



RYERSON UNIVERSITY

ENVIRONMENTAL APPLIED SCIENCE AND MANAGEMENT
AT RYERSON:
A Fifteen Year Retrospective

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In the year 2000 the Masters of Applied Science (MASc) program in Environmental Applied Science and Management (EnSciMan) began offering a multi-disciplinary degree in the areas of applied environmental science and environmental management as Ryerson's first independent graduate program. It was established through the combined efforts of faculty members in schools and departments across Ryerson University with teaching and on-going research in the two core environmental areas of concentration. At that time, faculty members in eight schools and departments (three engineering departments, chemistry and biology, geography, public health, urban and regional planning, and economics) collaborated in developing the MASc program as a cooperative and multi-disciplinary degree.

The program was a response to a clear societal need for graduates at the Masters level with expertise in core areas of practice in the Canadian environment industry. It was developed to clearly link the environmental sciences and the management and decision-making disciplines in order to provide students the opportunity to integrate the two areas of study in the classroom and in their research. The emphasis was on applied research for resolving problems in environmental protection, conservation and sustainable development.

The strengths exhibited by the faculty and students of the EnSciMan MASc program, in published research and successful completion of degrees, were translated into the approval in 2008 of a Ph.D. program in environmental applied science and management. The first cohort of doctoral students arrived at the University in Fall 2009.

Since its founding, the EnSciMan programs have continued to foster research and training in the environmental sciences and in environmental management and have been successful in preparing graduates for professional careers in the environment industry, as well as for doctoral studies. As of October 2013, 210 MASc students have graduated, and the first of the PhD students graduated in October 2013.

The Canadian Environment Industry

Since the beginning of the EnSciMan program in 2000, Canada and Ontario have continued to experience considerable growth in the environment industry, and a demand for highly-trained professional personnel. Expanding activities in environmental technology, services and management have increased demands for individuals trained to pursue research in environmental applied science and management, and to develop and

apply management systems to air, water and waste problems to improve human health and promote the sustainability of environmental systems.

The Canadian environment industry has grown at a relatively constant pace of over the last few years, in part because of increases in demand for environmental services and technologies, but also because a number of pressures have been exerted on industry to achieve higher levels of environmental performance. Governments have continued to regulate the environmental practices of industry. New regulations in Ontario to provide ‘green energy’ and to protect key environmental resources including the Lake Simcoe watershed, the Oak Ridges Moraine and Greenbelt have stimulated the demand for professionals with environmental management expertise, and there have been similar developments in provinces across Canada. Recent corporate policy requirements have called for improved environmental technologies and environmentally-responsive management from suppliers and associated businesses. Moreover, industries have experienced pressures from clients and investors to develop and implement environmental policies, as well as demands from consumers and employees for environmentally-acceptable products and production methods. These include considerations of ethical investment, the introduction of recognized environmental management systems and emissions trading schemes, and changing interpretations of environmental liability. The International Organization for Standardization (ISO) 14000 requirements for audited environmental management systems have now been in place in Canada for thirteen years requiring companies to implement, monitor and improve the performance of their environmental management systems by applying international standards. In 1999, there were 90 companies certified under ISO 14001;¹ in December 2004, there were 1,492 certified industries in Canada.² By 2012, the number of certified firms reached 1,778 across the country.³

Eco Canada’s assessment in 2005 was that, “Overall, it is anticipated that growth in environmental employment in Canada will be slightly above the projected increase in total employment”.⁴ They projected a growth of 34,900 new jobs nationally in the environmental sector from 2005 to 2010, building on 45,900 new jobs created in 2001 to 2005.⁵ That growth in the environment industry has met predictions is now clear. Eco Canada data

¹ Corbyn, P. 1999. Raising the Bar: Environmental Performance in the Auto Parts Industry. *Engineering Dimensions*, March/April 1999; 34-37

² Industry Canada, 2005. *The Sustainability Report: Sustainability Context for Canadian Industry*. On-line <http://strategis.ic.gc.ca/epic/site/sd-dd.nsf.html>

³ ISO 2012 Report: 14001 certifications.

⁴ Eco-Canada. 2007. *Profile of Canadian Environmental Employment*. Calgary, Environmental Careers Organization, Canada. p. 25

⁵ Ibid.

suggest approximately 2 million workers in the Canadian economy now spend some of their work time on environmental activities.

At last report, the environmental sector is one of the five top industry sectors in the Canadian economy and includes 7,414 companies, many of which are small to medium-sized enterprises. It includes an expanding number of environmental service industries providing consulting, planning, management and engineering services. In 2009, there were more than 682,000 people employed in the environment industry, a considerable increase from the 530,414 reported in 2007 and three times the 221,000 in 1998 when the EnSciMan program was being developed.⁶ For example, employment in waste management rose from 16,118 in 1991 to 36,614 in 2008. By 2007, roughly 3.2 percent of the Canadian workforce was engaged in environmentally-related work and 17 percent of all organizations in Canada had one or more environmental employees.⁷ Further, in 2010, businesses in Canada spent 9.5 billion dollars to protect the environment, up 9% from 2008. In that year, Canadian industries spent 4.2 billion dollars on environmental protection, most of it (35%) on pollution abatement and control, but a significant portion (26%) on pollution prevention. At present, the most rapid annual increases in the environment industry include renewable energy (11.3%) recycled materials (10.5%) and waste management (7.6%)⁸.

With the continued growth in the environment industry, there is some concern at the national level and in Ontario that skilled human resources will not be available to meet present and future needs.⁹ In a recent survey of industries attempting to reduce greenhouse gas emissions, 31 percent reported lack of information as an obstacle, and 15 percent cited a lack of skilled personnel.¹⁰

While studies have identified shortages in technical skill areas such as hydrogeology, toxicology, environmental science and air quality analysis, many employers have also pointed to a significant shortage in environmental management skills including project management, environmental assessment, risk assessment, legal compliance and environmental auditing and management systems. In 2010, Eco Canada suggested that for the environment

⁶ Eco Canada, Sectoral Report, 2010 (on-line) and CCHREI. 1999. Human Resources in the Canadian Environmental Sectors. Calgary, Canadian Council for Human Resources in the Environment Industry. Profile of Canadian Environmental Employment. Calgary, Environmental Careers Organization, Canada.

⁷ Eco-Canada, Sectoral Report, 2010 (on-line)

⁸ Eco Canada, Sectoral Report, 2010 and 2012 (on-line). Environmental Careers Organization

⁹ CCHREI. 1999. Environmental Certification for Competitiveness; Conference Proceedings. Calgary, Canadian Council for Human Resources in the Environment Industry, p.23

¹⁰ Statistics Canada. 2006. Proportion of Establishments in Fossil Fuel-related Industries that Reported Green House Gas Reductions, 2004. Environmental Accounts and Statistics Division, Statistics Canada.

industry, the work was clearly multi-disciplinary and multi-sectoral, with 91% of environmental employers having workers in more than one skill category, which highlights the interdisciplinary nature of work in the environmental sector.¹¹ Clearly, training in several disciplines has become a necessity for employment, and consistent with that observation, the 2010 Sectoral Report for Canadian environmental practitioners suggests that the field continues to be strongly multi-disciplinary with practitioners engaged in three main areas: environmental protection, resource management and environmental sustainability. Within those areas, the most common skill categories of workers in the environmental sector are:

- Environmental health and safety (40% of environmental employees)
- Waste management (28%)
- Site assessment, remediation, and reclamation (20%)
- Environmental communication and public awareness (19%)
- Environmental education and training (18%)
- Water quality (17%)
- Environmental policy and legislation (15%)
- Energy (including alternative / renewable energy or eco-efficiency) (10%).¹²

Internationally, since the EnSciMan program began, there has been substantial growth in the environment field. Globally, there continues to be a growing demand for clean technologies, green resource management, and green energy (biomass, solar, wind, water, and methane recovery). The global market for environmental goods and services has experienced strong growth in recent years. From 2000 to 2006, increases were 7 to 9% each year with future spending over the next 10 years expected to be 4.7 to 7.7% annually outpacing economic (GDP) growth of 3.5 % with Canada supplying 1.7% of the global market¹³. As a result, Canada will continue to participate nationally and internationally to meet increasing demands for leading-edge environmental technologies.¹⁴

¹¹ Eco Canada, Sectoral Report, 2010 (on-line), and Andre Rollin, Insights From Universities, Environmental Certification for Competitiveness, CCHREI Conference Proceedings, 1996, p.164

¹² Eco-Canada. 2010. Sectoral Report. Calgary, Environmental Careers Organization, (on-line)

¹³ Eco-Canada. 2010. Sectoral Report, and 2012 Report. Calgary, Environmental Careers Organization, (on-line)

¹⁴ Eco-Canada. 2010. Sectoral Report. Calgary, Environmental Careers Organization, (on-line)

The EnSciMan PhD Student

The EnSciMan PhD program is based on expertise in two areas of competence: applied environmental science and environmental management. Admission to the EnSciMan PhD program requires a master's degree in a discipline broadly related to the environment. Masters degree holders in other academic disciplines are considered on an individual basis.

As with the MASc program, EnSciMan's PhD students have come from a wide range of academic backgrounds (Table 1; Table 2). Students' previous degrees have been mainly earned in Canada, but graduates from Germany, Iran, South Africa, Switzerland, Turkey, Ireland and the U.K. have entered the program.

Table 1: Academic Background of ENSCIMAN PhD Students

Biological Sciences
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Disaster and Emergency Management
Environment and Resource Studies
Environmental Applied Science and Management
Environmental Water Control
Geography
Molecular Science
Process Engineering
Psychology
Rural and Extension Studies
Spatial Analysis
Technology Management

Table 2: Previous Degrees of ENSCIMAN PhD Students

MSc	37.9%
MASc	31.0%
MA	10.3%
MBA	10.3%
MSA	6.9%
MES	3.4%

Table 3: Time Between Last Degree and EnSciMan PhD Entry

Less than 1 year	37.9%
1 academic year	24.1%
2 academic years	6.9%
3 academic years	0.0%
4 academic years	0.0%
5 academic years	17.2%
Between 5 and 10 academic years	6.9%
Over 10 academic years	6.9%

The EnSciMan MASc Student

Admission to the EnSciMan MASc program requires an honours undergraduate degree in a discipline broadly related to the environment. Purposefully, students have come from a wide range of academic backgrounds (Table 4; Table 5). Philosophically, the program has been based on a multi-disciplinary approach that integrates the two areas of competence: applied environmental science and environmental management. The range of students' backgrounds has added to the program and allowed all to be exposed to a variety of perspectives, not only through the faculty and the structure of the curriculum, but also in the diversity among fellow students. In addition to more conventional environmental undergraduate programs, students have also entered the program with degrees such as Nursing, Agriculture, Fashion, Laboratory Science, Water Management, Forestry, Computer Science, Information Science, Technology Management, Business Management, Tourism, and Education.

The largest group of EnSciMan Masters students come into the program with a BSc degree (Table 6). About eight percent of students who have entered the MASc program already possess a graduate degree.

Table 4: Academic Background of EnSciMan MASc Students

Sciences	39.9%
Environmental Specializations	27.0%
Social Sciences	14.9%
Engineering	12.8%
Resource Studies (Forestry, Water Mgt.)	1.8%
Others (e.g., Commerce, Education, Nursing, Technology Mgt.)	5.3%

Table 5: Top 10 Previous Areas of Study Among EnSciMan MASc Students

1.	Biology
2.	Environmental Science
3.	Environmental Studies
4.	Geography
5.	Chemical Engineering
6.	Applied Chemistry and Biology
7.	Urban Planning
8.	Occupational and Public Health
9.	Civil Engineering
10.	Chemsitry

Table 6: Previous Degree Earned by EnSciMan MASc Students

	Female	Male	Total
BSc	99	51	150
BES	20	8	28
BASc	12	14	26
BA	12	11	23
BEng	10	10	20
BAA	2	5	7
BComm	2	4	6
Other undergraduate	9	0	9
MSc	5	12	17
MBA	1	1	2
Other graduate	1	4	6
Total	171	112	294

Although most EnSciMan MASc students undertook their undergraduate education in a university in Ontario, almost one in five received their undergraduate degree from a university outside Canada (Table 7; Table 8). All

told, MASc graduates of EnSciMan and current students had received their previous degrees from universities in 26 different countries.

Table 7: Location of Prior University Education

Ontario	69.4%
Other Canada	10.9%
Other Countries	19.6%

Table 8: Country of Previous Degree: Top Five

1. Iran
2. U.S.A.
3. India
4. U.K.
5. Nepal

EnSciMan MASc students have come from a wide range of universities. Ryerson has provided the greatest number of students: typically each year 4-5 incoming students, from a variety of programs, have chosen to remain at the university for their Master's studies in EnSciMan. Ontario universities dominate the "top ten" list (Table 9).

Table 9: Top Ten "Feeder" Universities for EnSciMan MASc Program

1. Ryerson University
2. University of Toronto
3. University of Waterloo
4. York University
5. University of Guelph
6. McGill University
7. McMaster University
8. Queen's University
9. University of Ottawa
10. University of British Columbia

Further, the data indicate that the program has been a strong choice for both female and mature applicants. Female applicants, particularly those with undergraduate backgrounds in the sciences as well as those from environmental studies and related disciplines, have made up approximately 60% of the incoming population, and the same has been true of mature applicants with some work experience. (Table 5).

