FOR APPROVAL **PUBLIC** **OPEN SESSION**

TO:	Academic Affairs Committee
SPONSOR:	Amrita Daniere, Vice-Principal, Academic & Dean
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DATE:	January 8, 2019 for January 15, 2019
AGENDA ITEM:	3

ITEM IDENTIFICATION:

Major Modification: New Freestanding Minor in Sustainability

JURISDICTIONAL INFORMATION:

Under section 5.6 of its terms of reference, the Academic Affairs Committee is responsible for "major and minor modifications to existing degree programs. All major modifications shall be reported annually for information to the appropriate body of Governing Council".

GOVERNANCE PATH:

1. **Academic Affairs Committee [For Approval] (January 15, 2019)**

PREVIOUS ACTION TAKEN:

No previous action was taken on this proposal.

HIGHLIGHTS:

This is a proposal to introduce a new freestanding Minor program in Sustainability that will provide students an opportunity to explore the theory and practice of sustainability and sustainable development. The program will be administratively housed within the Department of Geography and complement the offering in the Programs in Environment.

The Minor in Sustainability program will be unique across all three UofT campuses as it offers focused study in the area of sustainability or sustainable development. Students will have opportunities for practical application of sustainability theory, through both experiential and classroom-based course offerings. Altough the course requirements in this program will include core elements from the Environment curriculum it will draw from other UTM disciplines and departments, including Political Science and Sociology and will appeal to students from a wide variety of programs. The program will support an early introduction of the area of sustainability

to undergraduate students, which could in turn lead to students pursuing possible careers in the area or even the MScSM graduate program at UTM. Graduates with expertise in sustainability are in demand, and this fact is reflected in job postings across Canada.

This Minor program aligns itself with UTM's commitment to promote sustainability within UTM and beyond, recognizing that environmental awareness should guide our planning and be reflected in our pedagogical and scholarship activities. As part of the implementation of the goals and visions of the UTM Academic Plan 2017, the Sustainability Pathways Working Group (SPWG) was established in December 2017 with the mandate to review how to contribute to sustainability on our campus. The Minor in Sustainability is consistent with the conclusions of the SPWG, as laid out in its draft report. The SPWG was consulted and informed of the details of the program proposal.

FINANCIAL IMPLICATIONS:

There are no net implications for the campus' operating budget.

RECOMMENDATION:

Be It Resolved,

THAT the proposed new freestanding Minor in Sustainability, offered by the Department of Geography – Programs in Environment, recommended by Vice-Principal, Academic & Dean, Professor Amrita Daniere, and described in the proposal dated December 3, 2018, be approved, effective September 1, 2019.

DOCUMENTATION PROVIDED:

Major Modification Proposal: New Freestanding Minor Program: Sustainability

University of Toronto
Major Modification Proposal:

New Freestanding Minor Where There is No Existing Specialist or Major

What is being proposed:	New Freestanding Minor program: **Sustainability (HBA)**
Department	Department of Geography – Programs in Environment
Faculty:	University of Toronto Mississauga (UTM)
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Version date:	December 3, 2018

1 Summary

This is a proposal to introduce a new freestanding Minor program in Sustainability within the Department of Geography at the University of Toronto Mississauga (UTM). This proposed Minor will enhance the suite of Environment programs offered within the Department of Geography and will fill important gaps in program offerings in the unit as a whole. Current Geography offers programs in Environmental Management (Specialist, Major, and Minor programs contributing to an Honours Bachelor of Arts degree) and Environmental Science (Specialist, Major, and Minor programs contributing to an Honours Bachelor of Science degree). The goal of this new Minor program is to give

students an opportunity to **explore the theory and practice of sustainability and sustainable development**.

Relationship to other programs: The administrative "home" for this program will be the Department of Geography and Programs in Environment at UTM. The program will resonate with existing programs in the Department, but we feel (on the basis of student consultations) that it has the potential to appeal to students from a variety of disciplinary backgrounds. In addition to courses from Geography (GGR) and Environment (ENV), the program will also draw on expertise from Political Science (POL) and Sociology (SOC), as well as from the School of Environment on the St. George campus (UTSG). **All of those units were consulted in the preparation of this proposal.**

Impetus for its development: The 2017 University of Toronto Mississauga Vision Statement[1] outlines the mission, vision, and key attributes of the campus' shared identity. One core attribute is our commitment to promote sustainability within UTM and beyond, recognizing that environmental awareness should guide our planning and be reflected in our pedagogical and scholarship activities. University of Toronto President, Prof. Meric Gertler, recently appointed Prof. John Robinson as UofT's first Presidential Advisor on the Environment, Climate Change, and Sustainability.[2] Prof. Robinson leads a Committee on the Environment, Climate Change, and Sustainability "to identify ways to advance the University's contribution to meeting the challenge of climate change", which may inlcude "environment-related academic planning". The proposed Sustainability Minor addresses both the UTM Vision Statement and the mandate of the University-wide Committee on the Environment, Climate Change, and Sustainability with respect to academic planning around sustainability and environmental awareness. **Professor Robinson was consulted in the preparation of this proposal.**

As part of the Academic Implementation Process, and in working towards fulfilling the goals and visions of the UTM Academic Plan 2017, Professor Amrita Daniere (Vice-Principal Academic and Dean) established the Sustainability Pathways Working Group (SPWG) in December 2017. The SPWG discussed a broad range of aspects that contribute to sustainability on our campus and beyond, including academic programs, research, outreach activities, and sustainability initiatives. A draft report, summarizing SPWG's consultation process and conclusions, was circulated for comment to the UTM community on July 7, 2018. The report contextualizes the "Five Pillars" of Sustainability at UTM, and presents recommendations for short-term and long-term plans to aid the integration of sustainability theory and practice on campus. **The SPWG was consulted about the proposal for a new Minor in Sustainability**, and was informed of the details of the program proposal. The new Minor is consistent with the conclusions of the SPWG, as laid out in the draft report.

Furthermore, UTM's Institute for Management and Innovation (IMI) offers a professional master's degree in Sustainability Management (MScSM).[3] This unique program trains students to integrate knowledge from management, engineering, and social and natural sciences to address sustainability issues across business, non-profit, research, and government organizations. Since the launch of MScSM in September 2014, there has been a consistently large pool of strong, qualified applicants every

[1] https://www.utm.utoronto.ca/dean/sites/files/dean/public/shared/UTM%20Mission%20Vision_finalfinal%20_1.pdf
[2] https://memos.provost.utoronto.ca/appointment-of-the-presidential-advisor-on-the-environment-climate-change-and-sustainability-pdadc-43/
[3] http://www.utm.utoronto.ca/mscsm/

admission cycle, indicating a keen interest in this field of study. There is a clear appetite among students, faculty, and University administration to bring the principles and practice of sustainability into our educational environment in a more concrete way and this new Sustainability Minor will respond directly to this. There is already a close relationship, both academically and administratively, between the undergraduate Environment programs and the graduate MScSM program at UTM; this new proposed Minor will help to strengthen that relationship. **Professor Shashi Kant, Director of MScSM program, was consulted in the preparation of this proposal.**

Distinctive elements: The proposed minor program in Sustainability will be **unique across all three UofT campuses** as no other undergraduate program at the University of Toronto currently offers students the chance for focused study in the area of sustainability or sustainable development. The new Minor will begin to fill this academic gap at UofT while responding to student interest and societal need. Students will have opportunities for practical application of sustainability theory, through both experiential and classroom-based course offerings. Interdisciplinarity and inclusive perspectives are crucial for successful explorations and operationalization of sustainability and sustainable development. The Environment Programs at UTM, with a strong interdisciplinary underpinning since their establishment in 1995, are well positioned to provide this holistic context and perspective.

