SCHOOL OF THE ENVIRONMENT

UNIVERSITY OF TORONTO
2024 – 25

WELCOME

Our goal at the School of the Environment is to create and interpret knowledge on environmental issues through outstanding academic programs, and to provide students with the skills, knowledge, and experience necessary to make a substantive difference in the world. We are focused on creating new knowledge, training future leaders, engaging and forging partnerships with the wider community, and contributing to positive environmental and social change from the local to the global scale.

The School of the Environment acts as a hub for researchers and students from many different disciplines spanning the social sciences, natural sciences, and humanities, bringing together many different perspectives to bear on today's pressing environmental challenges. Our faculty and instructors are a diverse community collaborating across departments, schools, and faculties at the University of Toronto and beyond.

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MESSAGE FROM THE DIRECTOR

Steve Easterbrook

Director, School of the Environment

What does it mean to make a difference in the world? Faced with complex and urgent global challenges such as climate change, biodiversity loss, and persistent harmful pollutants, universities need to do things differently. It's not enough just to generate new knowledge and understanding from scholarly study; we need to put that knowledge into action. It's not enough just to prepare our students for their future roles in society; we need to give them the tools to re-shape that future. It's not enough just to offer our expertise when called upon by journalists and politicians; we need to change the narrative by building a vision for a just and sustainable world to strive towards.

The School of the Environment provides a place where students and faculty can come together to work on these challenges. This coming year, we're embarking on a self-study process, re-evaluating our goals and priorities, and asking ourselves the hard questions: what do we need to do differently to be the change-makers we aspire to be. We'll be listening to our students, our staff, our instructors, and our partners—and we invite you to be part of the conversation!

Steve

RESEARCH

RESEARCH NETWORKS: COLLABORATING ACROSS DISCIPLINES

The research we do at the School of the Environment is inherently transdisciplinary. Our approach is to build diverse networks of knowledge and expertise — both within and beyond the university — to identify urgent research questions and support the collaborative work of addressing them.

Healthy and Sustainable Buildings

Our healthy and sustainable buildings research aims to understand the spaces we inhabit every day, from commercial buildings to homes, in order to reduce energy consumption and improve health and wellbeing. We study the indoor environmental quality and social activities within buildings, collect environmental measurements, and use building performance simulations to predict energy consumption in pursuit of these goals.

Environmental Worldviews

Environmental worldviews are the composite values and beliefs that shape how individuals and communities engage with and use the world. They can contribute to beneficial and detrimental environmental outcomes. Our research explores the origins and ways in which these worldviews have been conceptualized over time and place, particularly in faith communities.

RESEARCH NETWORKS

Climate Justice

Research on climate justice examines the asymmetries of power, uneven impacts, and longstanding inequities that lie at the crux of the climate crisis. Through a focus on historical contexts and decision-making processes that span local, regional, national, and international scales of governance, this research questions how and why historically marginalized groups are often the most negatively impacted by climate change and yet also the most excluded from climate policymaking processes.

Pollutants and Health

Chemical pollution and waste are one of the triple threats facing humanity. We conduct solutions-driven research aimed at influencing positive change. Our research includes documenting concentrations and sources of microplastics and chemicals of concern (because of their toxicity and/or persistence), and research to advance chemicals management. Our audiences include the private sector such as retailers and chemical producers, the public to enable informed choices, and policy makers who can enable legislation.

Food Systems

Every time we eat we're pulled into social and ecological processes and relationships connecting us to people and places around the world, and around the corner. Figuring out how to organize food systems that regenerate ecologies while building socially just relationships drives our work. This brings us into conversation with equity-deserving rural farmers, youth climate and food justice activists in Toronto, campus-based farmers, and many others working to realize more socially just and ecologically rational food systems.

RESEARCH NETWORKS

Biodiversity and Conservation

From turtles to sharks to mycobacteria and beyond, our research explores ecology and evolution in a rapidly changing world. Our work includes studies of animal life cycles, behavioral variation, and responses to habitat loss. We aim to better understand how animals respond to environmental variation, with the goal of helping conserve our planet's biodiversity.

Environmental Data Science

We bring together researchers across broad fields to develop statistical, machine learning and AI tools for modeling of environmental and ecological data. From forecasting climate trends and modeling the impact of air quality on human health, to modeling shark movements and classifying fish with sound, our research provides data-driven understanding and solutions to pressing environmental and ecological questions.