Less than 40 percent of incoming EnSciMan students have come directly from their undergraduate studies; a further 30 percent spent 1-2 years away from school; but 14 percent entered EnSciMan five or more years after completing their degree (Table 10).

Less than 1 year	36.6%
1 academic year	18.3%
2 academic years	13.7%
3 academic years	7.8%
4 academic years	5.3%
5 academic years	3.5%
Between 5 and 10 academic years	10.8%
Over 10 academic years	6.3%

The PhD Program

Doctoral candidates may study in either or both of two broad fields: Environmental Science and Policy, and Environmental Management and Decision Making. Doctoral candidates complete two required courses: a doctoral level research methods course (ES9002 Research Methods in Environmental Applied Science and Management), a doctoral level course in environmental policy and management (ES9001 Advanced Studies in Environmental Policy and Management). In addition, they complete a minimum of one course in each of the two fields. At the recommendation of the candidate's supervising committee and with the approval of the Program Director, one or more additional courses may be required for students with a broader disciplinary background who need further graduate preparation. Students also participate in the doctoral seminar. A

candidacy examination focused on the candidate's area of research specialization is required. Successful completion of the candidacy examination is a pre-requisite for continuing with the candidate's research.

PhD students are required to conduct advanced research on a topic related to one (or more) of the program fields. The topic is chosen in consultation with the student's supervisor, the candidate presents the research plan in writing, and the research is carried out under the direction of the supervisor and monitored by a supervisory committee. The research must lead to an original contribution of knowledge in the specialty field(s). The completed research is submitted in dissertation format to a School of Graduate Studies examination committee where the candidate makes an oral presentation. Through the dissertation, the candidate is expected to furnish evidence of competence in research and a sound understanding of the chosen specialty area(s).

The minimum residency requirement of the doctoral program is two years (or six consecutive terms). Full-time attendance at the university is expected of PhD candidates given the course and research requirements of the doctoral program. A part-time doctoral program is not available.

The MASc Program

To earn the MASc degree, students complete a total of 12 course credits, including credits for either a thesis or a professional research project. All program students complete three required courses; ES8901, ES8921 or ES8920, and ES8930. In addition, students who elect the professional project option take a minimum of two environmental applied science courses, two environmental management courses, three electives and a research project (ES8080) for two course credits. Students in the thesis option, in addition to the three required courses, complete a minimum of one environmental applied science course, one environmental management course, two electives and a research thesis (ES8090) for five course credits.

To enable students with related science and non-science backgrounds to take courses in the applied science area of competence, the program provides a number of platform courses in the environmental applied science area. Five platform courses are designed to expand, broaden and provide more in-depth information beyond the student's initial discipline. Platform courses include enough introductory information to allow a basic understanding of the course material and, as in all graduate courses, the main instruction is given at an advanced

level. For students who enter the program without a broad enough science background, preparatory undergraduate courses or an independent study can be required.

Before admission to the program, each student is assigned a graduate faculty supervisor who advises the entering student on taking a balance of courses from both areas of competence, and who approves the Program of Study that is reported to the Director in the student's first month of study. Students are advised to take courses in either the environmental applied science or management areas that complement their undergraduate training, and that advance the student's thesis or research project objectives.

The program has accommodated both full and part-time students—most notably by offering core and elective courses in alternating day and evening sessions each semester to give part-time students the chance to complete the program in a timely manner. Over the years the EnSciMan program has attracted a growing number of full-time applicants and has experienced a modest increase in full-time admissions, whereas the number of part-time admissions has declined somewhat. The number of full-time admissions for Fall 2013 was 21 with 3 part-time admissions, and 18 of 63 current students (as of October 2013) were enrolled on a part-time basis.

Not surprisingly, there is a relationship between the number of years between a student's last degree and enrolling at Ryerson and the choice of whether to study full- or part-time. Full-time students have spent an average (mean) of 2.5 years between their studies; part-time students, 3.4 years. Withdrawals have been limited, albeit somewhat higher among part-time students.

Financial Support

Financial support has been provided for full-time graduate students in the Environmental Applied Science and Management program, and it has increased gradually as the number of students enrolled in the program has more than doubled from its initial entry class. Part-time students, however, are assumed to be self-supporting through their employment and do not receive financial support. The average level of financial support for masters students in 2012/2013 was 11,500 dollars including teaching assistantships, and the average for PhD students was 13,000 dollars plus teaching assistantships. However, several PhD students were awarded Ontario Trillium Scholarships and national Science and Engineering Scholarships with support levels at 21,000 to 40,000 dollars.

Co-supervision

Given the multi-disciplinary nature of the program, the involvement of participating schools and departments continues to be substantial including the offering of graduate courses in several areas of study, a large commitment to the supervision of graduate students, and in some cases the development of joint research projects.

Co-supervision of a Masters thesis student is common in the EnSciMan program and there has been a substantial number of Masters' thesis and project co-supervisions across disciplines. Of the 210 students who have graduated, 56 have been co-supervised—with many co-supervisions bridging departments and faculties: e.g., biology and public health, mechanical engineering and geography, biology and urban planning, and economics and occupational and public health (Appendix A). The number of co-supervisions points to the success of multi-disciplinary research in the program. In addition, the collaborations have given rise to cooperative multi-disciplinary research projects among faculty members including green roof technology and policy, policy analysis for Greenbelt environmental protection, the implementation of a multi-species early warning biomonitoring technology for water supplies, research in source water protection policy, and pathogen contamination control in water.

EnSciMan and Student Research

A specific objective of the program is to offer students an opportunity to engage in research and critical analysis through independent thesis research and professional project studies.

Laboratories to support graduate research Environmental Applied Science and Management are located in several participating departments: Civil and Chemical Engineering, Chemistry and Biology, Geographic Analysis, and the School of Occupational and Public Health. Masters students in Environmental Applied Science and Management have pursued in their research in these laboratories together with students from other graduate programs (e.g., Molecular Biology, Chemical Engineering, Spatial Analysis).

Research Output

As of October 2013, 210 EnSciMan MAsc students have completed their studies (Appendix A). As a result of their research EnSciMan students have produced a significant number of scholarly publications (Table 11).

Table 11: Papers Authored and Co-Authored by EnSciMan Students

- Achong, K. and R. Dodds, R. 2012 “Anthropogenic climate change coverage in two Canadian newspapers, the *Toronto Star* and the *Globe and Mail*, from 1988 to 2007” *Environmental Science & Policy* 15(1) 48-59
- Allen, B., J. Wu and H. Doan 2003 “Inactivation of fungi associated with barley grain by gaseous ozone” *Journal of Environmental Science and Health. Part B. Pesticides, Food Contaminants, and Agricultural Wastes* B38(5) 617-630
- Bardecki, M.J. and J.M. Cook 2012 “Estimating consumer surplus and the elasticity of demand of environmentally-based tourism: the case of Chitwan National Park” *Journal of Environmental Research and Development* 7 (in press)
- Bardecki, M.J. and J.M. Cook 2012 “‘Resource rich and income poor’: payment for access to protected areas in Nepal” *Himalayan Journal of Development and Democracy* 6(1) 120-125
- Bardecki, M. and A. Kozlowski 2001 "Fashion" in K. Wehr ed 2011 *Green Culture: An A-to-Z Guide* (Thousand Oaks, CA: Sage) 163-165
- Beare, D. 2011 “Leading from the bottom up: municipal government and national climate change policy” *Municipal World* 121(11) 15-18
- Berghoef, N. and R. Dodds R. 2011 “Potential for sustainability eco-labelling in Ontario’s wine industry” *International Journal of Wine Business Research* 23(4) 298-317
- Bhatta, C.P. and A.S. Tamrakar 2012 “Effectiveness of local baits for the management hornets in apiaries of Kathmandu valley” *Himalayan Journal of Development and Democracy* 6(1) 59-66
- Botticelli, L. and M.J. Bardecki 2010 “Planning the waterfront: an examination of diversity in newspaper content and coverage” in E. Seitz, T.P. Wagner and L. Lindenfeld (eds) *Environmental Communication as a Nexus* (Orono, ME: Department of Communication and Journalism, University of Maine) 28-46
- Brown, C. 2011 “Emergent permitting strategies for natural building systems in Ontario” *Journal of Green Building* 6(4) 17-25
- Bustillo-Lecompte, C., M. Mehrvar and E. Quiñones Bolaños 2013 “Cost-effectiveness analysis of TOC removal from slaughterhouse wastewater using combined anaerobic-aerobic and UV/H₂O₂ processes” *Journal of Environmental Management* Submitted
- Bustillo-Lecompte, C., M. Mehrvar and E. Quiñones Bolaños 2013 “Combined anaerobic-aerobic and UV/H₂O₂ processes for the treatment of synthetic slaughterhouse wastewater” *Journal of Environmental Science and Health: Part A: Toxic/Hazardous Substances & Environmental Engineering* 48 (9) 1122-1135
- Bustillo Lecompte, C., M. Mehrvar and E. Quiñones Bolaños 2013 “A preliminary cost-effectiveness analysis for the treatment of synthetic slaughterhouse wastewater using combined anaerobic-aerobic and UV/H₂O₂ processes” *Conference Proceedings of the IX Convención Internacional Sobre Medio Ambiente y Desarrollo – VI Congreso de Gestión Ambiental*. La Habana, Cuba, July 8-12, 2013, 1353-1367
- Bykova, O., A. Laursen, V. Bostan, J. Bautista and L. McCarthy 2006 “Do zebra mussels (*Dreissena polymorpha*) alter lake water chemistry in a way that favours *Microcystis* growth?” *Science of the Total Environment* 371(1-3), 362-372
- Cheng, I., J. Lu and X. Song 2009 “Studies of potential sources that contributed to atmospheric mercury in Toronto, Canada” *Atmospheric Environment* 43, 6145-6158

- Clark S.T., K.A. Gilbride, M. Mehrvar, A.E. Laursen, V.I. Bostan, R. Pushchak and L.H. McCarthy 2011 "Evaluation of low-copy genetic targets for waterborne bacterial pathogen detection via qPCR" *Water Research* 45, 3378-3388
- Cook, J.M. and M. Bardecki 2013 "Valuing protected areas: a contingent valuation of tourism in Chitwan National Park, Nepal" in M.G. Barbas, L. Bourdeau and M. Robinson eds *World Heritage Sites and Tourism: Global and Local Relations* (Farnham, UK: Ashgate) ISBN 978-1-4094-7058-8 (in press)
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- Devkota, S. 2012 "Challenges in effective implementation of Environmental Protection Act 1997 and Environmental Protection Rules 1997 in Nepal" *Himalayan Journal of Development and Democracy* 6(1) 135-143
- Diaz, R. and M.A. Warith 2005 "Life cycle assessment of municipal solid waste: development of WASTED model" *Waste Management Journal* 25, 1-8
- Di Poce, V., E. Goarley and B. Mausberg 2009 *Greenbelt Grown: A Profile of Agriculture in Ontario's Greenbelt Occasional Paper Series* (Toronto: Friends of the Greenbelt Foundation)
- Dinca-Panaitescu, M., J. Li and S. Dinca-Panaitescu 2007 "Simulation of the cumulative effects of chemical spills using a spatial-temporal dynamics analysis algorithm" *Journal of Hazardous Materials* 149, 707-719
- Ferrara, I., S. McComb and P. Missios 2007 "Local willingness-to-pay estimates for the remediation of the Sydney Tar Ponds in Nova Scotia" *Canadian Public Policy / Analyse de Politiques* 33(4) 441-458
- Gilbride, K. and L. Levinson 2008 "Waste water management and emerging pollutants in the environment" in L.N. Robinson ed *Water Resources Research Progress* (Commack, NY: Nova Science) 127-148
- Greenbaum, A., A. Wellington and C. Burley 2010 "Environmental case summaries" in A. Greenbaum and A. Wellington eds *Environmental Law and Policy in the Canadian Context* (Toronto: Captus Press) 539-593-324
- Greenbaum, A., A. Wellington and M. Rollinson-Lorimer 2010 "Issues in enforcement and regulatory reform" in A. Greenbaum and A. Wellington eds *Environmental Law and Policy in the Canadian Context* (Captus Press) 250-323
- Greene, C.S., A.A. Millward and B. Ceh 2011 "Who is likely to plant a tree? The use of public socio-demographic data to characterize client participants in a private urban forestation program" *Urban Forestry & Urban Greening* 10(1) 29-38
- Haddad, M. and Z. Fawaz 2013 "Evaluation of microalgal alternative jet fuel using the AHP method with an emphasis on the environmental and economic criteria" *Environmental Progress & Sustainable Energy* 32(3) 721-733
- Haffar, M and K.A. Gilbride 2010 "The utility of RT-PCR and FISH application for the detection of single copy gene targets in *E.coli* 0157:H7 and *Salmonella typhimurium*" *Canadian Journal of Microbiology* 56, 254-262
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- King, S. and R. Pushchak 2008 "Incorporating cumulative effects into environmental assessments of mariculture: limitations and failures of current siting methods" *Environmental Impact Assessment Review* 572-586
- Kingsmore, L. and P. Hargreave 2013 "Pharmaceuticals and sharps waste: has Ontario finally got it right?" *Waste Edge* 8(2) 10-11
- Kozlowski, A., M.J. Bardecki and C. Searcy 2012 "Environmental impacts in the fashion industry: a life cycle and stakeholder framework" *Journal of Corporate Citizenship* 45, 16-36