2 Effective Date

September 1, 2019

3 Academic Rationale

A freestanding Minor Program in Sustainability is being proposed to complement the current offerings of the Programs in Environment, an interdisciplinary set of academic programs housed administratively within the Department of Geography. The goal of this new Minor program is to give students an opportunity to explore the theory and practice of sustainability and sustainable development. There is growing interest in Sustainability among our own Environment undergraduate students and from students across other disciplines. There also is a growing societal need to have engaged members of the community with an appreciation and understanding of the issues around sustainability and environmental awareness. We believe that this proposed Minor will begin to address these interests.

Sustainability has emerged as a rapidly growing field of study with important implications in academic planning and University administration (and beyond). At the University of Toronto, this is evidenced by the appointment of a Presidential Advisor on the Environment, Climate Change, and Sustainability and the corresponding establishment of the University-wide Committee on the Environment, Climate Change, and Sustainability with a mandate “to identify ways to advance the University’s contribution to meeting the challenge of climate change, with a particular focus on research and innovation, teaching, and University operations.” UTM has also identified sustainability as a key attribute of our campus identity, through the 2017 University of Toronto Mississauga Vision Statement and the appointment of

the Sustainability Pathways Working Group, and is committed to promoting sustainability and environmental awareness in our pedagogy and scholarship, as well as in the practical functioning of our campus and our broader community relationships.

Beyond this, student interest in sustainability is strong. In a poll of first-year students from a wide range of academic backgrounds, a Minor Program in Sustainability was identified as being of interest by 63% of respondents (see Section 4 Need and Demand, below). IMI has offered a successful professional Masters of Science in Sustainability Management (MScSM) Program, which was launched in September 2014. Though the MScSM Program is limited in size, it has grown steadily since its inception and receives very strong application numbers every year. The clear need to embed the principles and practice of sustainability into an academic context suggests that the time is right to introduce an undergraduate program focused on sustainability at UTM.

Course requirements in this program will be rooted in the Environment curriculum (which is interdisciplinary by design), but will draw from other UTM disciplines and departments, including Political Science and Sociology. The interdisciplinary character of course requirements should mean that the program will appeal to (and will be accessible to) students from a wide variety of programs. The majority of courses that make up this minor will be delivered in the traditional face-to-face classroom format, utilizing technology as appropriate to complement and enhance the course content. Web-based course materials will also be used in many of these courses. The introductory core course, ENV100Y5 (The Environment), is offered both as a face-to-face and an online course; and JPE250Y5 (Environmental Politics in Canada) has traditionally been offered in an online-only format. Upper-year elective courses include several options for experiential learning and practical applications.

This will be the first undergraduate program specifically focused on the topic of Sustainability across all three campuses of UofT. Therefore, there will be no significant overlap or repetition with any existing programs at UTM (nor at UofT as a whole).

There are a number of undergraduate programs with specific focus on sustainability at comparable universities across Canada. **The lack of sustainability-focused undergraduate programming at UofT, especially given existing offerings in sustainability-related fields at comparable schools across Canada, suggest that UofT is lagging in this area.**

Examples of existing sustainability-related undergraduate programs at other institutions include:

- Ryerson University offers an undergraduate program in Environment and Urban Sustainability (BA). While it has some curricular overlap, Ryerson's program is specifically focused on the urban environment, which is not a major focus of the proposed new Minor.
- The University of Waterloo, in conjunction with Wilfred Laurier University, has long had a focus on Environmental Science, offering several programs with a focus on aspects of sustainability within various disciplinary contexts. The program that focuses most specifically on sustainability is Environment, Resources, and Sustainability (BES). This program differs from the current proposed Minor program, as its focus is on environmental science and resources, rather than on sustainability more broadly conceived.
- Lakehead University offers an interdisciplinary undergraduate program on Environmental Sustainability. The Lakehead program is focused on sustainability from the specific perspective

of environmental science, ecosystems, and resources; this is quite different from the more holistic perspective of the proposed new Minor.

- University of British Columbia (UBC) offers a number of undergraduate programs that allow students to orient their degrees around their specific area of interest within sustainability. UBC has been ahead of the curve in embedding sustainability at the undergraduate level, across disciplines; Professor John Robinson, UofT's Presidential Advisor on the Environment, Climate Change, and Sustainability, was largely responsible for UBC's sustainability initiatives prior to joining the University of Toronto. Interestingly, however, the only undergraduate programs at UBC that specifically mention Sustainability in the program names are Environment and Sustainability (Geography BA); and Commerce with Sustainability Concentration (BComm). The focus of the latter program is clearly quite different from that of the proposed new Minor. The Environment and Sustainability program "offers an integrated understanding of physical, ecological, economic, socio-cultural and political systems, as they shape the world in which we live and influence the future of life on planet earth"; as such it is similar in scope and objectives to the current proposed Minor in Sustainability.
- Dalhousie University offers an undergraduate program in Environment, Sustainability, and Society. This is a multidisciplinary program that allows students to "Explore links between environmental issues and poverty, globalization, consumption, and urbanization; develop skills in environmental decision-making; and gain hands-on experience through internships, group work, and community projects." In scope and objectives, it is similar to the proposed new Minor program.
- Western University has a Centre for Environment and Sustainability, which offers both BA and BSc programs; however, the programs tend to focus on environment rather than on sustainability more broadly conceived.
- Carleton University's Faculty of Engineering offers an undergraduate program in Sustainable and Renewable Energy Engineering. As an Engineering program, this differs substantially from the proposed new Minor.

4 Need and Demand

The success of the Master of Science in Sustainability Management Program at UTM, and the quality of students incoming to that Program from both Science and Social Science backgrounds, attest to the broad-based interest among students and recent grads. Additionally, there is a strong case for demand with the University of Toronto's and UTM's significant shift to prioritize sustainability and environmental awareness, and to bring these into a core position both academically and administratively, as discussed above.

An anonymous poll was carried out among 750 students enrolled in ENV100Y5 Environment. The students came from a wide range of academic backgrounds in Science, Social Science, and Humanities. (Students with a pre-existing interest in environment- and sustainability-related disciplines are in the

minority among students enrolled in ENV100Y5; many students from other disciplines take the course to fulfill their Science distribution requirement, so a broad range of academic backgrounds and interests is represented.) Students were presented with a list of possible focal areas for new Minors and asked to choose those that would be of specific interest to them. Over 63% of the respondents said that a Minor program in Sustainability would be of interest to them.

Graduates with expertise in sustainability are in demand. On **LinkedIn.com**, at the time of writing, over 1000 jobs requiring skills related to sustainability are currently posted; these include Director of Sustainability for First Capital Realty; Sustainability Analyst for Hudson's Bay Company; and Environmental & Sustainability Specialist for Maple Leaf Foods. On **GoodWork.ca**, a Canadian environmental job site, current "Environment & Sustainability" job postings (as of this writing) include Sustainability Program Instructor, Downsview Park; Director of Sustainability, Panago Pizza; and Project Manager for Business Transformation, City of Toronto. A quick search on the job posting site of **Environmental Careers Organization**, the federal-level sector council for the Environment Sector in Canada, turned up a number of workshops, courses, job postings, and articles on topics related to sustainability employment; see, for example, http://www.eco.ca/blog/3-great-sustainability-careers-that-start-at-50000yr/. This minor support an early introduction of the area to undergraduate students, which could in turn lead to students pursuing possible careers in the area or even the MScSM graduate program.