Sustainability Pedagogy

Our research and teaching on sustainability mindsets seeks to empower future leaders with the ability to approach complex, real-world issues. This spans from tangible skills for measuring complex socioecological factors and the ability to understand these from multiple worldviews, to a personal sense of connectedness, psychological resiliency, and empowerment to bring about change.

RESEARCH NETWORKS

Environmental Governance Lab

The Environmental Governance Lab (EGL) is a home for research, a node in global networks on environmental governance and transformative policy, and a platform for knowledge exchange with practitioners, policy makers, and the public. The EGL is housed at the Department of Political Science and the School of the Environment. It is also a Research Centre of the Earth System Governance Project — a global research alliance that is the largest social science research network on governance and global environmental change.

The Technoscience Research Unit

The Technoscience Research Unit (TRU) supports critical and creative justice-oriented research related to science, technology, and environmental studies, with an emphasis on Indigenous, anti-colonial, and feminist approaches. The TRU includes both academic and community researchers and is a welcoming place for Indigenous, BIPOC, 2SLGBTQ+ researchers at all levels. It is home to the Indigenous Environmental Data Justice Lab, that focuses on community-based research about Canada's Chemical Valley, building tools and creating policy relevant work to support community efforts.

Toronto Climate Observatory

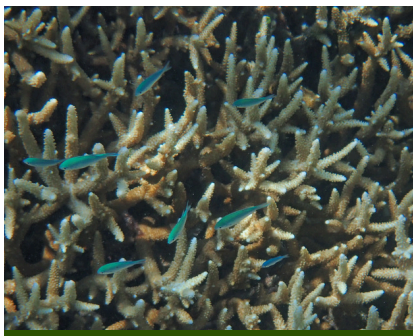
The Toronto Climate Observatory is a new interdisciplinary initiative hosted at the University of Toronto. Our mission is to reimagine how communities around the Greater Toronto Area understand and adapt to the impacts of climate change, and support place-based, plural, and just climate action. Through partnerships with scholars, government, and civil society, we are working to develop the next generation of climate informatics.

TEACHING

TRANSFORMING ENVIRONMENTAL EDUCATION

The breath of undergraduate and graduate course offerings at the School of the Environment reflects the diversity of our transdisciplinary research and a commitment to providing programming that encompasses a range of topics and skills for understanding and addressing environmental issues.

Our courses involve a combination of lectures, laboratory work, field studies, research projects, and experiential learning opportunities to provide a comprehensive understanding of environmental issues and solutions. Interconnected themes inform how we address the complex nature of environmental systems and the multifaceted challenges we face.



Climate Change

Sustainability Transition

Planetary Health

TEACHING

Climate change is a complex, transdisciplinary problem, and needs to be viewed through multiple lenses to understand how we arrived at this moment in history, and what paths we now face as a society to stabilize the climate system and transition to a carbon-neutral society. Our courses on climate change are designed to give students the big picture on the seriousness and urgency of the crisis and provide them with the tools needed to deal with that understanding: psychologically, politically, and culturally. Above all, these courses are action-oriented: through collective action we can build collective hope for the future.

ENV101: Confronting the Climate Crisis

This course is a comprehensive, interdisciplinary introduction to the climate crisis, open to all undergraduate students at the University of Toronto. It examines the climate crisis from scientific, social, economic, political, and cultural perspectives, from the physical science basis through to the choices we now face to stabilize the climate system,

ENV465: Toronto Climate Summer School

This is an experiential and interdisciplinary course teaching relevant methods, themes, and topics to engage with climate change in and connected to the Greater Toronto Area.

ENV464: Communicating Climate Change

Climate change is an urgent yet complex problem to communicate. In this course, students will examine the historical development of climate communication from its origins in the Cold War to present day.

TEACHING

CULTIVATING SUSTAINABILITY TRANSITIONS

The University of Toronto is a world-leader in creating and implementing sustainability solutions across all aspects of campus life. At the School of the Environment, our courses and programs on sustainability are designed to challenge students to critically analyze the systems that shape how we live, and to engage in a journey that will eventually transform society to safeguard a liveable planet for future generations. Our approach is holistic and comprehensive: as well as examining specific sectors — housing, transport, energy, food, waste, etc. — we address how individually and collectively we will confront the challenges in transitioning to a sustainable society.