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Wrobel, C. and A. Kozlowski 2012 "Tourists' willingness to pay for entry to the Annapurna Conservation Area, Nepal" *Himalayan Journal of Development and Democracy* 6(1) 97-109

In addition, EnSciMan students have authored or co-authored papers presented at many scholarly conferences including:

- A.D. Latornell Conservation Symposium
- Annual Aquatic Toxicity Workshop
- Annual Canadian Conference on HIV/AIDS Research
- Annual Conference of the Canadian Society for Civil Engineering
- Annual Conference of the Canadian Society of Microbiologists
- Annual Earth Day Colloquium
- Annual General Meeting and Conference of the Ontario Association for Impact Assessment
- Annual General Meeting of the American Society for Microbiology
- Annual Himalayan Research Conference
- Annual International Sustainability Research Conference
- Annual International Symposium on Green Supply Chains
- Annual Meeting of the American Association of Geographers
- Annual Symposium on Sea Turtle Biology and Conservation
- Annual Symposium on Supply Chain Management
- ArcticNet Annual Scientific Meeting
- Association of Ontario Land Surveyors' Annual Conference
- Association for Practical and Professional Ethics, Annual Meeting
- Behavior, Energy and Climate Change Conference
- Canadian Chemical Engineering Conference
- Canadian Geotechnical Conference
- Canadian Quality Congress
- Canadian Society for Ecological Economics
- Central Canadian Symposium on Water Quality Research

- CIB International Conference on Smart and Sustainable Built Environments
- Conference of the Environmental Studies Association of Canada
- Conference of the Travel and Tourism Research Association (Canada)
- Conservation and Demand Management in a Sustainable Energy Future: Conference and Exhibit
- Convención Internacional Sobre Medio Ambiente y Desarrollo
- Earth Day Colloquium
- Ecolution Creative Disruptive Water Leadership Workshop
- EnviroAnalysis 2008
- EnviroInfo 2013: Environmental Informatics and Industrial Environmental Protection
- Environmental Justice and Global Citizenship: Inter-Disciplinary.Net 11th Global Conference
- GIRA 2010 Conference on Corporate Governance, Innovation, Social and Environmental Responsibility
- “ICT for Sustainability”—Information and Communication Technologies (ICT4S) Conference
- Inaugural European Conference on Sustainability, Energy & the Environment
- International Conference on Antimicrobial Research
- International Conference on Antimicrobial Resistance
- International Conference on Environmental, Economic and Social Sustainability
- International Conference on Sustainable Development 2013 Canada
- International Researcher Workshop on Sustainable Fashion
- ISO 14001 Colloquium IV
- Joint Meeting of ASLO/NABS: “Aquatic Sciences: Global Changes from the Center to the Edge”
- Kent State International Symposium on Green Supply Chains
- NSERC Smart Net-Zero Energy Strategic Research Network Annual General Meeting
- Ontario Association for Impact Assessment Annual Conference
- Ontario Branch, Canadian Institute for Public Health Inspectors Educational Conference
- Ontario Centers of Excellence (OCE) Discovery Conference
- Ontario Public Health Convention
- Research Workshop on “Sharing Innovations in Sustainable Tourism”
- Society for Conservation Biology Annual Conference
- 3rd Climate Change Technology Conference
- Third European Communication Conference
- Tower Neighbourhood Renewal Symposium
- World Congress on Industrial Biotechnology and Bioprocessing
- World Heritage and Tourism Conference

EnSciMan Faculty

At the start, the Environmental Applied Science and Management program had a core of fifteen faculty members. In the intervening years, while there have been retirements, transfers to other graduate programs and faculty members who have left Ryerson University for other academic positions, the total number of faculty members in the program has grown to 76 (Appendix B). The faculty members are from schools and

departments from across the university (Table 12). As well, there are now ten Associate faculty members from government laboratories and industry who have supervisory privileges in the program. Most EnSciMan faculty members also participate in other graduate programs at the University.

Several EnSciMan faculty members are working in leading areas of environmental research such as green roof technologies, renewable biofuels, biological assays for toxic contaminant detection in the environment, environmental biotechnology for water and waste water treatment, modeling of contaminant fates, environmental biology, health risk assessment and the health effects of environmental contaminants, urban reforestation, environmental policy, and protection of source waters from pathogenic threats. In the 15 years of the program's operation, research by EnSciMan faculty has resulted in approximately 1500 scholarly papers and reports.

External research funding among EnSciMan faculty from the granting councils has achieved an annual average of over \$1 million. Other grants and contracts are estimated to double that amount. A portion of these funds has helped the EnSciMan program in providing students with a reasonable level of funding support.

Table 12: Participating Academic Units at Ryerson

Faculty of Arts

- Department of Economics
- Department of Geography
- Department of History
- Department of Philosophy
- Department of Politics and Public Administration
- Department of Sociology

Faculty of Communication and Design

- School of Fashion

Faculty of Community Services

- School of Nutrition
- School of Occupational and Public Health
- School of Urban and Regional Planning

Faculty of Engineering and Architecture

- Department of Aerospace Engineering
- Department of Architectural Science
- Department of Chemical Engineering
- Department of Civil Engineering
- Department of Mechanical and Industrial Engineering

Faculty of Science

Department of Chemistry and Biology

Department of Physics

Ted Rogers School of Management

Department of Entrepreneurship and Strategy

School of Business Management

Ted Rogers School of Hospitality and Tourism Management

Ted Rogers School of Information Technology Management

Further, infrastructure funding for other graduate programs at Ryerson University, in particular, those in the departments of Chemistry and Biology, Chemical, Civil, and Mechanical Engineering, and Geography provide support for student research in the EnSciMan program since those academic units participate in the program and provide laboratory space and equipment that EnSciMan students use, and whose research is supervised by faculty members in the participating departments (Table 12).

The program's applied focus has been supported by several external Associate faculty members who advise graduate students in professional projects in private and public sector research facilities and other non-governmental environmental research settings (Appendix B). The program has emphasized applied research in collaboration with agencies such as the Ministry of the Environment, Ontario, CRESTech, Environmental Defence Canada and other research institutions in industry and government.

After EnSciMan

The initial employment experiences of students graduating from the EnSciMan program reflects their relatively rapid uptake in the environment industry in Ontario and Canada in a wide variety of positions (Table 13).

Table 13: EnSciMan Graduate Employment

Active Living Programmer, City of Vaughan

Air Quality Engineer, AECOM

Analyst, Innovest Strategic Value Advisors

Analyst, Ontario Energy Board

Application Engineer (EIT), Process Automation, Lakeside Process Controls

Aquatic Systems Research, Stantec Consultants

Assistant Environmental Auditor, United Management Bureau UMB-QMI (Beirut, Lebanon)

Assistant Manager and Lead Analyst--Asbestos, Radiochemistry, Microbiology, ESML Canada

Assistant Planner, Policy Development, Ontario Ministry of Municipal Affairs and Housing

Associate, Booz Allen Hamilton Inc.

Associate, Grey Bruce Sustainability Network
Associate Scientist, Environmental Resources Management (ERM)
Biology Teacher, Zurich International School (Zurich, Switzerland)
Building Plan Reviewer, City of Toronto
Business Analyst, Sustainability Systems, Fairmont Hotels & Resorts
Business Development Manager, Maxxam Analytics
Business Development Officer, ZooShare Biogas Co-operative
CEO and Founder, 3 Degrees Creative Resourcing
CEO, Toronto Recycling Ltd.
COA Great Lakes Scientist, Ontario Ministry of the Environment
Conservation Analyst, Hydro One
Consultant, Corporate Social Responsibility, MacCormick International Mining Consultancy
Consulting Engineer, SENES Consultants Ltd.
Consulting Utility Forester, The Davey Tree Expert Company
Coordinator for Waterfront Projects, Toronto Region Conservation Authority
Coordinator, Outreach and Job Development, PAIE Program, Toronto and Region Conservation Authority
Coordinator, Special Projects, Ontario Ministry of the Environment
Coordinator, Statistics and Research, Canadian Urban Transit Association
Corporate Environmental Analyst, First Quantum Minerals Ltd.
Custom Analytics Analyst, The Nielsen Company
Damage Prevention Advisor, Enbridge Pipelines
Director of Health and Safety, Novamerican Steel Ltd.
Directeur, Développement des Affaires - Région du Québec - Services Environnementaux, Maxxam Analytique
Economist, State Utility Forecasting Group, Purdue University
Education & Training Specialist, Canadian International Development Agency
Energy Analyst, Housing Services Corporation
Engineer, Design and Construction, Toronto Water
Engineer, Technology Standards Section, Ontario Ministry of the Environment
Engineer, Transportation Department, City of Toronto
Environment and Safety Coordinator, General Electric Canada, Inc.
Environment, Health and Safety Coordinator, Urban Space Property Group
Environment Officer, Bruce Power
Environmental Administrator, CD Sontar Ltd.
Environmental Analyst, Corporate Responsibility, Inmet Mining
Environmental Analyst, Maxxam Analytics
Environmental Analytical Chemist, Ontario Ministry of the Environment
Environment and Energy Consultant, IndEco Strategic Consulting Inc.
Environmental Audit Professional, Office of the Auditor General of Canada
Environmental Campaign Officer, Oceans Project, Greenpeace Canada
Environmental Chemist, EnTech Ltd.
Environmental Compliance Coordinator, Delcan Corporation
Environmental Consultant, Environmental Auditing and Site Assessment, Integrated Management Solutions
Environmental Consultant, IndEco Strategic Consulting Inc.
Environmental Consultant, RSK Environment Ltd.
Environmental Engineer, Pottinger Gaherty Environmental Consultants Ltd.
Environmental Health and Safety Compliance Analyst, Conformance Check Inc.
Environmental Health and Safety Coordinator, Compass Group
Environmental Health and Safety Coordinator, TS Environmental Services
Environmental Health and Safety Officer, Magna International
Environmental Health Officer, Hamilton-Wentworth Health Unit
Environmental Health Officer, Regional Municipality of York
Environmental Health Officer, Environmental Review Team, Toronto Public Health
Environmental Health Officer, Toronto Public Health
Environmental Manager, Energy, Nuclear and Environmental Sciences, SENES Consultants Ltd.
Environmental Manager, Sony Canada
Environmental Officer, Transport Canada

Environmental Performance Assessment Officer, Environment Canada
 Environmental Planner, AECOM
 Environmental Planner, Ecoplans Ltd.
 Environmental Planner, Elecsar Engineering
 Environmental Planner, Gartner Lee Limited
 Environmental Planner, Hydro One Networks Inc.
 Environmental Planner, Planning and Building Department, City of Mississauga
 Environmental Planner, SENES Consultants Ltd.
 Environmental Planner, Town of Richmond Hill
 Environmental Policy Analyst, Ontario Ministry of Environment
 Environmental Resource Planner and Environmental Assessment Coordinator, Ontario Ministry of the Environment
 Environmental Risk Assessment Specialist, EcoMetrix Inc.
 Environmental Scientist, Catox Environmental
 Environmental Scientist, CD Sonter
 Environmental Scientist, exp Global Inc.
 Environmental Scientist, Golder Associates
 Environmental Scientist, Knight Piesold Consulting Engineers
 Environmental Scientist, Matrix Solutions, Inc.
 Environmental Scientist, SENES Consultant Ltd.
 Environmental Scientist, Stantec Consulting Ltd.
 Environmental Scientist, Tetra Tech
 Environmental Scientist and Certified Arborist, exp Services Inc.
 Environmental Scientist (Ecology), EXP Global Inc.
 Environmental Services Intern, Town of Richmond Hill
 Environmental Specialist, Infrastructure Ontario
 Environmental Specialist, Ontario Realty Corporation
 Environmental Technical Specialist, Wardop Engineering Inc.
 Facilities Planner, Vancouver School Board
 Founder and CEO, Wastenot: Resources Managed Sustainably
 GIS Analyst, Town of Aurora
 Head, Research and Client Services, Zerofootprint
 Health and Safety Coordinator, IMT Corporation - Forge Group
 HSE Engineer, Bechtel International (United Arab Emirates)
 Instructor, Environmental Health, Ryerson University
 Intern, Canadian International Development Agency, Western Philippines University, Palawan
 Intern, Energy and Environment Cluster, United Nations Development Programme
 Junior Environmental Consultant, Tebodin Middle East (Abu Dhabi)
 Junior Environmental Scientist, Sylvis Environmental
 Land Use Policy Coordinator, Inuvialuit Regional Corporation
 Land Use Research Advisor, Inuvialuit Regional Corporation
 Local Solutions and Mentor Support Coordinator, Closer to Home Project Development Office
 Manager and Member Liaison, Mama Earth Organics
 Manager, Chicago Climate Futures Exchange
 Manager, Environmental Risk, RBC
 Manager/Research, Social Policy & Evaluation, United Way
 Manager, Sustainability Marketing, Sears Canada
 Manufacturing Project Manager, Canac Kitchens (a Kohler Company)
 Marketing and Communications Assistant, LEAF - Local Enhancement & Appreciation of Forests
 Microbiology Manager, Thomson Research Associates
 Natural Heritage Specialist, Town of Richmond Hill
 Oversight Analyst, Waste Data Analysis Group, Waste Diversion Ontario
 Parks Planner, Environmental Stewardship Division, British Columbia Ministry of Environment
 Pilot Project Administrator, Zenon Waste Water Treatment
 Planner, Ontario Ministry of Municipal Affairs and Housing
 Planner, Pembroke District, Ontario Ministry of Natural Resources
 Planner, Town of Vaughan