5 Admission/Eligibility Requirements

The proposed Minor in Sustainability will be a Type 2 subject POSt with enrolment limited to students who have completed ENV100Y5 (The Environment) with a final course grade of 60% of higher. This admission standard is consistent with the requirements of the two existing Environment Minor programs (Environmental Management and Environmental Science) in the Department of Geography at UTM. Because of the anticipated wide appeal of this program, students from varied backgrounds and disciplines will be encouraged to apply. Given the strong enrolment numbers that are consistently seen in ENV100Y5 (approx. 1300 students per academic year, comprising 900-1000 in Fall-Winter and 400 in Summer), the foundational course for the new program, strong interest and enrolment numbers are expected.

The existing Minor programs in Environment at UTM, Environmental Management and Environmental Science, were introduced in 2009-10. Since then (over the past 8 yeas), enrolments in those programs have grown to 73 (ERMIN1425) and 103 (ERMIN1061), respectively. We do not anticipate that enrolments in the new Minor program in Sustainability would be higher than enrolments in the two existing Minor programs. Based on our experience with those programs, enrolments will most likely start out small (perhaps even single digits in the first year or two) and increase steadily after that. It is possible that enrolments could be comparable to those of the existing Minor programs after 5 years or so, particularly if UTM's effort at implementing sustainability-focused initiatives is successful.

6 Requirements for the Minor

The proposed Minor program in Sustainability will comprise 4.0 full course equivalents (FCE). Within the 4.0 FCE, students will take 2.5 FCE of required 'core' courses, and then complete the remaining 1.5 FCE through elective course options.

In the first year, students must complete the **foundational entryway course** ENV100Y5 The Environment to gain admission to the minor program (see Admission Requirements, above). In this course, students will be introduced to a range of environment- and sustainability-related topics and the foundational scientific knowledge required to address them, as well as to core concepts of sustainability that will be reinforced in upper-year courses of the program.

ENV100Y5 serves as a prerequisite or recommended preparation for the program's **core course requirements** ENV201H5, ENV205H5, and ENV310H5. ENV201H5 Environmental Management is a natural progression from ENV100Y5, in which students begin to apply their scientific understanding of the functioning of the natural world to issues involved in the management of human-planet relationships, acquiring the necessary social scientific tools to approach environmental problems from a management perspective. We have chosen ENV205H5 Sustainable Tourism not just because of the importance of tourism as an industry around the world, but because increasingly questions are being raised regarding the social and environmental sustainability of tourism. Tourism is very representative of the core challenges of sustainability, because of the deep impacts (both positive and negative) of tourism on the natural environment, on societies, and on local economies. ENV310H5 The Sustainability Imperative is the core course in which students will develop depth and maturity in their understanding of the historical, theoretical, and practical aspects of sustainability. This course was designed as an upper-level course with deep intention. The concepts and practical challenges of sustainability are often approached lightly or superficially; we are committed to having students engage with these courses at a deeper level, with greater academic maturity.

Upon completion of the core courses, students will have a foundation that is both broad and deep. They also will have achieved the prerequisites for most of the upper-level elective course options to complete the minor program. (There are a few additional elective courses with prerequisites that are outside of the program requirements, but there are no "hidden" prerequisites.) The completion of the core + elective courses will also fulfill the requirement that all Minor programs must include at least 1.0 FCE in 300/400-level courses.

Upper-level elective course options include existing offerings from Environment (ENV311H5 Environmental Issues in the Developing World; ENV320H5 Managing Our Waste; ENV332H5 Practicum in Environmental Project Management; ENV425H5 Managing Urban Ecosystems); Geography (GGR287H5 Food and Globalization; GGR329H5 Environment and the Roots of Globalization; and GGR419H5 Geography of Food: Spatial Organization and Policy Controversies); Political Science (POL346Y5 Urban Politics, and POL475Y5 Global Environmental and Sustainability Politics); and Sociology (SOC459H5 Science, Technology, and Society, and SOC465H5 Climate Change and Society). These courses will provide a broad range of perspectives on both theoretical and practical aspects of sustainability and will allow students to customize the program to fit their own academic interests. (The upper-level SOC courses are restricted to students in Sociology programs.)

In addition, three joint courses from Environment and Political Science are included (JPE250Y5* Environmental Politics in Canada; JEP356H5 Environmental Justice; and JEP452H5 Politics and Policy of Wildlife Conservation); these courses provide a grounding in law and policy as they relate to environment and sustainability. Two courses from the School of Environment at the St. George campus (ENV307H1 Urban Sustainability and ENV461H1 The UofT Campus as a Living Lab of Sustainability) have been listed as elective course options for additional breadth and depth (although the program does not depend on these courses and can be completed at UTM).

All of the elective courses focus on aspects of the intersection of human activities with the environment, bringing together the four "pillars" of sustainability: the environmental, the social, the economic, and the political/legal/institutional aspects. Because of the interdisciplinary nature of this program, we have identified not just ENV courses but also sustainability-focused courses from cognate units, to provide additional breadth and practical/experiential experience. To ensure depth of knowledge, students must complete at least 1.0 FCE at the 300/400-level from the elective course list.

*Regarding **JPE250Y5**: Changes have been proposed by the Department of Political Science and Programs in Environment , to split this joint course into JPE250H5 Introduction to Canadian Environmental Law and Policy I and JPE251H5 Introduction to Canadian Environmental Law and Policy II (effective September 2019). This change will be beneficial for the Environment Programs in general, and for the new proposed Minor in particular.

Please see **Appendix A** for proposed calendar copy.

Please see **Appendix B** for a full list of the course numbers, titles, and descriptions.

7 Program Structure, Learning Outcomes and Degree-Level Expectations (DLEs)

The following Learning Outcomes are addressed by the required courses in the proposed new Sustainability Minor program. Additional LOs may or may not be addressed by upper-level elective courses, depending on the course selections made by individual students.

Depth and Breadth of Knowledge:

- Acquire key environmental concepts and theories from natural and social science perspectives to examine the interaction of humans and the environment.
- Synthesize information from a variety of environmental sub-disciplines to explore the complexity of real-world situations.
- Ground theoretical knowledge in local to global case studies within a systems framework.

Knowledge of Methodologies:

- Locate, evaluate, and integrate literature relevant to environmental questions.
- Select and apply appropriate quantitative, qualitative and/or practical methods to address a specific problem or objective.

- Use fundamental skills in numeracy, graphical, and spatial literacy needed to interpret and critically assess environmental information.
- Critically assess multiple perspectives on environmental systems.

Application of Knowledge:

- Examine how environmental research shapes public policy and governance structures.

Communication Skills:

- Develop and effectively communicate well-researched arguments via a variety of communication methods including written, oral, graphical, and quantitative approaches.

Awareness of Limits of Knowledge:

- Critically assess the limits of data in order to evaluate the legitimacy of arguments based upon said data.

Autonomy and Professional Capacity:

- Practice ethical and social responsibility when addressing environmental issues.

In the table below, the contribution of the proposed Minor program to the achievement of each of the Undergraduate Degree-Level Expectations is explored through the lens of these LOs. The table explains how the UDLES and LOs are understood and interpreted in the context of the proposed program, and how the program design, structure, and course content will support the achievement of the UDLES.