CERTIFICATE IN SUSTAINABILITY

The Certificate in Sustainability is a for-credit undergraduate certificate, designed to complement any degree or discipline. It can be taken in conjunction with any undergraduate program at the Faculty of Arts & Science. Students will develop a sustainability-lens through which they can approach the rest of their academic program, career path and life in general.

ENV222: Pathways to Sustainability An Interdisciplinary Approach introduces students to sustainability studies and provides them with a sustainability lens that integrates sciences, social sciences and humanities.

ENV411: Sustainability Thinking provides students with an opportunity to deeply engage in the concepts and theories of sustainability from interdisciplinary perspectives.

ENV421: Community Research for Social & Environmental Change partners small groups of students with civil society organizations to conduct research to support social and environmental justice.

TRINITY SUSTAINABILITY INITIATIVE

Created in close consultation with the School of the Environment, the Butterfield Environment & Sustainability stream at Trinity College examines the most challenging issues surrounding Human beings, the planet and our future together. The Butterfield Environment & Sustainability stream uses an interdisciplinary approach that combines both the sciences and the arts. Students learn how to think about the complexities of environmental sustainability from both theoretical and practical perspectives.

Photo: Nicole Spiegelaar

TRN140: Ethics, Humans, and Nature

This course explores how different worldviews shape our ability to live in harmony with our environment.

TRN141: Environmental Science and Pathways to Sustainability

This course explores the intersection of science and society in complex sustainability systems.

TRN312: Sustainability Issues in Ethics, Society, and Law

Students examine case studies of environmental justice and engage in dialogue over the moral, relational, and practical elements of environmental decision-making.

TRN350: Scarcity, Sustainability, and the Future of International Relations

This course seeks to evaluate major challenges in global affairs related to natural resource scarcity and climate change.

FOOD SYSTEMS

ENV381: (Summer) Urban Agriculture Practices

This course aims to engage students in developing best practices for sustainable, bountiful, and local food production in urban settings.

ENV381: (Fall/Winter) Campus & Community Food Systems Praxis

Students will have the opportunity to engage in an applied food systems research project with a campus or community partner while also gaining hands-on experience in food growing, preserving, and preparing.

TEACHING

PROTECTING PLANETARY HEALTH

Our health and well-being as humans is intricately linked to the health of the natural world around us and the ecosystems that provide us with clean air, fresh water, and healthy food. Our courses on planetary health build on the research we do on a range of complex issues from environmental contaminants to the health impacts of global climate change. These courses are broad and interdisciplinary, touching on areas such as public health, social geography, toxicology, food, medicine, and the built environment.

ENV341: Environment and Health

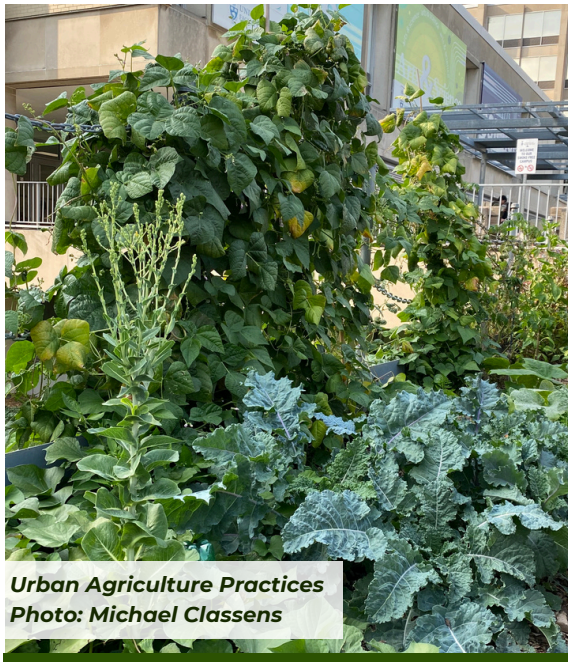
This course examines the linkages between human health and environment using an interdisciplinary, planetary health lens.

ENV441: Human Health Impacts of Natural System Alteration

The course introduces students to a wide range of topics and issues about the impacts of change in natural systems (e.g., forests, ocean, climate) on human health.

ENV1113: Social Sustainability: Environmental Justice in Africa

This graduate course sets out to critically explore environmental justice in the African context through a rigorous examination of the concept by drawing from African philosophies.



Urban Agriculture Practices
Photo: Michael Classens

INTEGRATING EXPERIENTIAL LEARNING

The School of the Environment values experiential and community-engaged learning. We offer many hands-on, active learning opportunities for students.