Planner, Vancouver Island Regional Office, British Columbia Ministry of Environment
 Planning Analyst, Ontario Power Authority
 Policy Analyst, Alternative Energy and Carbon Capture and Storage Division, Alberta Ministry of Energy
 Policy Analyst, Human Resources and Skills Development Canada
 Policy Analyst, Ontario Ministry of Municipal Affairs
 Policy Analyst, Ontario Ministry of Natural Resources
 Policy Analyst, Ontario Ministry of the Environment
 Policy Analyst, Transport Canada
 Product Application Engineer, Mobile Climate Control
 Production Technician, Apotex Inc.
 Professional Maintenance and Reliability Engineer, Sanofi Pasteur Ltd.
 Professor of International Business, Humber-Ningbo International Program, International College,
 Ningbo University (China)
 Program and Communications Manager, Planeterra Foundation
 Program Support Coordinator, Environmental Assessment Support Unit, Ontario Ministry of the Environment
 Project Assistant, Policy and Planning Division, Ontario Ministry of Transportation
 Project Associate, Coastal Ecosystems Programme, United Nations University, Institute for Water,
 Environment and Health (UNU-INWEH)
 Project Coordinator, Social Housing Services Corporation
 Project Coordinator, Source Protection Planning, South Georgian Bay / Lake Simcoe Source Protection Region
 Project Development Officer, Versus Goliath Project Solutions Inc.
 Project Engineer, ABTECH Scientific Inc.
 Project Engineer, B.M. Ross and Associates Limited
 Project Engineer, Conestoga-Rovers & Associates
 Project Engineer, MMM Group
 Project Engineer, RiskCheck Inc.
 Project Engineer, R.J. Burnside & Associates Ltd.
 Project Engineer, Wastewater Division, Esolar Applied Research
 Project Evaluator, Ontario Ministry of the Environment
 Project Manager, Franz Environmental Inc.
 Project Manager, Golder Associates
 Project Manager, Intellex Technologies Inc.
 Project Manager, S2S Environmental Inc.
 Project Manager / Communications Officer, York University
 Project Officer, Environmental Assessment Branch, Ontario Ministry of Environment
 Project Scientist, Morrow Environmental Consultants
 Project Scientist, SNC-Lavalin Group Inc.
 Public Health Inspector, City of Hamilton Public Health Services
 Quality Control Chemist, Apotex Inc.
 Research Analyst, Environmental Social and Governance, Innovest Strategic Advisors
 Research Analyst, Fednav Ltd.
 Research Associate, Environment Canada
 Research Associate, Nutrient Management, George Morris Centre
 Research Associate, Drinking Water Research Group, University of Toronto
 Research Chemist, 3XR Research Inc.
 Research Health and Safety Officer, Environment, Health and Safety, Brock University
 Researcher, Okanagan Basin Water Board
 Scientist, Manitoba Health
 Senior Air Engineer, Ontario Ministry of Environment
 Senior Business Analyst, Loblaw Companies Limited
 Senior Drinking Water Adviser, Ontario Ministry of the Environment
 Senior Policy Advisor, Air Policy and Climate Change Branch, Ontario Ministry of the Environment
 Senior Project Engineer, Ontario Ministry of Environment
 Senior Project Officer, Biofuels Unit, Environment Canada
 Senior Technical Engineer/Officer, Bruce Power
 Senior Wastewater Engineering Adviser, Water Standards, Ontario Ministry of the Environment

Spatial Analyst, Natural Resources Canada
 Sport Fish Contaminant Specialist, Ontario Ministry of the Environment
 Strategic Services Department, Town of Markham
 Supervisor, Service Programs, Toronto Water
 Sustainable Technologies Monitoring Coordinator, Toronto Region Conservation Authority
 Sustainability Analyst, Sears Canada
 Sustainability and Innovation Manager, Turtle Island Recycling
 Sustainability Coordinator, Metro Toronto Convention Centre
 Sustainability Manager, Humber College
 Teacher, Dufferin-Peel Catholic District School Board
 Team Leader - Approvals and Permitting, Energy Projects, GENIVAR
 Technical Officer (Environmental Biology), Ryerson University
 Technical Specialist - Business Development, Maxxam Analytics
 Technical Support Specialist, GeoShack North America
 Terrestrial and Aquatic Scientist, SENES Consultants Ltd.
 Underwriter – Environmental, Zurich Insurance
 Unit Cell Engineer, AFCC Automotive Fuel Cell Cooperation Corp.
 Vice President, Operations & Sustainability, Energy Advantage
 Waste & 3Rs Specialist, CD Sonter Environmental Consultants
 Waste Diversion and Planning Engineer, GENIVAR
 Wastewater Engineer, Feigin Engineering & Associates
 Water Quality Analyst, Region of Peel
 Water Resource Analyst, GHD (formerly The Sernas Group)
 Water Resource Planner, Urban Systems, Inc.
 Water Resources and Stormwater Operations Coordinator, Town of Richmond Hill
 Water Resources Engineer, Aquafor Engineering Inc.
 Water Resources Engineer, GHD
 Water Resources Engineer, UMA Engineering Inc.
 Water Technician, Ontario Ministry of the Environment
 Water/Wastewater Engineer, Gamsby and Mannerow
 Watershed Coordinator, Ontario Ministry of Environment
 Watershed Monitoring Coordinator, Toronto Region Conservation Authority
 Western Hemisphere Development Executive, World Association of Girl Guides and Girl Scouts

Although most graduates entered the environment industry workforce, a number of others have chosen to continue on to doctoral studies. EnSciMan MAsC graduates have enrolled in a number of PhD programs including:

- Biology, Queen’s University
- Chemical Engineering and Applied Chemistry, University of Toronto
- Civil Engineering, Ryerson University
- Civil Engineering, University of Ottawa
- Ecology and Evolutionary Biology, University of Kansas
- Ecology and Evolutionary Biology, University of Toronto
- Environmental and Forest Sciences, University of Washington
- Environmental and Life Sciences, Trent University

- Environmental and Occupational Health and Safety, University of Waterloo
- Environmental Applied Science and Management, Ryerson University
- Geography, Queens University
- Health Sciences and Gerontology, University of Waterloo
- Natural Resources Management, University of Arizona
- Pharmacy and Nutrition, University of Saskatchewan

The Future

The University has made a continuing commitment to both the PhD and the MASc programs. In the foreseeable future, increased enrolment numbers are not anticipated, following the “roll out” of the PhD program which in 2014 has reached its steady state. However, innovations in pedagogy and in research will continue to be a hallmark of the EnSciMan program.

New faculty members with an interest in environmental issues and from an ever-broadening breadth of disciplines continue to be attracted to Ryerson University. Adding to this is the overall growth in enrolment at Ryerson University and the need for a larger number of faculty members in existing academic units. One anticipated outfall will be the continuing growth in the number and diversity of EnSciMan faculty into the coming academic years.

Contacts and Information:

<http://ryerson.ca/graduate/programs/ensciman>

Appendix A: EnSciMan Graduates' MASC Theses and Research Papers

Name	Year	Thesis or Project Title	Research Supervisor(s)
Ahchong, Katrina	2010	Anthropogenic Climate Change Coverage in Canadian News Media from 1988-2007	Dodds, R.
Al Shawaf, Zainab	2010	The Characterization of MCEF: An AFF Transcription Factor Associated with Acute Lymphoblastic Leukemia and HIV-1	Estable, M.
Allen, Brent	2002	Ozone Inactivation of Fungi Associated with Barley Grain	Wu, J.
Amernic, David	2003	An Examination of Drinking Water Quality Management in Ontario using the Australian Framework as a Benchmark	Pushchak, R. / Liss, S.
Asadolahnajami, Anahita	2011	Applying the Principles of Six Sigma to EMS: Lessons Learned from a Case Study	Searcy, C. / Jenab, K.
Au, Amy	2007	Simulation of the Stormwater Reduction and Energy Saving Benefits of Urban Greenroofs	Li, J.
Au, Yick	2007	A Planning Tool of Urban Greenroofs	Li, J.
Au-Yeung, Wai C.	2002	Methylmercury Bioaccumulation in Sport Fish and the Relation to Human Exposure	Luk, G.
Awad, Emily	2009	Toxicity and Bioaccumulation of 2,2',4,4' - Tetrabromodiphenyl Ether (BDE47) in a Laboratory Aquatic Food Chain	Bostan, V. / Laursen, A. / McCarthy, L.
Azan, Shakira	2011	Invasive Aquatic Plants and the Aquarium and Ornamental Pond Industries	Bardecki, M. / Laursen, A.
Bamfo, Eli	2007	'Sustainable but Just on the Edge': The Strength and Fragility of the Commercial Whale-Watching Industry in the Lower Bay of Fundy, New Brunswick, Canada	Bardecki, M.
Bandelj, Emil	2004	Assessment of Androgenic Response Potential of Effluents Using <i>in vitro</i> and <i>in vivo</i> Methods	McCarthy, L. / van den Heuvel, R.
Baranova, Liliya	2012	A Study Design for the Assessment of Fish Tumour Prevalence in the Lower St. Clair River	Laursen, A. / Pushchak, R.
Barrera, Mauricio	2011	Photochemical Treatment of Organic Constituents from Synthetic Slaughterhouse Wastewater and Disinfection of Bacterial Pathogens by Combined Vacuum UV and UV-C	Gilbride, K. / Mehrvar, M.
Beare, Daniel	2012	Development of a Template to Benchmark Municipal Climate Change Action	Fleet, B. / Searcy, C.
Behjat, Amirmohsent	2012	A Comparative Investigation in Measuring Food Access: Food Deserts in Urban Setting	Koc, M.
Bentley, Christopher	2013	Investigating Effects of Metakaolin Content on the Physical Properties of Concrete, and Its Susceptibility to Colonization and Biodegradation by Sulphur Oxidizing Bacteria	Lachemi, M. / Laursen, A.
Berghoef, Naomi	2010	Assessing the Feasibility of a Sustainable Winemaking Eco-Label Initiative In Ontario	Dodds, R.
Berhe, Entehabu	2002	Post Environmental Assessment (EA) Audit of Municipal Solid Waste Landfills	Pushchak, R.

Bhatta, Chet	2013	An Evaluation of the Sagarmatha National Park Forestry Project (SNPFP), Khumbu, Nepal: A Community Stakeholder Approach	Bardecki, M.
Blake, Michelle	2013	The Potential for Perennial Vines to Mitigate Summer Warming of an Urban Microclimate	Millward, A.
Borsy, Emily	2009	The Impacts of Climate Change on the Availability of Granular Resources in the Inuvialuit Settlement Region, NWT	Duerden, F.
Botticella, Lisa-Anne	2006	Examining the Contribution of Toronto's Press in Maintaining an Environmentally-Detrimental Social Paradigm, 2003-2006	Bardecki, M.
Bowler, Renee	2006	Evaluating Municipal Wastewater Treatment Plant Impacts on Surface Water Quality Using the Canadian Water Quality Index: A Case Study of the Nith River, Ontario	Pushchak, R.
Brei, Elena	2006	Isolation, Separation and Identification of the Extracellular Polymeric Substance (EPS) Protein Fraction from the Activated Sludge Floc	Liss, S.
Bridge, Deon	2009	PM2.5 Dispersion Modelling from La Ronde Fireworks Event in Montreal Using Aermoc And Arcmap	Hicks, J.
Brown, Collingwood	2013	Environmental Management in the Film and Television Production Industry	Bardecki, M. Searcy, C.
Buan, Eric	2009	Development of a Laboratory Analytical Method Beneficial to the Policies of the Canada-Wide Standards for Dioxins and Furans	Li, J. / Lo, C.
Burley, Caitlin	2007	Drinking Water Quality and Trust: Communities and Risk Information	Pushchak, R.
Buslovich, Ruvena Isobel	2012	An Inventory and Analysis of Sustainable Food System Projects Implemented at Canadian Universities	Searcy, C.
Bustillo Lecompte, Ciro Fernando	2012	Combined Anaerobic-Aerobic and UV/H2O2 Processes for the Treatment of Synthetic Slaughterhouse Wastewater	Mehrvar, M.
Bykova, Olga	2006	Do Zebra Mussels (<i>Dreissena polymorpha</i>) Alter the Water Chemistry in a Way that Favours Microcystis	Laursen, A. / McCarthy, L.
Cairns, Elaine	2009	Comparison of Mercury Species in Indoor and Outdoor Air in Toronto, Canada	Lu, Julia
Camacho, Rosanne	2005	Public Participation in Nuclear Waste Management: A Comparative Analysis of the Swedish and Canadian Processes	Pushchak, R.
Campbell, Cheryl	2004	Using Six Sigma to Design an Environmental Management System	Strahlendorf, P.
Cao, Weihua	2009	Combined Anaerobic Baffled Reactor and UV/H2O2 Process for the Treatment of Slaughterhouse Wastewater	Mehrvar, M.
Capotorto, Tonia	2008	An Ecological Assessment of Invasive Plant Species in a Constructed Wetland in Markham, Ontario, Canada	Bardecki, M.
Carmichael, Stephen	2003	Residential Energy Efficiency and Home Construction and Renovation: How Much Progress?	Mars, J.
Chan, Andrew	2009	Analytical Hydrological Modelling of Green Roof Technology on a Watershed Basis	Li, J.
Charron, Christopher	2004	Ontario's Drinking Water Supply System: A Framework for a Preventive Management Strategy	Fang, L.
Chen, Elaine	2008	Enzyme-Linked Immunosorbant Assay (ELISA) for the Screening of Dioxins in Fish Samples	Li, J. / C. Lo