Degree-Level Expectations	**Program Learning Outcomes***	**How the Program Design/Structure Supports the Degree-Level Expectations**
1. Depth and Breadth of Knowledge	**Breadth of knowledge** is understood in the Minor as a demonstration of exposure to and understanding of a wide **range of concepts and applications** contributing to our modern understanding of sustainability. **Depth of knowledge** is understood as exploration of both the **theory and practice** of sustainability at a level more advanced than is typical in first- and second-year courses. Both of these Learning Objectives require students to integrate key concepts and theories from science and social science, in the context of sustainability; and to synthesize information from a variety of data sources, applying it to real-world problems of sustainability, both locally and globally.	In terms of **breadth**, students will acquire a broad interdisciplinary foundation in Environmental Science (ENV100Y5) and Environmental Management (ENV201H5) and will then go on to complete required core courses that explore the both the history and application of the concepts of Sustainability, with particular attention to the integration of concepts from Science, Social Science, and Humanities (ENV310H5; ENV205H5). The structure of the program provides the scientific foundation first; our premise is that an understanding of how our planet functions is crucial to making sustainability work on a practical level. Students then move on to consider the role of both scientific information and social considerations in a management context, in ENV201H5 and ENV205H5. Upper-level course options and the core ENV310H5 bring a deeper consideration of local and global issues. With regard to **depth**, it will not be possible to complete the Minor program without completing at least 1.0 FCE (out of 4.0) 300-400

		level courses. Only one 100-level course is included in the Minor (ENV100Y5), so much of the work in the program will be carried out at an advanced level. It is important for our core "Sustainability" course (ENV310H5) to be presented to students in the 3rd year, not before. While they are exposed to many aspects and concepts of sustainability in the 1st and 2nd year, this course aims to go well beyond the superficial introduction to sustainability many students have experienced. At the 3rd-year level, students have better analytical skills and are in a good position to critically analyze important aspects of sustainability at a deeper level.
2. Knowledge of Methodologies	Knowledge of methodologies is understood in the Minor as the ability to locate, evaluate, and integrate literature relevant to questions and problems of sustainability; and use fundamental skills in numeracy, graphical representation, and spatial literacy to interpret and critically assess information. More importantly, students will be asked to critically assess multiple perspectives on sustainability – from local to national to international; from scientific to social scientific; and from a wide range of players (corporate, academic, governmental, economic, social, religious, etc.).	Students will demonstrate their **knowledge of sustainability-focused methodologies** through a wide variety of course-based work, including critical assessment of the sustainability positioning of corporations and products; analysis of policy statements; stakeholder simulations; comparison of issues of sustainable development internationally; and many others. Program core courses offer students exposure and opportunities to work with a **wide variety of tools and methodologies**, often by applying them to problem-solving in real-world situations. Specific examples of skills and methodological tools acquired through program requirements are provided below in **Section 8**.

3. Application of Knowledge	**Application of knowledge** is understood in the Minor as demonstrating an understanding of **how research shapes public policy and governance structures** in sustainability-related areas; and the capacity to integrate knowledge gained in the classroom with knowledge gained through practical learning opportunities to enhance **problem-solving abilities**.	There are four **experiential** courses available among the elective courses in the program (Managing Our Waste; Retail Geography; Practicum in Environmental Project Management; and The U of T Campus as a Living Lab of Sustainability). Not all students will have the opportunity or the desire to take a fully experiential course as part of this program. However, we view sustainability as – fundamentally – an exercise in integrating different perspectives; in understanding how theory influences policy and practice; and in finding or designing viable solutions to problems. Virtually every course in this Minor will require students to demonstrate the ability to **apply basic concepts to practical problem-solving**, using real-world data, information, and situations.
4. Communication Skills	In the Sustainability Minor, and in the Department of Geography and Programs in Environment generally, we are always aware of the need to provide students with opportunities to **communicate by written, oral, graphical, and quantitative means**.	At least three of the program courses for the Minor involve **oral presentations** of some type, ranging from individual talks to group presentations to poster sessions. The audiences for these communications range from classmates; to the whole department (including other students, faculty, and graduate students); to supervisors external to the University. However, written skills are generally more central to most of the courses required for the Minor and are emphasized throughout. **Written, quantitative, graphical interpretation, and spatial skills** are emphasized in various courses, particularly in the 1st-year foundational course. In upper-level courses, students are asked to prepare policy briefs; make recommendations; write term papers; critically analyze sustainability marketing; provide written interpretations of models and datasets; and many other writing-focused activities. In ENV201H5, a core course for the program, the acquisition of writing skills is supported by a Writing Initiative grant from the Dean's Office.
5. Awareness of Limits of Knowledge	In the Sustainability Minor, awareness of the limits of knowledge is understood as the ability to **critically assess both data and data sources**, in order to	Virutally <u>all</u> the required courses in the Minor involve the **discovery, evaluation, and critical assessment of data** in a variety of forms and from a range of sources. **Critical analysis**, particularly acknowledging the limits of data, is crucial to the understanding

	evaluate the legitimacy of arguments based upon the data.	and application of concepts related to sustainability and sustainable development, which are prone to multiple interpretations. In SOC459H5 Science, Technology, and Society, the theme of the limitations of knowledge is particularly important. Even in ENV100Y, our foundational course, we challenge students to become more **informed and more critically aware consumers of news** about the environment and human interactions with the environment. A common assignment in this course, for example, would ask students to apply their course knowledge to the interpretation of a news item or the solution of a real-world situation or problem.
6. Autonomy and Professional Capacity	In the context of sustainability and sustainable development, the understanding of **ethical and social issues** is critical to finding pathways forward that are equitable **locally and internationally**, as well as **intra-generationally and inter-generationally**.	Courses such as ENV310H5 The Sustainability Imperative; ENV311H5 Environmental Issues in the Developing World; JEP356H5 Environmental Justice; SOC459H5 Science, Technology, and Society; and, in fact, most of the courses in the proposed Minor program address **fundamental questions about sustainability and ethics, equity, and differing social circumstances and perspectives**. These questions are addressed mainly upper-level courses in this program.

8 Assessment of Teaching and Learning

Teaching methods within the program's core and elective courses include but are not limited to: seminars; lectures (both online and in-person); small-group tutorials; experiential projects; group projects; guest speakers; games and simulations; discussions using a variety of formats; "think-pair-share" and other breakout formats; case studies; collaborative learning; videos; problem-based learning; podcasts; debates; field work; field trips; and team teaching.

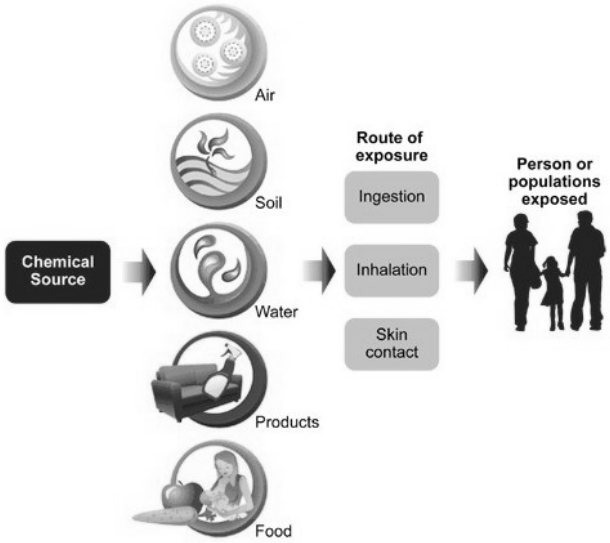
Assessment and feedback methods in the program's core and elective courses include but are not limited to: quizzes and tests with a variety of question types (both online and in-person; formative and summative); final examinations; peer feedback; critical book reviews; scaffolded term papers and case studies; policy briefs; critical reading responses; participation in tutorials and online discussions; and other types of assignments, both quantitative and qualitative.