ACROSS CAMPUS

ENV461: The U of T Campus as a Living Lab of Sustainability
Students work in teams on applied research on campus sustainability, working in close partnership with operational staff at the University of Toronto.

ENV463: The Edible Campus
This course situates students and campuses within the context of broader movements for more ecologically rational and socially-just food systems.

IN NATURE

ENV316: Laboratory and Field Methods in Environmental Science
Students learn how to sample and analyze air, water, and solid Earth materials for physical, chemical, and biological properties relevant to current environmental issues.

IN THE COMMUNITY

ENV440: Professional Experience Course
Students undertake 70-80 hours of engagement within a community organization, while completing assigned readings and assignments, supported by several in-class sessions.

ENV421: Community Research for Social and Environmental Change
This research course provides students with an opportunity to engage in an action-focused, community-based group research project.

ENV430: Community Research in Environment & Faith
This community engaged research course explores the richness and complexity of faith-based environmentalism. Students will build knowledge of the discipline through the discussion of theories and ideas, acquiring research skills, and unpacking field experiences.

ENV299 & ENV399: Research Opportunities Program
Provides undergraduate students in Faculty of Arts & Science with the chance to join a a professor's research project and earn course credit towards their degree.

Photo: Jessica D'eon

UNDERGRADUATE PROGRAMS

ENVIRONMENTAL SCIENCE

BSc Major and Minor

The School of the Environment's Environmental Science BSc Major and Minor programs provide students with a breadth of knowledge spanning scientific disciplines, and the tools to understand and integrate scientific principles from across the physical and biological sciences. Students are exposed to disciplinary and interdisciplinary knowledge and research skills necessary to function as an environmental scientist.

ENVIRONMENTAL STUDIES

BA Major and Minor

The School of the Environment's Environmental Studies BA Major and Minor programs offer rigorous academic study of the economic, social, cultural, and political forces that drive issues such as biodiversity loss, air and water pollution, and climate change. The interdisciplinary structure of the programs provides grounding in scientific literacy, while advancing critical thinking skills to evaluate complex environmental problems and sustainable solutions.

COLLABORATIVE UNDERGRADUATE PROGRAMS

These programs are offered in collaboration with other departments in the Faculty of Arts & Science and combine the interdisciplinary focus of the environment with a traditional social science, humanities, or science discipline.

SPECIALIST: ENVIRONMENT & TOXICOLOGY (BSC)

In collaboration with Pharmacology & Toxicology

MAJOR/MINOR: ENVIRONMENTAL ETHICS (BA)

Jointly sponsored with the Department of Philosophy

SPECIALIST: ENVIRONMENTAL GEOSCIENCES (BSC)

Jointly sponsored with the Department of Earth Sciences

MINOR: ENVIRONMENT & ENERGY (BSC)

Jointly sponsored with the Department of Geography

SPECIALIST/MAJOR: ENVIRONMENT & HEALTH (BSC)

In collaboration with the Human Biology Program

MINOR: ENVIRONMENT & BEHAVIOUR (BSC)

Jointly sponsored with the Department of Psychology

GRADUATE PROGRAMS

MASTER OF ENVIRONMENT & SUSTAINABILITY

The Master of Environment & Sustainability (MES) is an intensive, 12-month research-stream program that responds to the growing need of society to understand and develop solutions to the environmental and human well-being challenges facing us in the 21st century.

Upon graduation, MES graduates will have acquired a transdisciplinary perspective on environmental issues, learned to use methodologies and tools relevant to environmental protection and sustainability solutions, and will be well prepared for a variety of careers in the private, not-for profit, and public sectors, or for further studies at the doctoral level.

- Build transdisciplinary connections across the sciences, social sciences, and humanities to inform policy.
- Join the first research-based master of environment program at the University of Toronto.
- Participate in experiential learning components.
- Belong to a small, intimate, cohort-based program with the opportunity to work closely with faculty.

GRADUATE COLLABORATIVE SPECIALIZATIONS

The School of the Environment's Collaborative Specializations in Environmental Studies and Environment and Health offer students enrolled in a graduate degree program elsewhere at the University of Toronto the opportunity to specialize and explore an interdisciplinary area that complements their existing degree program. There are no additional fees to participate in a Collaborative Specialization.