Cheng, Christina	2010	The Interface Between Science and Policy in Transboundary Water Management	Gore, C.
Cheng, Irene	2008	Studies of Potential Sources that Contribute to Atmospheric Mercury in Toronto, Canada	Lu, J.
Cheng, Vivian	2010	The Development of Risk-Based Spill Management Criteria Related to the Beneficial Use Impairments in the St. Clair River	Li, J.
Chmakova, A.andra	2007	Environmental Assessment of Storm Water Ponds: Impacts on a Rouge River Tributary	Bostan, V.
Chow, Annie	2012	Modeling Urban Solar Energy with High Spatiotemporal Resolution	Li, S.
Chui, Jenny King Lai	2002	Control of Oil Spills in Urban Areas	Li, J.
Cook, Jennifer Michelle	2011	Valuing Protected Areas Through Contingent Valuation: A Case Study of Chitwan National Park, Nepal	Bardecki, M.
Cooper, Maureen	2011	EMS and Learning in Small and Medium Size Establishments (SME): A Case Study from the Beverage Industry	Webb, K.
Currie, Beth Anne	2005	Estimates of Air Pollution Mitigation with Green Roofs Using the UFORE Model	Pushchak, R.
Dashkova, Tatyana	2012	A Study of E-Waste Management Programs: A Comparative Analysis of Switzerland and Ontario	Bardecki, M.
Davis, Greg	2009	Learning from Third Party Certified Environmental Management Systems in Local Authority Organizations	Webb, K.
Des Lauriers, Angelune	2004	The Fate and Transport of Methoprene in an Urban West Nile Virus Mosquito	Banting, D. / Li, J.
Di Giuseppe, Maria Lena	2011	Bridging Science and Law Across Jurisdictions in Canadian Species at Risk Policy: Four Case Studies	Wellington, A.
Di Poce, Victoria	2010	The Air Pollution Contributions of a Large-Scale Suburban Development	Pushchak, R.
Diaz, Rodrigo	2004	Life Cycle Assessment of Municipal Solid Wastes: Development of “Wasted” Software	Warith, M.
Dinca-Panaitescu, Mihaela	2004	Cumulative Effects of Chemical Spills Using Spatial-Temporal Dynamics Analysis Algorithm	Li, J.
Dobosz, Augustyna	2012	The Enrichment and Characterization of Compost and Wastewater-derived Microbial Cellulolytic Consortia,	Hausner, M.
Dort, Andrea	2010	The Application of an Early-Warning Biomonitoring System (EWBS) in a Canadian Context	McCarthy, L. / Pushchak, R.
Drumm, Aydan Elizabeth	2013	An Examination of the Roles and Responsibilities of the Tourism Business Sector and the Opportunity for Collaborative Destination Management in Santa Catalina, Panama	Bardecki, M. / Graci, S.
Earl, Rebecca	2006	Biosecurity in Agriculture: A Suggested Strategy for the Protection of Source Water Against Pathogenic Contamination	Pushchak, R. / Johns, C.
Edmonds, Jessica	2011	Development of a Sustainable and Inclusive Solid Waste Management System in Colombia	Banting, D.
Ehsanipour, Mandana	2010	Acid Pretreatment and Fractionation of Source-Separated Organic Waste for Lignocellulosic Saccharification	Luk, Grace

Elkhawas, Doaa Mohammed	2011	The Use of Corporate Sustainability Indices: A Case Study on the Dow Jones Sustainability Index	Searcy, C.
Emam, Seyed Farshidrez	2013	Ammonia Fiber Expansion (AFEX) Treatment of Wheat Straw for Production of Bioethanol	Turcotte, G.
Esmail, Karima	2005	Environmental and Ethno-cultural Groups Working Together: An Examination of Toronto-based Environmental Programs	Milroy, B.
Fantin, Ann	2009	An Evaluation of Defluoridation Technologies in the Context of Decision-Making Strategies	Warith, M.
Farkh, Ruba	2006	Removal of Tetracyclines in Wastewater: Accumulation and Distribution of Chlortetracycline in Bulk Water and Biomass Compartments in Activated Sludge	Liss, S. / Mehrvar M.
Farrugia-Uhalde, Ann Marie	2003	Nuclear Fuel Waste and Aboriginal Concerns. Canada's Nuclear Fuel Waste Management Concept Public Hearings: A Content Analysis	Pushchak, R.
Fleet, Vivian	2010	Use of the Multispecies Freshwater Biomonitor to Determine Behavioural Effects of Tributyltin and Atrazine on <i>Daphnia magna</i> and <i>Hyalella azteca</i>	Bostan, V. / Laursen, A. / McCarthy
Forgione, David	2010	Mapping and Modeling Urban Solar Energy Potentials Using Geospatial Data: A Case Study of Ryerson University Campus	Li, S.
Fowler, Amanda	2006	A Comparison of the Waste Diversion Legislation, Practices, Enforcement and Efficiency in Select Jurisdictions Across North America and Europe	Missios, P. / Warith, M.
Fromme-Marcellin, Michelle	2007	Analysing Prediction Methods for Atmospheric Dispersion of Pollutants from Incineration: Three Canadian Case Studies	Banting, D.
Gebert, Sonja	2010	Assessing Ecological Impacts of Land-applied Municipal Biosolids: Effects of Run-off and Tile Drainage on the Aquatic Organisms <i>Daphnia magna</i> , <i>Hyalella azteca</i> , and <i>Lemna minor</i>	Laursen, A. / McCarthy, L.
Ghadakpour, Matahb	2007	Survival and Proliferation of an Opportunistic Pathogen in Mixed Community Biofilms	Wolfaardt, G.
Gill, Gaganjot	2013	To be available after May 2014	Estable, M.
Grewal, Geet	2013	Climate Change Influence on a Forested Urban Park: A Forecast of Tree Growth and Mortality	Millward, A.
Guran Virgil	2011	First Steps in Assessing Microbial Involvement in the Geochemical Evolution of Uranium Mine Tailings: Evaluation of Iron Reduction Potential, Biofilm Formation and Community Heterogeneity in the Deilmann Tailings Management Facility at Key Lake, Saskatchewan	Wolfaardt, G.
Haddad, Mona Abdul Majid	2011	Towards Greener Aviation: A Comparative Study on the Substitution of Standard Jet Fuel with Algal Based Second Generation Biofuels	Fawaz, Z.
Haffar, Miriam	2007	Comparative Detection and Enumeration Strengths of Quantitative, Real-time PCR and Fish for Water-borne Bacterial Pathogens in Municipal Waste Water	Gilbride, K.
Hahn, Kristen	2009	Urban Green Roof Vegetation Assemblage Demography, Classification, and Design Recommendations	Banting, D. / Li, J.
Han, Yuqi	2008	A Web-Based GIS Planning Framework for Urban Oil Spill Management	Li, J.
Hatfield Venhuis, Sarah	2004	Photolytic and Photocatalytic Treatment of Linear Alkylbenzene Sulfonate in Water	Mehrvar, M.
Holmes, Alison	2007	Trends in Public Attention to the Environment from 1956 to 2005	Pushchak, R.

Holt, Leigh	2007	Ecological Impacts of Biosolids Application on Nitrogen-fixing Bacteria	Laursen, A. / McCarthy, L.
House, Belinda	2006	The Impact of Acid Stress on <i>Escherichia coli</i> O157:H7 Virulence	Foster, D.
Huang, Yirong	2012	Energy Benchmarking and Energy Saving Assessment in High-Rise Multi-Unit Residential Buildings (2012)	Fung, A.
Imm, Mary	2010	An Evaluation of British Columbia's Medication Return Program as a Management Framework for Collecting Unused Pharmaceuticals	Pushchak, R.
Ji, Changhai (Kevin)	2003	Deleterious Effect of Mercuric Chloride on Human Epithelial Cells	Lu, J. / Foster, D.
Johnson, Wendy	2007	Managing Threats to Small Drinking Water Systems in Ontario: A Risk-based Approach	Sly, T.
Jones, Catherine	2009	Addressing Direct and Indirect Environmental Impacts of a Highway Extension with the Land Transformation Model and the Long-Term Hydrologic Impact Assessment Model	Pushchak, R.
Kakar, Durkhani	2010	Photochemical Degradation of Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) Using UV/H ₂ O ₂	Mehrvar, M.
Kalt, Stephanie	2004	An Assessment of Municipal Capacity for Human-Wildlife Conflict Management in Selected Urban Areas of Southern Ontario	Milroy, B.
Kanetani, Mitsuko	2005	Association of <i>Escherichia coli</i> O157:H7 in Flocs: Role of Extracellular Polymeric Substances and Fate of Pathogenic Organisms	Foster, D. / Liss, S.
Katic, Sofija	2008	A Polymer to Detect Explosives: Towards an Effective Sensor Material	Evans, C.
Kelly, Alicia	2005	The Characterization of Significant Direct Threats to Source Watersheds: A Risk-based Approach	Pushchak, R. / Sly, T.
Khan, Nalissa	2005	Acute Toxicity of Biodiesel and Biodiesel Blends	Warith, M.
King, Sarah	2006	Incorporating Cumulative Environmental Effects of Finfish Mariculture into Canadian Environmental Assessment	Pushchak, R.
Kingsmore, Lisa	2013	The Management of Post-Consumer Pharmaceutical Waste: A Comparison Between British Columbia and Ontario Programs	Pushchak, R. Wellington, A.
Kitano, Yoshiki	2005	Conditions of Hydrolysis with a Specific Pair of Endo- and Exo-Cellulases	Turcotte, G.
Kolozsvari, Debbie	2005	Integration and Persistence of <i>Escherichia coli</i> O157:H7 86-24 in a Naturally-Occurring Water Well Biofilm	Liss, S.
Komarova, Karina	2008	Strategy for Cellulase Immobilization and Its Partial Purification and Characterization	Heyd, D. / Turcotte, G.
Kozlowski, Anika	2012	Corporate Social Responsibility in the Apparel Industry: A Multiple Case Study Analysis	Bardecki, M. / Searcy, C.
Kraemer, Heather	2002	Characterization of Microbial Aggregates in Relation to Membrane Biofouling in Submerged Membrane Bioreactors	Liss, S.
Krasnova, Renata	2004	Hydrologic Modeling of Construction Site Sediment Control Pond Using SWMM	Li, J.
Labba, Zahra	2011	Identifying the Potential Sources of Contaminants to the Welland Canal, the Major Source of Drinking Water in the Niagara Region	McCarthy, L.
Lachapelle, Barbara	2013	An Evaluation of Ontario Public Health Units' Practices in the Redevelopment of Brownfields	Sly, T.