These are consistent with (and a sub-set of) the teaching and assessment methods defined at the program level by the Department of Geography, and they are consistent with the requirements of UDLES.

Specific examples are provided here to illustrate some learning activities, content delivery, formative and summative assessments, and feedback mechanisms that address each of the identified Learning Objectives and Outcomes, in the proposed program's required courses. **These are not exhaustive** – there are many other examples of innovative teaching, feedback, and assessment tools that will help us achieve the Learning Objectives that we have established for this program.

Depth and Breadth of Knowledge:

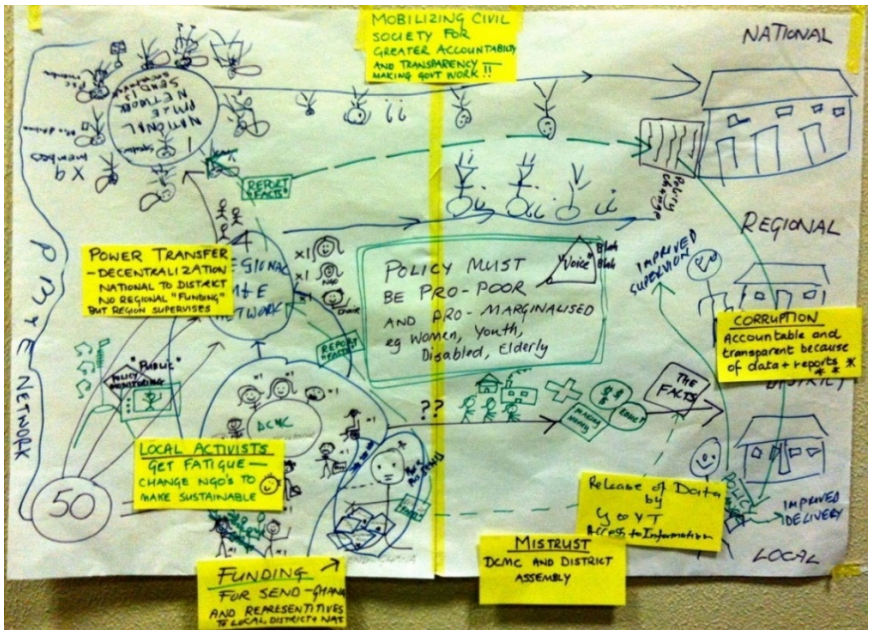
- Acquire key environmental concepts and theories from natural and social science perspectives to examine the interaction of humans and the environment.
    - This Learning Outcome speaks to the fundamental course theme and over-arching goal of ENV100Y5 Environment, which is to examine the interactions of humans and the environment. Students are introduced to a wide range of natural science concepts, processes, and theories, and encouraged to consider them within the social, political, legal, and economic framework of our country and local area.
    - Students are particularly urged to consider the differences and synergies between environmental science, a scientific undertaking that aims for objectivity; and environmental activism or environmentalism, a social advocacy movement. In this course, formative assessments help students test their knowledge of lecture content and readings on an ongoing basis throughout the course. Periodic online discussions and live chat sessions allow students to ask questions and receive instant feedback. On the Term Test and Final Exam, students are challenged to synthesize information from the entire course (72 weeks), bringing their expertise to bear on real-world, scenario-based problems.
    - For example, in the 2018 April Final Exam in ENV100Y5, students were given the following "Chemical Exposure Diagram" from Health Canada (https://www.canada.ca/en/health-canada/services/home-garden-safety/measuring-your-exposure-chemicals.html):



The rest of the exam required students to apply their knowledge of environmental systems, cycles, processes, materials, and management from the course lectures and readings, in

responding to questions about this graphic and what it means for the health of both people and the environment. Question formats included written-answer, definitions, matching, interpretation of diagrams, and drawing of diagrams.

- Synthesize information from a variety of environmental sub-disciplines to explore the complexity of real-world situations.
    - This Learning Objective is addressed in several core program courses. For example, students in ENV201H5 Environmental Management role-play to develop a locally-based management plan for whitetail deer. They are challenged to incorporate a range of information (from scientific and other sources) into the management plans. Through background research on their assigned roles, they also must seek to understand a variety of different perspectives and positions on wildlife management. Some of these perspectives are conflicting, and students must figure out how to apply the relevant information appropriately, to devise an effective management plan while reconciling the conflicting positions in the simulation.
- Ground theoretical knowledge in local to global case studies within a systems framework.
    - Systems theory and systems science is fundamental to the theory and practice of sustainability, and the systems perspective is key to our program-related courses. We feel that a fundamental part of the systems approach, in a sustainability context, is the consideration of local and global perspectives and interactions, and intergenerational and intragenerational perspectives and interactions. These are core themes in several program-related courses.
    - For example, in ENV310H5 The Sustainability Imperative, through lecture content, videos, readings, and tutorial exercises, students consider the environmental, social, economic, and political/legal aspects of sustainability, as well as examining the contributions of various actors to sustainability – from international governance to not-for-profits to individuals, corporations, universities, and even religious traditions.
    - In one of the tutorial exercises in ENV310H5, students utilize a “Rich Picture” approach to explore how the aspects of sustainability are interconnected across various dimensions (local to global, intergenerational to intragenerational, etc.), coming up with responses that look something like this (example from Networking Action: Organizing for the 21st Century, http://networkingaction.net/):



Knowledge of Methodologies:

- Locate, evaluate, and integrate literature relevant to environmental questions.
    - Students in program-related courses will have many opportunities to interact with scholarly literature in fields related to sustainability. For example, students in ENV205H5 are asked to read and critically review a book related to the central topic of the course, Sustainable Tourism. For this assignment, they must "a thoughtful and critical reflection on the book … and how it relates to the themes of the course and other scholarly literature on the topic", as well as providing evidence that they have read, understood, and thought about the book's contents, arguments, evidence, and strengths and weaknesses, including citations to at least five relevant scholarly sources.
- Select and apply appropriate quantitative, qualitative and/or practical methods to address a specific problem or objective.
    - Students in the Sustainability Minor program will have opportunities to gain skills and work with a wide variety of quantitative, qualitative, and practical methodologies. Methodological skills are commonly acquired through assignments that ask students to carry out investigations involving real-world data and problem-solving. Students will have the opportunity to acquire and utilize skills that include:
        - scientific tools (e.g., through ENV100Y5, in which students are asked to interpret quantitative, scientific data and spatial information in assignments, using real environmental data from the City of Mississauga);
        - management tools (e.g., through ENV201H5, in which students critically examine environmental and resource management frameworks, including stakeholder consultation and environmental impact assessment tools);

  - legal and policy tools (e.g., through JPE250Y, in which students carry out a scaffolded final project comparing and contrasting Canadian and American environmental policies);
  - economic tools (e.g., through ENV310H5 tutorials, in which students carry out a valuation exercise for environmental goods and services, and a Product Lifecycle Assessment);
  - data management tools (e.g., through ENV310H5 and ENV311H5, in which students complete assignments involving guided explorations of online databases, work with interactive online models to investigate sustainability-related questions, and portray data and trends using digital information);
  - field methods (e.g., through ENV332H5 Practicum in Environmental Project Management and ENV461H1 The Campus as a Living Lab of Sustainability);
  - social analytical tools relevant to philosophical and social justice issues (e.g., through ENV311H5, ENV310H5, and JEP365H5, in which students are asked to address the interactions, conflicts, and synergies among environment, sustainability, and social justice); and,
  - research methodology tools (e.g., through JEP452H5, in which students complete a 30+-page scaffolded research project).

