering this course again.

The INTEG 230 Museum Course field trip went to Amsterdam in the spring, where KI students immersed themselves in museums and culture, honing their observational skills in a new environment. The March KI Exhibition that grew out of their INTEG 320 and 321 design projects explored 5 topics around the theme of the United Nations’ Sustainable Development Goals: major challenges and changes to recycling, the potential pitfalls of volunteering abroad, improving community-wide disagreement outcomes, how individual perception of events influences mental health and overall well-being, and stories from those affected by the residential school system.

Over 650 visitors attended the exhibits at St. Jerome’s University during March Break including potential students, alumni, KW community members, and museum experts from Toronto and the KW area. Five of the museum experts and five subject matter specialists acted as critics, giving the students valuable feedback. Three of the exhibits were selected to be displayed for two months at the City of Waterloo Museum, part of a three-year partnership with the Department of Knowledge Integration.
KI Senior Design Instructor Paul McKone designed and taught INTEG 375 Special Topics: Hands-on Sustainability, a real-world project course to rescue objects from the waste stream, determine why they were discarded, suggest how to refurbish them, and propose how to put them into the hands of those who can use them. Small groups worked together to learn how to repair and repurpose everyday objects diverted from the landfill. For their final project, the students were challenged to synthesize the skills they learned by creating a "how-to" guide to fixing or repurposing a specific item, and then share it publicly so that others can benefit from their learning.

The INTEG 452 Real-World Problem Solving students worked with Thomson Reuters to explore how data analytics might be used to disrupt human trafficking. To develop and test ideas, students consulted with stakeholders including non-governmental organizations, law enforcement, and client contacts.

KI students were involved in many extracurricular projects and several presented their work at academic conferences. The first issue of the Journal of Integrative Research & Reflection (JIRR), a cross-disciplinary undergraduate journal entirely edited, reviewed and administered by students from KI, was published in June 2018.

Ed Jernigan, Knowledge Integration founding Director and Professor Emeritus, was nominated by the Department of Knowledge Integration and will be designated Honorary Member of the University at the June 2019 convocation. In his four decades at the University, he was a mentor, friend, and inspiration to students and colleagues alike. An award-winning teacher, his passion is legendary for giving students tools to know the world, and skills to change the world. He exercised this passion in his roles as Chair of Systems Design Engineering, the Director of Shad Waterloo and Waterloo Unlimited high school enrichment programs, and in the Department of Knowledge Integration, which he founded in 2008.

The faculty had a great year with research funding and several exciting new projects.

Rob Gorbet and his collaborators in the SSHRC-funded Living Architecture Systems Group installed Noosphere/Aegis at the Royal Ontario Museum from June to October. Over 60,000 visitors toured the exhibition, and it was the site for Waterloo-supervised research on how we assign agency to inanimate objects (Psychology) and machine learning algorithms for enhancing visitor attention (Electrical & Computer Engineering). Two major LASG installations will open in Fall 2019, at Futurium in Berlin (2 year installation) and they are very excited about a long-term installation in the Gaslight District under development in Cambridge near the School of Architecture. In addition, Rob is a part of the leadership team for the Waterloo-led Mental Health Promotion Innovation Fund (MHP-IF) Knowledge Development and Exchange Hub. This national group of research and practice leaders will be managing knowledge development and exchange among partners and out into communities for the Canadian Public Health Agency’s upcoming MHP-IF call for projects related to Child & Youth Mental Health Promotion.

Katie Plaisance continues to lead and take part in multiple research collaborations with faculty and students from a variety of disciplines. With Prof. John McLevey, she recently wrapped up a SSHRC-funded project investigating the “Impact of Philosophy of Science in Scientific Domains,” and plans to expand on that project in order to facilitate fruitful collaboration between philosophers and scientists. Katie is also collaborating with scientists herself as part of a Templeton-funded project on “Genetics and Human Agency.” She is using her philosophical skills to analyze key conceptual and methodological assumptions in human behavioral genetics to determine novel directions for the field. She and her psychologist collaborators at Michigan State University recently published a paper that lays out these assumptions and offers a new integrated method for conducting more dynamic research. Finally, Katie is continuing her research in the Scholarship of Teaching and Learning, which is currently funded by a Learning and Innovative Teaching Enhancement (LITE) grant. The project examines the ‘collaborative skills gap’ at the University of Waterloo, and how Katie’s new course, INTEG 210: Making Collaboration Work, is able to
close this gap for students across campus. She and her social psychologist collaborators will be reporting their findings at the UW Teaching and Learning conference in May 2019. She has also been working with several students from Knowledge Integration, GBDA, and Biology to create a new website, *Making Collaboration Work*, which will be launched at the beginning of May. This website houses several resources for both students and educators on best practices for collaboration, all of which was created or co-created by Katie’s students.

John McLevey was awarded tenure and promoted to Associate Professor. In addition to his book on natural resources, economic development, and tourism in North Atlantic coastal communities, he is completing a book on computational social science methodology for SAGE. He is also co-editing a special issue of the journal *Social Networks* on climate change and social networks. He continues to write articles and chapters with his grad students. He is happy to welcome two new KI students to NETLAB, his research group.

John McLevey, Vanessa Schweizer and colleagues (Mark Stoddart, Catherine Wong) are co-editing a special issue of *Society and Natural Resources* based on their co-organized workshop on climate change and energy futures held at Memorial University.

In 2018, Vanessa published a conference paper with early-career colleagues (Ricarda Scheele, Hannah Kosow) regarding scenario methods for reflexivity in the proceedings of the 9th International Congress on Environmental Modelling & Software. At the start of 2019, Vanessa published an article in *Current Climate Change Reports* on scenario analysis and how it could support knowledge accumulation in the controversial field of climate change and violent conflict. She also has a chapter on the Sustainable Development Goals and climate risk in the book, *Achieving the Sustainable Development Goals: Global Governance Challenges*, forthcoming with Routledge and co-edited by colleagues at the Balsillie School of International Affairs (Simon Dalby, Susan Horton, Rianne Mahon). Also at the Balsillie School, Vanessa is mentoring two Masters students preparing a policy brief for Global Affairs Canada on opportunities to simultaneously pursue gender equity, climate-compatible development, and poverty alleviation. This brief will be formally presented in Ottawa in June. This Spring, a project on semi-automated literature retrieval to support scientific assessments of climate change impacts will continue with the support of an NSERC USRA KI student. Finally, over the past year, Vanessa was elected a Councillor to the Society for Risk Analysis, appointed to the Steering Committee of the International Committee on New Integrated Climate Change Assessment Scenarios (ICONICS), and selected for membership in the Global Young Academy.

On behalf of the Department of Knowledge Integration I’d like to thank the faculty, staff, and students of the Faculty of Environment for their collegiality and support as we continue to build this innovative approach to undergraduate education.

Submitted by: Rob Gorbet, April 12, 2019