Lane, Claire	2012	Pure-Culture and Mixed Community Biofilm Responses to Carbon-Starvation and UV-C Exposure	Wolfaardt, G. / Hausner, M.
Laskarzewska, Barbara	2009	An Air Dispersion Model for the City of Toronto, Ontario, Canada	Mehrvar, M.
Lau, Jeremy (Yat-Fung)	2012	Nitrogen Biogeochemistry in Lakes: Chemical and Biological Drivers and Developing Techniques to Explicitly Measure Concurrent Processes	Laursen, A.
Lawson, Sarah	2010	A Planning Framework for Low Impact Development (LID) in Stormwater Management: An Ontario Perspective	Li, J./ Guergachi, A.
Leblanc, Chelsea	2013	Environmental Stress Effects on Illness in Southern Ontario	Pushchak, R.
Lee, Adrienne K.	2011	Feasibility of Establishing an Enzyme-linked Immunosorbent Assay (ELISA) Laboratory for the Detection of Dioxins in Economically Marginalized and Developed Countries	Li, J. / Lo, C.
Lee, Timothy	2002	Urban Growth Management in Two North American Cities	Pushchak, R. / Lister, N.
Levin, Maina	2004	Voluntary Environmental Initiatives Promoted by the Canadian Manufacturing Association	Strahlendorf, P.
Levinson, Lawrence	2008	Nitrogen-bearing Toxins and the Environment: Food Safety Monitoring Systems for the Quality Assurance of Vegetable Protein Production	Gilbride, K. / Pushchak, R.
Lim, Jason (Jong-Seok)	2003	Identifying the Variance in the Magnitude of Landfill Impacts on Residential Property Values Using Multiple Regression Analysis	Pushchak, R. / Missios, P.
Liu, Christopher	2004	Detection of Homoserine Lactones (Quorum Sensing Molecules) in Wastewater Microbial Flocculation	Liss, S.
Liu, Zhong	2005	Magnetic Coagulation for Oily Waste Treatment	Luk, G. / Fang, L.
Luciani, Peter	2005	Distributed Urban Stormwater Modeling within GIS Integrating Analytical Probabilistic Hydrologic Models and Digital Imagery	Banting, D. / Li, J.
Luisser, Frank	2005	Opportunities for VOC Emissions Reductions in Manufacturing Office Furniture Partitions	Rosen, M.
Magditsch, Daniele	2012	Strategic MulC. of Trees in Forested Urban Parkland for Rooting Medium Amendment	Millward, A.
Maher, Annette	2012	The Influence of Climate and Land Cover Change on Historical Brook Trout (<i>Salvelinus fontinalis</i>) Populations in the Humber River, Rouge River, and Duffins Creek Watersheds	Pushchak, R.
Mandula, Melissa	2005	The Effects of ISO 14001 on Corporate Financial and Environmental Performance	Bardecki, M.
Manson, Harry	2003	Uncertainty and Sensitivity Analysis of GIS Based Continuous Hydrological Modeling	Li, J. / Banting, D.
Maradona, Aryo	2011	Development of a Library of Responses for an Early-Warning Biomonitoring System to Detect and Identify Various Aquatic Contaminants	Mehrvar, M. / Pushchak, R.
Marshall, Gillianne	2009	Assessing Behavioural and Physiological Responses of Three Aquatic Invertebrates to Tributyltin and Atrazine in a Multi-Species, Early Warning Biomonitoring Technology	Bostan, V. / Laursen, A. / McCarthy, L.
Masekoameng, Kolobe	2006	Modeling Ecotoxicity of Polybrominated Diphenyl Ethers in Aquatic Ecosystems	Bostan, V.

Maslo, Dennis	2007	Re-use and Recovery: Electronic Waste	Fang, L.
Matiichine, Denis	2011	Examining the Effects of the Runoff Originating From Biosolids Amended Soil Plots on the Biogeochemical Nitrogen Cycle and Eutrophication	Laursen, A.
McCabe, Allison	2011	Examination of an Opportunity for Collaboration Among Stakeholders to Promote Conservation in Sea Turtle Tourism in Gili Trawangan, Indonesia, An	Graci, S.
McComb, Stephen	2004	Measuring the Benefits of Remediating a Hazardous Waste Site in Sydney, Nova Scotia	Missios, P.
Mohtasebi, Banafsheh	2013	Enhanced Green Production of Biobutanol by Novel Fusants of Two and Three Clostridia	Dahman, Y.
Molyneux, Jocelyn	2012	Examining the Influence of Efficacy Beliefs on Participation in a Residential Curbside Recycling Scheme: Implications for the Use of Persuasive Messaging to promote Sustainable Behaviours	Missios, Paul
Mondal, Bibekananda	2006	Use of Shredded Tire Chips and Tire Crumbs as Packing Media in Trickling Filter System for Landfill Leachate Treatment	Warith, M.
Moore, Peter	2012	Reducing the Carbon Footprint at an Electric Utility Company	Searcy, C.
Moszynski, Dorothy	2007	Municipal Progress in Conformity to Greenbelt Legislation: Challenges in Implementation and Toronto Green Belt Integrity	Pushchak, R. / Lister, N.
Mueller, William	2010	A Critical Review of Health Impact Assessments in Ontario's Nuclear Industry	Pushchak, R.
Mule, Catherine	2013	Voluntary Energy Programs and the Evaluation of Factors Influencing Corporate Participation: A Case Study in the Commercial Sector	Pushchak, R.
Muscalu, Alina	2009	Determination of Polychlorinated Biphenyls, Organochlorine Pesticides and Chlorobenzenes in Sludge and Sediment Samples by GCxGC-ECD	Liss, S.
Nandi, Monisa	2009	Ciprofloxacin Effects on Nitrogen Cycling Processes in Freshwater Aquatic Sediments	Bostan, V. /Laursen, A. /McCarthy, L.
Netto, Isabelle	2010	Examining Acute Behavioural Responses of the Protist (<i>Euglena gracilis</i>) under Toxicant Stress using the Image Analysis System ECOTOX	Bostan, V.
Nichols, Paul	2008	Environmental Policy Creation: Examining the Ontario Municipal Approach	Banting, D.
Niejadlik, Paul	2013	Evaluating a Multiple Criteria Decision Support Tool for Assessing Sustainability Implications of Engineering Projects	Fang, L.
Norrie, Steven	2006	A Life-Cycle Based Decision-Making Framework for Electricity Generation System Planning	Fang, L.
Nowak, Eva	2003	Characterization of Activated Sludge Flocs by Confocal Laser Scanning Microscopy and Image Analysis	Liss, S.
Ntakrah, Jerry	2011	Sustainable Development in Ghana's Petroleum Industry: An Analysis of the Resource Curse	Gore, C. / Searcy, C.
Orfi, Mohammed	2008	Study of Transportation Strategies for Emission Control	Mehrvar, M. / S. Zolfaghari
Otke, Zachary	2008	Developing Habitat Suitability Index Models for the Wood Frog (<i>Rana sylvatica</i>) and Boreal Chorus Frog (<i>Pseudacris triseriata maculata</i>) in the Foothills Parkland Natural Sub-region and Bow River Basin	Bardecki, M.

Panagopoulos, Vicky	2003	ISO 14001 and Environmental Performance in an Automotive Manufacturing Plant	McCarthy, L. / Pushchak, R.
Pankiw, Nicholas	2011	Recreational Trail Impacts and their Spatial Influence on Species Diversity and Composition	Pushchak, R.
Parent, Deborah	2002	Evaluation of the Diffusion Gradient in Thin-Films (DGT) Technique for Measuring Trace Metal Concentrations in Freshwaters	Twiss, M.
Parhizgari (Eslami), Zahra	2009	A Physiologically Based Pharmacokinetic Model for Uptake of Dioxins and Furans by Fish	Li, J.
Park, Heather	2007	The Role of P13K Signaling in Enteropathogenic <i>Escherichia coli</i> Induced Apoptosis in Epithelial Cells	Foster, D. / Marshall, J.
Parker, Rina	2011	An Evaluation of the Potential Energy Benefits of Installing Green Roofs in Hong Kong	Li, J.
Parson, Jessica	2010	The Role of Source Reduction in Resource Management Strategies and How United States Federal, State, and Local Environmental Agencies Implement and Communicate Source Reduction Policy and Initiatives	Bardecki, M.
Pearce, Christopher	2009	Investigating the Sub-Acute Responses of <i>Lemna minor</i> , <i>Pseudokirchneriella subscritata</i> , <i>Euglena gracilis</i> and <i>Anodonta grandis</i> to Tributyltin-Hydride and Atrazine in Freshwater	Heyd D. / McCarthy, L. / Mehrvar, M.
Pepin, Shane	2008	Water Resource Management in the Southern Ontario Region: Market Simulation under Scarcity Conditions	Missios, P.
Percy, Benjamin	2009	The Performance of Clostridium Phytofermentans for Biofuels Production from Lignocellulosic Biomass	Luk, Grace
Perlikowski, Elisabeth	2010	Regional Contributions to Achieving Sustainability: An Examination Using Sustainability-focused Policies in Regional Official Plans	Robinson, P.
Pileggi, Vincenzo	2007	Correlation of Selected Physicochemical Properties of Sludge Floes with Partitioning and Competitive Equilibrium Adsorption-Desorption Behaviour of Environmentally Relevant Trace Polycyclic Synthetic Musks During the Aerobic Activated Sludge Sewage Treatment	Liss, S.
Pogue, Amy	2004	Impact of Protozoan Grazing on Nitrification and the Ammonia- and Nitrite-Oxidizing Bacterial Communities in Activated Sludge	Gilbride, K.
Pryshlakivsky, Jonathan	2009	The Application of Best Available Technology in Dealing with Ontario's Waste Electric and Electronic Equipment: A Case Study	Missios, P.
Puddephatt, Karen	2013	Determining the Sustainability of Land-applying Biosolids to Agricultural Lands Using Environmentally-Relevant Terrestrial Biota	McCarthy, L.
Pullenayegem (Martil), Anoushka	2008	Environmental Justice and Project Development: the Sri Lankan Experience	Bardecki, M.
Pyatt, Lindsay	2003	Performance Evaluation of a Sediment Control Pond	Li, J.
Raby, Melanie	2013	Toxicity Assessment of the Antimicrobial Triclocarban Using Sub-Lethal Behaviour and Reproduction Endpoints (2013)	McCarthy, L.
Radisic, Sally	2004	Risk Communication: A Case Study in The City of Hamilton	Sly, T.
Ramdayal, Raymond	2008	Ground Level Ozone and VOC Reactivity in Ontario	Hicks, J.
Rebellato, Steven	2004	Assessment of the Subsurface Pathogen Abatement Effects of Nutrient Management Policy in Ontario	Liss, S. / Pushchak, R.

Roberts, Andrew	2005	The Potential for Greenhouse Gas Emission Reduction through Small Distributed Cogeneration at Residential Sites	Pushchak, R.
Roca, Laurence	2011	The Use of Indicators in Canadian Corporate Sustainability Reports	Searcy, C.
Rollinson-Lorimer, Mary	2009	The Role of Risk Perception in the Ontario Source Water Protection Planning Process	Pushchak, R.
Roque, Miles	2013	Survey and Artificial Neural Network Analysis on Occupant's Household Energy Use in a High-rise Multi-unit Residential	Fung, A. / Straka, V.
Sabir, Senna	2009	A Forested Urban Park: What Is the Value of Allan Gardens to the City of Toronto?	Millward, A.
Sawka, Michelle	2011	Growing Energy Conservation Through Residential Shade Tree Planting	Millward, A.
Schlitt, Meghan	2013	Commercializing Innovation in Residential Energy Retrofits in Toronto: A Case Study Involving Gemini NTED®	Walsh, P.
Schofield, Jade	2011	Comparing the Environmental Impacts of Diesel Generated Electricity with Hybrid Diesel-Wind Electricity for Off Grid First Nation Communities in Ontario	Bardecki, M.
Schroeder, Carl	2005	Health Effects of Hydrogen Fuel Substitution in Public and Private Vehicles in the GTA	Pushchak, R.
Shabnam, Rehana	2013	Evaluation of Laboratory Methods for the Analysis of Microcystins	Li, J. / Lo, C.
Smith, Daniel	2009	Aerobic Attached Growth Biofilter Using Tire Chips and Mixed Broken Glass as Media for Landfill Leachate Treatment	Warith, M
Smith, Derek	2003	A PCSWMM/GIS Based Water Balance Model for the Reesor Creek Watershed	Banting, D. / Li, J.
Solnik, Jason	2012	Assessment of Behavioural Parameters of <i>Chironomus tentans</i> and <i>Lumbriculus variegatus</i> for the Use in a New Early Warning Biomonitoring System for Drinking Water (2012)	Bostan, V. / Laursen, A. / McCarthy, L.
Spearin, Ashley	2003	Environmental Evaluation of Land-Applied Pulp Mill and Municipal Biosolids	McCarthy, L.
Spence, David	2011	Reducing Chloride Corrosion of Stainless Steel in the Nuclear Fuel Manufacturing Industry: an Electrochemical-Environmental Perspective	Searcy, C.
Stewart, Jennifer	2002	The Trophic Transfer of Pb and Cd from <i>Navicula pelliculosa</i> (Bacillariophyta) to <i>Hyalella azteca</i> (Amphipoda)	Twiss, M.
Stiefelmeyer, Kate	2003	The Pathogen Abatement Effects of Nutrient Management Policies: The Ontario Nutrient Management Act	Pushchak, R. / Liss, S.
Sule, Charles	2009	Elements of Sustainable Canadian Food Consumption: Measuring Self-Sufficiency	Bardecki, M.
Takata, Graham	2002	Effect of Aeration On Fresh and Aged Municipal Solid Waste	Warith, M.
Tan, Grace Fatima	2013	Analysis of Strategies for Mitigation and Adaptation to the Impacts of Climate Change in the Agricultural Sector in Northern Philippines	Fleet, B / Bardecki, M.
Tang Kai, Natasha	2005	A Land-Based Oil Spill Management Planning Framework for the Petroleum Industry	Li, J.
Ternier, Sabrina	2012	Review of Stormwater Management in Ontario and a Case Study on the Etobicoke Exfiltration System	Li, J.