- Use fundamental skills in numeracy, graphical, and spatial literacy needed to interpret and critically assess environmental information.
  - Fundamental skills in numeracy, graphical representation, and spatial literacy are addressed at the beginning of the program, in ENV100Y5, but continue to be developed in later courses.
  - For example, students in ENV100Y5 complete assignments on graphical interpretation of environmental data, and the use of mapping and GIS for environmental decision-making. For example, the GIS assignment utilizes real environmental monitoring data from the City of Mississauga. Students must produce maps using data from the City, and then query those maps to discover how spatially referenced and scientific data can contribute to better environmental management.
- Critically assess multiple perspectives on environmental systems.
  - One of the most crucial aspects of sustainability is its multi-faceted nature. By definition, sustainability encompasses multiple perspectives in time, space, and circumstance. For example, it is often the case that economic and corporate interests are seen as being at odds with the environment and social justice. Perspectives from the Global South also are often misinterpreted or seen as being at odds with the interests of the Global North. For sustainability to succeed and to be equitable – indeed, for society to survive and flourish – it is critical that we move beyond these misconceptions. We push students to grapple with multiple perspectives like these in several program-related courses.
  - For example, students in ENV310H5 are asked to research and write a critical analysis of the sustainability initiatives of a company, program, or product from anywhere in the world. The analysis must go well beyond the façade of what the company communicates publicly; students are asked to dig more deeply into sustainability analytics and data from a variety of sources. The

analysis also must focus not just on the environmental "pillar" of sustainability, but also consider – from an integrated, systems-based perspective – the social, economic, and political/legal contexts and how they are (or are not) demonstrated in the company's sustainability efforts.

Application of Knowledge:

- Examine how environmental research shapes public policy and governance structures.
    - Students in ENV201H5 are asked to critically evaluate current environmental management approaches, and to understand the challenges of implementing management approaches through examination of case studies. A major learning activity in this course is the final debate, focusing on a current issue; in 2016, for example, the focus was on cap-and-trade. Students must research their positions ahead of time before the in-class debate takes place.

Communication Skills:

- Develop and effectively communicate well-researched arguments via a variety of communication methods including written, oral, graphical, and quantitative approaches.
    - ENV201H5 is supported by a Writing Initiative grant from the Dean's Office. Students receive individualized training and feedback on their written submissions (and teaching assistants receive specialized training, as well). Writing-focused tutorial activities include Reverse Outlining; Descriptive Writing; Writing About Quantitative Data; and Argumentative Writing.

Awareness of Limits of Knowledge:

- Critically assess the limits of data in order to evaluate the legitimacy of arguments based upon said data.
    - The most profound environmental, economic, social, and political challenge of our time is that of global climatic change. In several program-related courses, students are asked to consider and assess both the process and the impacts of climatic change.
    - In ENV100Y5, students are introduced to the science of climate change through the lens of "what do we know, what do we think we know, and what are the true uncertainties." This approach encourages students to engage with and evaluate actual scientific data and to evaluate its reliability. More importantly, students must learn to distinguish between a "fact" and an "interpretation." They further are encouraged to consider the differences between scientific interpretations of environmental processes and the implications of those interpretations – what we understand about climatic change and its potential impacts doesn't necessarily dictate what our social, economic, or political responses should be.

Autonomy and Professional Capacity:

- Practice ethical and social responsibility when addressing environmental issues.
    - This is a common theme in all program courses that place emphasis on human rights and social justice in the context of sustainable development and global environmental issues. In

GGR252H5 Retail Geography, for example, students are asked to consider consumer behaviour and individual choice as they relate to issues of sustainability.

- In ENV311H5, the intersection of environment, social justice, equity, and human development represents a major content theme. For example, students in the course consider the ethical aspects of global climatic change, and its differential impacts on the poor and the Global South. Students are asked to write a policy brief, outlining the interconnections between environmental and social, economic, and political issues in the Global South. They are asked to choose a problem at this intersection and propose possible solutions. They first select an issue, research it, and then present their findings and recommendations as if writing to the Secretary-General of the United Nations or another world leader.

9 Consultation

The Chairs of the following academic units at UTM were consulted: Political Science, Sociology, and Geography, as well as the Programs in Environment. The Geography Department was consulted deeply, as this program will be housed in the department.

The Office of the Dean and the UTM Sustainability Pathways Working Group, chaired by Professor Kant and Dean Amrita Daniere, also were consulted.

Professor Shashi Kant (Director, Master of Science in Sustainability Management program, Institute for Management of Innovation) was consulted.

Permissions have been sought and received from the individual instructors of required and elective courses, including instructors who are not being asked for any administrative input into the program.

On the St. George campus, the School of Environment was consulted; the SoE faculty discussed the proposal in detail and their suggested changes were incorporated.

Professor John Robinson, Presidential Advisor on the Environment, Climate Change, and Sustainability was consulted, both on the program in general and on the use of his course as an elective in the program.

The Dean's Office at the Faculty of Arts and Sciences was provided a copy of the proposal and asked for comments or concerns regarding the proposal; no issues were raised.

10 Resources

Resource implications for this proposed Minor program will be minimal as all courses are existing. Course enrolment increases will likely occur but they will be staggered over a period of five years as the first few cohorts move through the program and until a steady state is reached. Additional teaching assistant (TA) support will be provided as needed based on course enrolment numbers, as per the TA allotments previously determined for the courses.

This proposed program will be administered by staff in the Department of Geography in conjunction with the existing Programs in Environment. While there may be an increase in time needed for staff to process program admissions, graduation requests, and advise students; this is expected to be minimal and additional staffing resources will not be required. The main impact will be on the Academic Counselor, who may need to provide additional advising to students interested in the program.

10.1 Faculty Requirements

The Sustainability Minor will draw upon the expertise and strength of Environment faculty members as well as faculty from the broader Department of Geography, in addition to contributions by faculty from the departments of Political Science, Sociology, and the School of Environment. Table 1 below provides a detailed list of faculty members who will contribute to the program as course instructors (either core or elective courses). Part-time, contractually-limited, and stipend instructors are not listed in this table.

Table 1: Detailed List of Committed Faculty

Faculty Name and Rank	Home Unit	Area(s) of Specialization
Monika Havelka, Ph.D. Associate Professor, Teaching Stream and Director, Environment Programs	Geography (ENV) UTM	Ecology; restoration ecology; statistics and research methods; field courses; environmental science
Barbara Murck, Ph.D. Professor, Teaching Stream	Geography (ENV) UTM	Sustainability; environmental management; environmental science; experiential and online learning; international development
Laurel Besco, Ph.D. Assistant Professor	Geography (ENV) UTM & MScSM Program (IMI, UTM)	Sustainable tourism; environmental law and policy; green economy; corporate sustainability
Tenley Conway, Ph.D. Professor	Geography (ENV) UTM	Human-environmental interactions in urban, suburban, and exurban landscapes; environmental geography; urban forestry; landscape ecology; food systems
Andrea Olive, Ph.D. Associate Professor	Geography (ENV) UTM & Political Science UTM	Environmental policy, especially species at risk conservation, natural resource extraction, and Canada-US environmental relations
John Robinson, Ph.D. Professor	School of Environment and Munk School of Global Affairs	The intersection of climate change mitigation, adaptation and sustainability; use of visualization, modelling, and citizen engagement to explore sustainable futures; sustainable buildings and urban design; role of the university in contributing to sustainability; creating partnerships for sustainability with non-academic partners; and the intersection of sustainability, social and technological

		change, behaviour change, and community engagement processes
Pierre Desrochers, Ph.D. Associate Professor	Geography UTM	Economic development and globalization; technological innovation; business-environment interface; energy policy; food policy
Sara Hughes, Ph.D. Assistant Professor	Political Science, UTM	Urban politics, policy, and governance, water policy, and climate change policy; how political interests, institutions, and environmental problems interact at the urban scale, and the social and environmental outcomes they generate
Steven Bernstein, Ph.D. Professor	Political Science, UTM and Munk School of Global Affairs	Global governance and institutions, global environmental politics, non-state forms of governance, international political economy, and internationalization of public policy
Steven Hoffman, Ph.D. Assistant Professor	Sociology, UTM	Social theory; science and technology studies; cultural sociology; political sociology; and comparative ethnography
Zaheer Baber, Ph.D. Professor	Sociology, UTM	Social theory; comparative and historical sociology; science, technology and society; cyberculture; race and ethnicity; globalization
Joseph Leydon, Ph.D. Associate Professor, Teaching Stream	Geography, UTM	Regional geography of North America; Colonial North America and the Caribbean; population dynamics; retail analysis and consumer behaviour

10.2 Space/Infrastructure

There are no special or unique space or infrastructure requirements for this Minor program.

11 UTQAP Process

The UTQAP pathway is summarized in the table below.

Steps	**Approvals**
Development/consultation with the unit	August 2017
Consultation with Dean's office	September 2017
Consultation with VPAP	October 2018
UTM AAC	January 2019
AP&P—reported annually	Cycle 6, May 2019
Report to Ontario Quality Council	July 2019

Appendix A: Program Calendar Listing

Minor Program ERMINXXXX

Sustainability (Arts)

Limited Enrolment — Enrolment in this program is limited to students who have completed ENV100Y5 with a mark of 60% or higher.

4.0 credits are required, with at least 1.0 credit at the 300-400 level.

First Year	ENV100Y5Y
Higher Years	ENV201H5; ENV205H5; ENV310H5 1.5 additional credits from: ENV307H1, ENV311H5, ENV320H5, ENV332H5, ENV425H5, ENV461H1; GGR252H5, GGR287H5, GGR329H5, GGR419H5; JEP356H5, JEP452H5; JPE250Y5*; POL346Y5, POL475H5; SOC459H5, SOC465H5

NOTE: Be sure to look ahead and plan to complete the prerequisites for any upper-level elective courses that are of interest to you. The ENV upper-level course electives typically rely only on the program's core courses as prerequisites, but upper-level electives from other departments could have different prerequisites, so be sure to check the Calendar listings for these courses and their prerequisites.

*Proposed calendar change to JPE251H5 and JPE252H5 (replacing JPE250Y5), effective September 2019, to be incorporated

Appendix B: Detailed List of Courses

Core Courses:

ENV100Y5 Environment (SCI)

This introductory environmental science course examines large-scale features of Earth, natural hazards, Earth's climate and weather systems, energy and mineral resources, human population growth, extinction and biodiversity, environmental toxins, vanishing soils and expanding deserts, forests, urban environmental management, and food resources. Interdisciplinary interaction among Science, Social Science, and Humanities is a major theme. [72L]

ENV201H5 Environmental Management (SSc)

Environmental management builds on topics discussed in ENV100 and GGR111/112, by focusing on conceptual frameworks and specific tools that can be used to formulate environmental management goals and support decision-making. Case studies will be used throughout to highlight different approaches, focusing primarily on Canadian examples. Topics include ecosystem and adaptive management, environment impact assessments, and the role of stakeholders. [24L 12T] Exclusion: GGR234H5 Prerequisite: GGR111H5 and GGR112H5 (formerly GGR117Y5) or ENV100Y5

ENV205H5 Sustainable Tourism (SSc)

Tourism has long been an important industry around the world, but increasingly questions are being raised regarding the social and environmental sustainability of tourism. This course will look at the impacts (both negative and positive) that tourism has on the natural environment, society, and local economies. It will explore how tourism relates to mobility, globalization, recreation and outdoor activity, planning, the environment, cultural identities, protected areas, and wildlife conservation. This course begins with an introduction to tourism more generally and then focuses in on critical perspectives and the development of eco-tourism, cultural tourism, and volunteer tourism. As part of this course, students may have the option of participating in an international learning experience that will have an additional cost and application process. [24L] Exclusion: GGR356H1 Recommended Preparation: ENV100Y5; ENV201H5

ENV310H5 The Sustainability Imperative (SSc)

The United Nations Commission on Environment and Development popularized the term sustainable development in its 1987 report, *Our Common Future.* How far have we come since then, as a global community, in implementing sustainability as a model for development? In this course we will examine the history, measurement, and present-day models and applications of the concepts of sustainability and sustainable development in both the public and private spheres. [24L, 12T] Prerequisite: 10 credits including ENV100Y5 and ENV201H5

Elective courses:

ENV307H1 Urban Sustainability (SSc)

This course critically examines the concept of urban sustainability in theory and application. Case studies of ongoing urban sustainability programs in the developed and developing world help students

assess the successes and failures of these programs. The course also examines the current state of research and implementation efforts toward urban sustainability.
Prerequisite: Students must have completed a minimum of 4.0 FCEs to register for the course.
Exclusion: BIG102Y1 if ENV281H1 taken in 2015-16 or 2016-17

ENV311H5 Environmental Issues in the Developing World (SSc)

The Earth is one, but the world is not. We all depend on one biosphere for sustaining our lives. Yet each community, each country, strives for survival and prosperity with little regard for its impact on others. These are the opening words from the report of the UN World Commission on Environment and Development, which first popularized the concept of sustainable development. In this course we examine 'environment' and 'development' and 'human well-being' as inseparable challenges. We consider global, regional, and local environmental problems from the perspectives of developing nations, and investigate the economic, social, and political roots of these problems. [24L, 12T] Exclusion: ENV345H5 Prerequisite: Any 8.0 credits.

ENV320H5 Managing Our Waste (SSc, EXP)

Garbage archaeologist William Rathje once said, "Garbage isn't generic junk. It's elements of our behavior all thrown together." The history of human civilization is reflected in what societies have thrown away over the ages. But in recent decades both the quantity and types of waste generated by human activities have changed radically. In this course we will address the philosophical, social, and management challenges associated with waste in Canadian and international contexts, as well as examining some of the technological and scientific aspects of specific waste management problems. This course fulfills 1 field day. [24L, 12T] Prerequisite: 10 credits including ENV100Y5 or (GGR111H5 + GGR112H5)

ENV332H5 Practicum in Environmental Project Management (SCI, SSc, EXP)

This course, offered in collaboration with campus administrative offices of the University of Toronto Mississauga and various community partners, provides Environment Students with practical collaborative work experience in preparation for upper-year field courses and internships. Students will work in teams to develop skills in communication, project management, interdisciplinary teamwork, problem identification, report writing and formal presentations while working on an environmental project on campus or in the local community. This course is strongly recommended for Specialist and Major students in any of the Environment Programs. [24S, 12P] Exclusion: ENV232H5 Prerequisite: 8 credits & enrolment in any of the Environment Specialist or Major Programs; completion of any Research Methods course (e.g., GGR277H5).