Tiley, Mark	2013	<i>Typha latifolia</i> Response to Oligotrophic and Eutrophic Nitrogen and Phosphorus Loading Rates under Laboratory Conditions	McCarthy, L.
Torchia, Melissa	2009	Role of Vegetation Placement for Temperature Moderation in an Urban Microclimate	Millward, A.
Torok, Andrea	2009	A Capacity Assessment and Legislative Review of the Clean Water Act in Ontario: Past, Present and Future	Warith, M.
Trenton, Elizabeth	2012	The Application of Two Models of Life Cycle Assessment (LCA) for Transition to the Low-Carbon Economy: A Case Study in the Aluminum Industry	Fleet, B. / Pushchak, R.
Van Vliet, Ted	2003	The Use of Geographic Information Systems in the Development of a User-pay Stormwater Utility in the Mimico Creek Watershed	Li, J.
Vernon, Hayley	2006	Measuring the Effectiveness of Educational Instruments in Facilitating Environmentally Responsible Behaviour in Agriculture: The Canada-Ontario Environmental Farm Plan Program	Bardecki, M.
Vukomanovic, Jelena	2006	Effects of pH and Temperature on the Genotoxicity of Halogenated Disinfection By-Products in Chlorinated Water	Luk, G.
Wakefield, Charles	2004	Review of Landfill Groundwater Monitoring Requirements from an Ontario Perspective	Warith, M.
Walker, Lindsay	2010	The Factors that Influence Environmental Commitment in the Wine Growing Industry of Ontario, Canada	Graci, S.
Weinstock, Aaron	2009	Quantifying Fugitive Dust Emissions from Limestone Quarries: Data Selection and Uncertainty Assessment	Banting, D.
Welbourn, Rachel	2003	The Effect of Cu and Mn on Phytoplankton in Lake Erie, the Grand River and the Pacific Ocean	Twiss, M.
Willmott, Lacey	2012	Factors Influencing Solid Waste Management on Developing Small Islands: The Case of Gili Trawangan, Indonesia (2012)	Graci, S.
Wilson, Jay	2010	ENGO Positions Regarding Nuclear Power in Ontario	Pushchak, R.
Wilson, Nicole	2013	Localization or Standardization? A Comparative Analysis of Multinational Agrochemical Corporations' Environmental Disclosure Practices in India	Bardecki, M.
Wolek, Darren	2004	Estimating Light-Duty Vehicle Emissions in the Greater Toronto and Surrounding Area	Hicks, J.
Wrobel, Caroline	2013	Knowledge and Interpretation of Sustainable Tourism in the Annapurna Conservation Area, Nepal: A Comparison of Key Stakeholder Groups and Implications for Sustainable Tourism Management	Bardecki, M.
Wrzal, Marta	2009	Compensation in Hazardous Facility Siting: An Analysis of Compensatory Agreements	Pushchak, R.
Zheng, Wei	2008	Principles and Techniques Towards Successful Development of Enzyme-linked Immunosorbant Assay (ELISA) for Dioxin Analysis	Li, J. / C. Lo

Appendix B: EnSciMan Faculty and Research Interests

Dr. David Atkinson, Assistant Professor, Department of Geography

PhD, Queen's University, Geography

Arctic biophysical systems, remote sensing, carbon flux, GIS and environmental analysis.

Dr. Douglas Banting, Professor, Department of Geography

PhD, University of Western Ontario, Geography

GIS in environmental management and facility siting, green roofs, applied spatial analysis in physical geography.

Dr. Michal Bardecki, Professor, Department of Geography, and Director, Graduate Programs in Environmental Applied Science and Management

PhD, York University, Geography

Environmental assessment and decision-making, economic valuation, cumulative impact management, media and the environment, environmental discourse, wetlands.

Dr. Ayse Basar Bener, Professor, Department of Mechanical and Industrial Engineering

PhD, London School of Economics, Information Systems

Electronic waste and green IT; empirical software engineering: software measurement, software economics, and software quality.

Dr. Vadim Bostan, Assistant Professor, Department of Chemistry and Biology

PhD, University of Geneva, Earth Science

Environmental biology, aquatic ecotoxicology and geochemistry, assessment of antibiotic pollution on foodwebs, study of freshwater primary production community structure as a function of environmental changes.

Dr. Lesley Campbell, Assistant Professor, Department of Chemistry and Biology

PhD, Ohio State University, Evolutionary Ecology

Plant population biology, mating systems, rapid evolution, conservation biology, agro-ecology, global climate change, field ecology.

Dr. Joseph Y.J. Chow, Assistant Professor, Department of Civil Engineering

PhD, University of California, Irvine, Civil Engineering

Sustainable transportation planning, vehicle fuel consumption behaviour, urban operations research and management science, humanitarian logistics, transport economics, mobile freight emissions forecasting

Dr. Yaser Dahman, Assistant Professor, Department of Chemical Engineering

PhD, University of Western Ontario, Chemical and Biological Engineering

Green fuel, green energy, and green chemicals, utilization of agriculture residues and wastes, nanostructured biomaterials (design, synthesis, and applications), design and examination of novel bioreactors, bioseparation sciences.

Dr. Christopher De Sousa, Associate Professor and Director, School of Urban and Regional Planning

PhD, University of Toronto, Geography

Brownfield redevelopment policy and practice, sustainable development, sustainability reporting and project assessment, parks and open space.

Dr. Youcef Derbal, Associate Professor, Ted Rogers School of Information Technology Management

PhD, Queen's University, Electrical and Computer Engineering Complex adaptive systems and their computational modeling and simulation, hierarchical coarse grain abstraction of knowledge, models of resource consumption, models of biosystems.

Dr. Rachel Dodds, Associate Professor, Ted Rogers School of Hospitality and Tourism Management

PhD, University of Surrey, UK, Sustainable Tourism Policy

Sustainable tourism, corporate social responsibility, ecotourism, climate change and tourism, tourism planning, stakeholder issues, tourism demand, island tourism.

Dr. Farhad Ein-Mozaffari, Associate Professor, Department of Chemical Engineering

PhD, University of British Columbia, Chemical Engineering

Fluid mixing technology, flow visualization using tomography and ultrasonic velocimetry, mixing in water and wastewater treatment processes, computational fluid dynamics, non-Newtonian fluid mechanics, dynamic modeling and identification.

Dr. Mario Estable, Associate Professor, Department of Chemistry and Biology

PhD, University of British Columbia

Biochemistry, molecular retrovirology, examination of the effects of environmental conditions on gene mutations and their role in human disease, gene transcription factors and DNA sequencing.

Dr. Liping Fang, Associate Dean, Undergraduate Programs and Student Affairs, Faculty of Engineering and Architectural Science, and Professor, Department of Mechanical and Industrial Engineering

PhD, University of Waterloo, Systems Design Engineering

Decision making and strategic planning in management, environmental management systems and operations research, environmental decision support systems, risk and reliability, bargaining and negotiations.

Dr. Zouheir Fawaz, Professor, Department of Aerospace Engineering

PhD, Sherbrooke University, Mechanical Engineering

Green aviation, evaluating the usability of "second generation" biofuels, characterization and analysis of advanced aerospace material, infra-red thermography for the detection of landmines.

Dr. Debora Foster, Professor, Department of Chemistry and Biology, and Director, Graduate Program in Molecular Science

PhD, University of Toronto

Cellular microbiological and biochemical research on the molecular basis of pathogenesis for several gastrointestinal pathogens and on the impact of environmental stress on these organisms focused toward the development of treatment and prevention therapies and environmental strategies.

Dr. Daniel Foucher, Associate Professor, Department of Chemistry and Biology

PhD, University of Toronto, Inorganic Chemistry

Novel inorganic and organometallic polymers, anti-microbial coatings, ferromagnetic materials.

Dr. Alan S. Fung, P.Eng., Associate Professor, Department of Mechanical and Industrial Engineering

PhD, Dalhousie University, Mechanical Engineering

Energy efficiency/conservation, alternative/sustainable/renewable energy, net-zero energy building, sustainable building integrated energy/HVAC systems, sustainable community energy systems, advanced power generation systems, GHG emission reduction strategy.

Dr. Kimberley Gilbride, Professor, Department of Chemistry and Biology

PhD, University of Toronto, Microbiology

Molecular microbiology and microbial ecology, assessment of microbial diversity with the use of molecular techniques, the role of microbes in the cycling of nutrients, and the effect microbial degradation of phytosterols in industrial waste water systems.

Dr. Christopher Gore, Assistant Professor, Department of Politics and Public Administration

PhD, University of Toronto, Political Science and Environmental Studies

Urban and environmental politics, policy, and administration, environmental policy processes and systems, global, national and local environmental governance, climate change, energy, electricity, Canada, Africa.

Dr. Mark Gorgolewski, Professor, Department of Architectural Science and Director, Graduate Program in Building Science

PhD, Oxford Brookes University, UK, Low Energy Architecture

Zero carbon buildings, building from waste, post carbon communities, building performance assessment, the impact of urban agriculture on the design of buildings and urban spaces.

Dr. Robert Gossage, Associate Professor, Department of Chemistry and Biology

PhD, University of Victoria, Chemistry

Coordination chemistry, ligand design, polymerization, oxazolines, lignin activation.

Dr. Sonya Graci, Assistant Professor, Ted Rogers School of Hospitality and Tourism Management

PhD, University of Waterloo, Geography

Sustainable tourism, corporate social responsibility, environmental management systems, environmental impact assessment, community capacity building, pro-poor tourism development, partnership development, ecotourism, aboriginal issues.

Dr. Aziz Guergachi, Associate Professor, Ted Rogers School of Information Technology Management

PhD, University of Ottawa, Engineering

Mathematical modeling of systems, data mining and machine learning with applications to environmental engineering and management.

Dr. Jane Hao, Associate Professor, Department of Architectural Science

PhD, Hong Kong Polytechnic University, Construction Project Management

Construction and demolition waste management, system dynamic application for assessing construction sustainability, environmental performance for construction projects.

Dr. Martina Hausner, Assistant Professor, Department of Chemistry and Biology

PhD, Ludwig Maximilians University, Munich, Germany, Microbiology

Microbial ecology, environmental microbiology and biotechnology, biofilms, characterization of the structure, composition and function of biofilms and other bioaggregates, fate of catabolic plasmids in biofilms, bioaugmentation, drinking water biofilms.

Dr. Ingrid Hehmeyer, Associate Professor, Department of History

DAgrSc, University of Bonn, Germany, Agriculture

MSc (equivalent), University of Bonn, Pharmacy

History of water technology in ancient and medieval Arabia, history of the medical sciences in the Islamic world.

Dr. Tony Hernandez, Professor, Department of Geography; Director, Center for the Study of Commercial Activity (CSCA)

PhD, Manchester Metropolitan University, UK, Retail Geography & Geographic Information Science

GIS and spatial analysis for business applications, site selection & location decision making, urban planning & land-use policy, smart growth, consumer service sector, commercial real estate.

Dr. Darrick Heyd, Associate Professor and Department Chair, Department of Chemistry and Biology

PhD, University of Toronto, Chemistry

Surfaces and interfaces in water and air environments.

Dr. Miljana Horvat, Associate Professor, Department of Architectural Science

PhD, Concordia University, Building Engineering; M.Arch., McGill

Solar energy and architecture, hygrothermal performance of building envelopes, advanced energy efficient facades, sustainability, performance evaluation of existing buildings, residential buildings.

Dr. Carolyn Johns, Associate Professor, Department of Politics and Public Administration

PhD, McMaster University, Public Policy

Environmental policy; water policy; land use policy; public administration; intergovernmental relations; Canada and US.

Dr. Darko Joksimovic, Assistant Professor, Department of Civil Engineering

PhD, University of Exeter, Engineering

Urban drainage systems modelling and optimisation, hydroinformatics, development and application of decision support systems, water reuse, incident management in water distribution systems.

Dr. Peter Kedron, Assistant Professor, Department of Geography

PhD, State University of New York at Buffalo, Geography Landscapes of renewable energy, regional governance and industrial transition, environmental justice, spatial analysis, foreign direct investment.

Dr. Mustafa Koc, Associate Professor, Department of Sociology

PhD, University of Toronto, Sociology

Sociology of agriculture and food security and food policy, globalization and sociology of migration.

Dr. Bryan Koivisto, Assistant Professor, Department of Chemistry and Biology

PhD, University of Victoria, Chemistry

Advanced solar design, solar fuels, photovoltaics and redox-active chromophores.

Dr. June Komisar, Associate Professor, Department of Architectural Science

PhD, University of Michigan, History and Theory of Architecture

The integration of urban and architectural design with urban agriculture, Brazilian architecture and postcolonial architecture, creativity and the design process.

Dr. Lu Ann Lafrenz, Associate Professor, School of Fashion

PhD, The Ohio State University, Training and Development

Entrepreneurship in the Canadian fashion industry, specifically sustainable fashion entrepreneurs: the characteristics of the environmentally conscious entrepreneur, the innovative processes and alternate materials used, and how the entrepreneurs created and maintain an *ecologically friendly* company.

Dr. Andrew E. Laursen, Assistant Professor, Department of Chemistry and Biology

PhD, University of Notre Dame, Biology

Ecosystem ecology, biogeochemistry, limnology.

Dr. James Li, Professor, Department of Civil Engineering

PhD, University of Toronto, Environmental Engineering

Water pollution control process, water quality monitoring and modelling, storm water management, immunoassay analysis of persistent organic pollutants, GIS applications in environmental management, watershed management planning, eco-hydraulics and hydrology, and green building design.