ENV425H5 Managing Urban Ecosystems (SSc)

This seminar course examines the ways people interact with and manage urban ecosystems. The role of municipal policy, residents' attitudes, neighborhood characteristics, and other factors will be examined in-depth. Throughout the course, issues associated with bridging the gaps between the social and natural sciences, unique characteristics of urban ecosystems, and the role of individual decision-makers will be considered. [24L] Prerequisite: 14 credits

ENV461H1 The U of T Campus as a Living Lab of Sustainability (SSc, EXP)
Sustainability is a growing priority for universities all over the world. Many are developing strong operational sustainability goals and targets, and are giving increasing emphasis to teaching and research on sustainability issues. Yet few have committed at the executive level to integrating academic and operational sustainability in the context of treating their campus as a living laboratory. Prerequisite: ENV221H1 and completion of 10 FCE of courses,; or permission of the Academic Associate Director
Exclusion: ENV481H1 if taken in 2016-17

GGR252H5 Retail Geography (SSc, EXP)

Commercial activities are a significant and visible part of our social system. We are what we consume, and our consumption priorities describe our society. Consumption practices are mediated through the action of retailers and the preference of consumers. The course examines the organization of the retail economy and considers relationships between retail practices and environmental, ethical and social justice concerns. Likewise it explores how social, environmental and ethical beliefs of consumers influence their purchasing practices, the connections between consumer behaviour and the practices of retailers and the possibilities for developing a retail economy that better aligns with societal concerns for social justice, ethical production and environmental sustainability. [24L]
Exclusion: GGR252H1

GGR287H5 Food and Globalization (SSc)

A broad overview of the historical development of the global food economy and a survey of recent trends and controversies. Topics discussed range from basic food staples, food markets and trade liberalization to food security, environmental sustainability and alternative agricultural systems. [24L]
Exclusion: GGR329H1, GGRC29H3 Prerequisite: GGR111H5/117Y5/ENV100Y5/4.0 credits

GGR329H5 Environment and the Roots of Globalization (SSc)

A critical discussion of how geographical factors, such as landscape, flora and fauna, might help explain why history unfolded differently on different continents. How geography might have impacted the development of agriculture, complex technologies, writing, centralized government and how, in the process, it has shaped the current world economic map. [24L] Prerequisite: Any 8.0 credits

GGR419H5 Geography of Food: Spatial Organization and Policy Controversies (SSc, EXP)

This seminar course examines the spatial organization and some of the main policy controversies surrounding our food production and distribution system. Topics covered include traditional agriculture and the rise of agri-business, food safety and security, food miles and urban agriculture, the environmental impacts of different production systems and agricultural trade liberalization. Cases discussed range from global issues to Southern Ontario. This course fulfills one field day. [24S]
Prerequisite: 14.0 credits, PI Recommended Preparation: GGR287H5

JPE251H5 Introduction to Canadian Environmental Law and Policy I *(SSc)

This course serves as an introduction to environmental policy and law in Canada. The primary intent is to provide an overview of the political context in which environmental policy and law is made and

implemented. The emphasis in this course will be on environmental policy. The course begins with an outline of the Canadian parliamentary system and policymaking process. A series of case studies, from biodiversity to climate change, are then explored as a way to see the policy process in action.
Exclusion: JPE 250Y5, POL 250Y5, ENV 250Y5, ENV320H1
Prerequisite: 3.5 credits JPE/POL/ENV

JPE252H5 Introduction to Canadian Environmental Law and Policy II * (SSc)

This course builds on the themes and concepts introduced in JPE251H5. The primary intent is to provide an overview of the political context in which environmental policy and law is made and implemented. The emphasis in this course will be on environmental law.
Exclusion: JPE 250Y5, POL 250Y5, ENV 250Y5, ENV 320H1
Prerequisite: JPE 251H5

These courses exist currently as **JPE250Y5 Canadian Environmental Politics. The Department of Political Science and Programs in Environment have agreed to implement changes to split the course into two half-courses, one focusing on Environmental Law and the other on Environmental Policy. These changes will be very beneficial for the Environmental Law and Policy Minor. The changes have been brought forward to the curriculum process approved and will appear in the 2019-20 Academic Calendar.*

JEP356H5 Environmental Justice (SSc)

Environmental Justice is about the fair treatment of all people in the creation and implementation of environmental policies. It also provides a critical framework to analyze and understand inequalities of an environmental kind. These inequalities are often based around identities of race, class and gender, such that marginalized groups are made to bear the burden of environmental externalities like pollution. Why are First Nations in Canada less likely to have access to safe drinking water? Why are industrial plants often in low-income neighborhoods? After critical examinations of the theories and foundations of environmental justice, this course uses a case study approach to understanding the concepts and the ways in which it has shaped modern society. [24L, 12T] Prerequisite: 8.5 credits

JEP452H5 Politics and Policy of Wildlife Conservation (SSc)

This course is an in-depth analysis of conservation policy in Canada. The course begins with an overview biodiversity crisis facing the planet and then moves to an overview of Canada's approach to managing biodiversity across the country. We will carefully examine the federal Species at Risk Act as well as the provincial and territorial wildlife legislation. The remaining of the course will be aimed at making improvements to the Canadian strategy. During the course of the semester, the students will focus on the recovery of endangered species in Canada through the development of a recovery strategy for a specific species. [24L] Exclusion: ENV452H5 Prerequisite: ENV100Y5, JPE250Y5

POL346Y5 Urban Politics (SSc)

This course examines urban politics and policy problems in both a Canadian and comparative context. Students will be introduced to the key theories and concepts of urban politics scholarship as well as the

important policy issues facing contemporary cities such as globalization, sustainability, immigration, and regionalism. [48L] Exclusion: POL 349Y1 Prerequisite: Any 2.0 POL credits

POL475H5 Global Environmental and Sustainability Politics (SSc)

This course examines the challenges faced by humanity in dealing with global environmental and sustainability problems and the politics of addressing them. Focuses on both the underlying factors that shape the politics of these problems - such as scientific uncertainty, North-South conflict, equity concerns, globalization and production and consumption patterns - and explores attempts at the governance of specific global or transnational environmental and sustainability issues by state and non-state actors. [24L] Prerequisite: POL 208Y5

SOC459H5 Science, Technology, and Society (SSc)

The focus of this lecture course will be on the varied social contexts of the emergence, development and consequences of science and technology in the modern world. In addition to critical sociological perspectives on science and technology, possible topics could include genomics, reproductive technologies, surveillance, the internet and social media, domestic technology, warfare, nuclear technologies, etc. [24L] Prerequisite: SOC205H5/SOC231H5, SOC221H5, SOC222H5, 1.0 SOC credit at the 300 level

SOC465H5 Climate Change and Society (SSc)

In this course a variety of classical and contemporary sociological perspectives will be deployed to understand the social context, factors and consequences of climate change. Possible topics include the political economy of the environment, environmental refugees, environmental movements, media representations of climate change, the social context and consequences of fracking, the politics of global protocols on carbon emissions, climate justice and social inequality, etc. [24L] Exclusion: SOC444H5 (2016-17) Prerequisite: SOC205H5/231H5, 221H5, 222H5, 1.0 SOC credit at the 300 level