Dr. Songnian Li, PEng, OLS/OLIP, Associate Professor, Department of Civil Engineering

PhD, University of New Brunswick, Geomatics Engineering

Geospatial information systems, environmental modeling with GIS, public-participated GIS and spatial decision-making in environmental impact assessment, geospatially-integrated environmental management systems, 3D GIS for land-surface-subsurface modeling.

Dr. Eric Liberda, Assistant Professor, School of Occupational and Public Health

PhD, New York University, Environmental Medicine

In vivo and in vitro cardiopulmonary effects of inhaled toxicants such as air particles and nanoparticles; the exposure of First Nation peoples to persistent organic pollutants and heavy metals.

Professor Nina-Marie Lister, MCIP, RPP, Affiliate ASLA (Registered Professional Planner), Associate Professor, School of Urban and Regional Planning

MSc Pl., University of Toronto, Planning

Landscape urbanism, landscape ecology; adaptive ecological design; biodiversity conservation in urbanising landscapes; contemporary parklands, waterfronts and post-industrial landscapes; urban agriculture and edible landscapes.

Dr. Jinyuan Liu, Assistant Professor, Department of Civil Engineering

PhD, Polytechnic University, Geotechnical Engineering

Underground pollutant transport, underground excavation and tunneling, urban geotechnology, soil-structural interaction, physical modeling, transparent soil, digital image processing, and numerical simulation.

Dr. Julia Lu, Professor, Department of Chemistry and Biology

PhD, Carleton University, Analytical and Environmental Chemistry

Development, evaluation, validation, and applications of analytical methods for environmental studies; identification and quantification of toxic chemical species in environmental samples; biogeochemistry of environmental pollutants; sources, transport, transformation, fate, and impacts of persistent toxic pollutants in the natural environment.

Dr. Grace Luk, Professor and Graduate Program Director, Department of Civil Engineering

PhD, Queens University, Civil Engineering

Water pollution transport, wastewater treatment, toxins bio-accumulation in fish, contaminant fate and effects models, bio-chemical treatment of waste water sludge, drinking water toxicity with bioassays.

Dr. Kelly J. MacKay, Professor, Ted Rogers School of Hospitality and Tourism Management

PhD, University of Illinois, Leisure Studies

Destination image, information search and processing, visual representations in tourism; information technology and vacation behaviour; special interest (nature, wildlife) and community tourism; photo-elicitation, mixed-methods

Dr. Vanessa Magness, Associate Professor of Accounting, Ted Rogers School of Business Management

PhD, University of Manitoba, Interdisciplinary Studies: Accounting, Finance and Environmental Economics

Environmental accounting: the inter-relationships between corporate disclosure, financial profit, and the management of environmental impacts

Dr. Lynda McCarthy, Associate Professor, Department of Chemistry and Biology

PhD, University of Waterloo, Biology

Environmental biology and environmental biotechnology, aquatic ecotoxicology, assessment of pollution and remediation, particularly endocrine disruptors in Great Lakes aquatic systems, land applications of pulp mill bio-solids and their impacts.

Dr. Tim McLaren, Associate Professor, Ted Rogers School of Information Technology Management

PhD, McMaster University, Management Science and Information Systems

Sustainable procurement, sustainable purchasing and/or performance measurement, sustainable supply chain management, decision-support tools and information systems.

Dr. Mehrab Mehrvar, Professor, Department of Chemical Engineering

PhD, University of Waterloo, Chemical Engineering

Advanced oxidation technologies for water and wastewater treatment; biochemical engineering; air pollution control and modeling; photochemical reaction engineering in environmental processes; integration of advanced oxidation technologies and biological processes for the treatment of water and wastewater.

Dr. Richard Meldrum, Associate professor, School of Occupational and Public health

University of Hull, Applied Biology

microbiological contamination of food, and monitoring food-borne pathogens

Dr. Andrew A. Millward, Assistant Professor, Department of Geography

PhD, University of Waterloo, Geography

Application of geospatial methods to the study urban parks and nature in built environments; Principal investigator, Urban Forest Research & Ecological Disturbance (UFRED) Group.

Dr. Paul Missios, Associate Professor, Department of Economics

PhD, York University, Economics

Environmental economics (biodiversity, pollution, waste), environmental resource management and policy, natural resource economics, applied game theory, and international trade and the environment.

Dr. Raktim Mitra, Assistant Professor, School of Urban and Regional Planning

PhD, University of Toronto, Planning

Sustainable transportation planning, healthy communities, planning for children and youth, the built environment- transportation-health interactions.

Dr. David Naylor, Professor, Department of Mechanical Engineering

PhD, University of Western Ontario, Mechanical Engineering

Heat transfer, building energy systems, laser interferometry, condensation, computational fluid dynamics, fluidized bed heat transfer, metal casting.

Dr. Corinne S. L. Ong, Associate Professor, School of Occupational and Public Health

PhD, University of Birmingham (UK), Chemistry

Microbial source tracking, contamination source inference, multi-use watersheds, source water protection, rural and urban water quality, foodborne parasites, epidemiology of foodborne and waterborne diseases, molecular epidemiology, spatial/temporal disease mapping.

Dr. Ana Pejovic-Milic, Associate Professor, Department of Physics

MSc, Belgrade, Radiation Chemistry; MSc, PhD, McMaster, Medical Physics

Medical physics, trace elements analysis of human tissues, in vivo and ex vivo analysis, bone aluminum, manganese, lead and strontium, X-ray fluorescence, neutron activation analysis.

Dr. Ronald Pushchak, Professor, School of Occupational and Public Health and School of Urban and Regional Planning (joint appointment)

PhD, Princeton University, Urban Planning

Environmental impact assessment, siting of hazardous waste facilities, risk assessment and facility siting.

Dr. Russell Richman, Assistant Professor, Department of Architectural Science

PhD, University of Toronto, Civil Engineering

Building science, building envelope, sustainable renovation of residential dwellings, low-energy building design, advanced claddings.

Dr. Claus Rinner, Associate Professor, Department of Geography, and Program Director, Master of Spatial Analysis

PhD, University of Bonn, Geography

Geographic information systems (GIS), geovisualization, spatial decision support systems, participatory GIS, geodata infrastructures, environmental change: local effects, vulnerability, and adaptation strategies.

Dr. Pamela Robinson MCIP RPP, Assistant Professor, School of Urban and Regional Planning

PhD, University of Toronto, Geography

Cities and climate change, urban sustainability, regional planning, design, urban agriculture, civic engagement, progressive pedagogy, scholarship of teaching and learning, Southern Ontario, Canada, North America.

[Not accepting new graduate students at this time.]

Dr. Cecilia Rocha Associate Professor, School of Nutrition

PhD, York University, Economics

Food security and food policy, market failures, civil society and governance, Brazil.

Dr. Scott Tsai, Assistant Professor, Department of Mechanical and Industrial Engineering

PhD, Harvard University, USA, Engineering Sciences

Lab-on-a-chip and microfluidic systems for biomedicine and environmental sustainability, viscous flow fluid mechanics, coating flows, micro-scale magnetophoresis and electrophoresis, and particle self-assembly

Dr. Cory Searcy, Assistant Professor, Department of Mechanical and Industrial Engineering

PhD, University of Alberta

Corporate sustainability, environmental management systems, quality management systems, performance measurement, industrial ecology, and life cycle assessment.

Dr. Ahmed Shaker, Assistant Professor, Department of Civil Engineering

PhD, The Hong Kong Polytechnic University, Geomatics

Satellite sensor modelling, Geometric correction of HRSI, Image processing and data fusion, Remote Sensing applications in urban planning, water resources managements, and monitoring, Image classification, Remote Sensing/GIS integrations.

Dr. Farid Shirazi, Assistant Professor, Ted Rogers School of Information Technology Management

PhD, University of Cape Town, Information Systems

Green IT with an emphasis on e-waste management and sustainable development, cloud computing, e-government strategies, and ICT security.

Dr. Cheryl Teelucksingh, Associate Professor, Department of Sociology

PhD, York University, Sociology

Environmental justice, urban sustainability, socio-spatial theory, applied geographical information systems, ethno-racial and immigrant settlement patterns in Toronto.

Dr. Scott Tsai, Assistant Professor, Department of mechanical and Industrial Engineering

MSc and PhD, Harvard University, Engineering Sciences

biotechnology applications of smart materials and small devices

Dr. Ginette Turcotte, Professor, Department of Chemical Engineering

PhD, University of Western Ontario, Chemical/Biochemical Engineering

Biological processes in upgrading food wastes, biofuel ethanol, cellulose degradation of agricultural and food residues.

Dr. Eric de Noronha Vaz, Assistant Professor, Department of Geography

PhD, New University of Lisbon, Statistics and Information Management

Urban growth and urban sprawl in regional change, sustainable development, heritage monitoring, spatial modeling and complex system dynamics, cellular automata, graph theory, neogeography, volunteered geographic information, land-cover/land-use change, coastal sustainability, soil erosion and climate change, renewable energy, sustainable business, regional science.

Dr. Russell D. Viirre, Assistant Professor, Department of Chemistry and Biology

PhD, University of Western Ontario, Chemistry

Synthetic organic and medicinal chemistry.

Dr. Philip Walsh, Associate Professor, Department of Entrepreneurship and Strategy

PhD, University of Bradford, Energy Policy

Renewable energy technology, commercialization of innovation, sustainability policies, energy economics, scenario planning.

Dr. Kernaghan Webb, Associate Professor, Ted Rogers School of Business Management

LLD (PhD in Law), University of Ottawa, Regulatory Offences and Environmental Protection

Effectiveness and applicability of environmental management systems standards; the effectiveness, utility and meaning of corporate social responsibility, business ethics; (more...)

Dr. Alex Wellington, Assistant Professor, Department of Philosophy

PhD, York University, Philosophy; LLB, LLM, Osgoode Hall Law School, Law

Environmental law and policy, intellectual property law and innovation policy, biotechnology and bioethics (including environmental ethics), business ethics, human rights and justice.

Dr. Gideon Wolfaardt, Professor and Canada Research Chair in Environmental Interfaces and Biofilms, Department of Chemistry and Biology

PhD, University of Saskatchewan

Microbial Ecology, environmental Microbiology, biofilm research

Dr. Arnold Yuan, Assistant Professor, Department of Civil Engineering

PhD, University of Waterloo, Civil Engineering

Risk-informed infrastructure engineering, which specifically focuses on uncertainty modeling and risk management, life-cycle assessment, inspection and maintenance optimization, and project risk management.

Associate Members

Dr. Mohammad J. Abdekhodaie, Scientist, Lealie Dan Faculty of Pharmacy, University of Toronto; Associate Professor, Chemical Engineering Department, Sharif University of Technology (Iran)

PhD, University of Toronto, Chemical Engineering

Molecular imprint technology, controlled release delivery systems, mathematical modelling and computer simulation

Dr. Ian Droppo, Research Scientist, Environment Canada

PhD, University of Exeter, UK

Dr. Bernard Fleet, President, Fleetec Inc.

PhD, Birmingham, UK, Analytical Chemistry; DSc, Imperial College, University of London; FRSC

Climate change and corporate strategies for managing the transition to the low-carbon economy, sustainable development with a focus on the economics of clean transportation and zero-emission vehicle technologies.

Dr. John Hicks, Instructor, School of Occupational and Public Health, Ryerson University

PhD, York University, Experimental Space Sciences

Air pollutant sources and their transfer through media, the exposure of local populations to contaminants, and the estimation of risk of chemical exposures.

Dr. Jennifer R. McKelvie, P.Geo., Senior Technical Specialist, Nuclear Waste Management Organization

PhD, University of Toronto, Geology

Evaluation of biogeochemical and hydrogeological processes, and their potential impact on used nuclear fuel containers, in a deep geological repository; determination of factors limiting microbial growth and activity in a DGR for used nuclear fuel; development of microbiological sampling and analysis methods for low permeability rocks.

Dr. Marthinus (Otini) Kroukamp, Postdoctoral Fellow, Department of Chemistry and Biology

PhD, Ryerson University, Microbiology

Antimicrobial resistance of biofilms and biofilm derived cells.

Dr. Yi-Fan Li, Senior Research Scientist, Modelling and Integration Research Section (ARQI), Science and Technology Branch, Environment Canada

PhD, Physics, University of Waterloo

Transport and transfer of persistent toxic pollutants (PTS) in multi-compartments, including air, soil, water, and sediment, the relationship of source/receptor of PTS in multi-compartments, usage/emission/residue inventories for PTS on both regional and global scales.

Dr. Steven N. Liss, Vice-Principal (Research) and Professor of Environmental Studies and Chemical Engineering of Queen's University, Ontario

PhD, University of Saskatchewan, Applied Microbiology and Food Sciences

Environmental biotechnology and waste water treatment, floc stabilization and bio-remediation, biofloculation and environmental analysis.

Dr. Ching Lo, SCCM, Senior Research Scientist, Laboratory Services Branch, Ministry of the Environment

PhD, University of Windsor, Biology

Use of ELISA (Enzyme-linked Immunosorbent Assay) to detect infectious diseases and environmental pollutants including pesticides, bacterial toxins and persistent organic pollutants; global warming root causes.

Dr. Guerino G. Scaripante, Research Fellow, Xerox Research Centre of Canada

PhD, McGill University, Synthetic Organic Chemistry

Novel sustainable materials and processes.