COLLABORATIVE SPECIALIZATION IN ENVIRONMENTAL STUDIES

The Collaborative Specialization in Environmental Studies motivates students to examine environmental-related issues from different disciplinary perspectives and apply interdisciplinary concepts, approaches, methods, and tools in environmental decision making. With participating students from as many as 20 different disciplines, the core course, ENV1001: Environmental Decision Making, gives students a unique opportunity to engage with faculty and peers coming from a range of academic backgrounds and perspectives.

COLLABORATIVE SPECIALIZATION IN ENVIRONMENT AND HEALTH

The Collaborative Specialization in Environment and Health is appropriate for students in the health sciences who want a broader environmental perspective on health-related issues, and for students in environmental studies and sciences seeking insight into the health implications of environmental quality. This specialization may also be of interest to students who are concerned with ethical, pedagogical, and policy approaches to environment and health issues.

EVENTS

Sustainability Thinking Exhibition
Photo: Emma Bernardo

ENGAGING THE COMMUNITY

Educational and community events hosted by the School of the Environment address crucial issues related to sustainability, conservation, and the health of our planet. They facilitate learning, inspire action, build networks, and foster a sense of connection.

SUSTAINABILITY THINKING EXHIBITION

Held in collaboration with Roots and Shoots, this exhibition explores sustainability topics and environmental issues through art and multimedia displays. Created by University of Toronto undergraduate students and local Toronto artists, the pieces in this exhibition uncover the ways in which thinking about sustainability intersects with discussions of visual media, art and broader conversations of communicating through material.

PATHWAYS DAY

Pathways Day introduces students to their possible pathways in the environmental sector after graduating. With exhibitors ranging from graduate programs, environmental organizations, NGOs, student groups, and more, this event gives students the opportunity to network and chat with representatives from a variety of environmental sectors. The event also includes guest speakers and a series of workshops for students.

EVENTS

2023 Beatrice & Arthur Minden Symposium participants
Photo: Kristen Ma

BEATRICE AND ARTHUR MINDEN SYMPOSIA ON THE ENVIRONMENT

The aim of the Beatrice and Arthur Minden Symposia on the Environment is to enable scholarly public debate, discussion, and exchange on environment-related themes of global significance. Over the years, the talks, workshops, panels, and other events included in the Symposia have considered themes of science, policy, social justice, and system change.

ENVIRONMENT SEMINAR SERIES

The School of the Environment Seminar Series offers public lectures, bringing a diverse array of speakers from across the many disciplines associated with the School of the Environment to the community. The seminars are open to all students and faculty, as well as the public.

In Conversation with Dr. Jane Goodall.
Photo: Diana Tyszko

CO-SPONSORED EVENTS

The School of the Environment is committed to supporting community events that play a vital role in advancing environmental education, research, and action. These events contribute to a more sustainable and resilient future. Co-sponsored events include speakers, theatre productions, films, sustainable fashion events, and more.

RESEARCH DAY

Held during Earth Week, Research Day showcases graduate research from the School of the Environment. The event features engaging research projects run by our Collaborative Specializations and Master in Environment and Sustainability graduate students.

FACULTY

ADVANCING RESEARCH & EDUCATION

School of the Environment faculty deliver exceptional research, institutional leadership, bold public outreach, and are the recipients of numerous honours, accolades, and awards.

2

Faculty elected to the Royal Society of Canada's College of New Scholars, Artists and Scientists.

5+

Faculty awarded honours and fellowships from professional associations, universities, and institutes, including the American Geophysical Union, the American Chemical Society, the Chemical Institute of Canada, the International Studies Association, the University of Kassel, and the Hebrew University of Jerusalem.

70+

Peer-reviewed articles and book chapters published across fields.

100+

Media interviews in print, radio, television, and podcast for outlets around the world, and invited lectures across institutions and continents.

FACULTY

CHRISTIAN ABIZAID

- Environment & Development
- Rural Livelihoods
- Tropical Forests

SIMON APPOLLONI

- Environmental Ethics
- Environmental Humanities
- Worldviews & Beliefs
- Environmental Psychology

MICHAEL CLASSENS

- Critical Pedagogy
- Environmental Justice
- Social Movements & Activism
- Local Food Systems

MIRIAM DIAMOND

- Chemicals Management
- Human & Ecosystem Contaminant Exposure
- Contaminant Sources & Transport

STEVE EASTERBROOK

- Climate Informatics & Modelling
- Earth System Models
- Systems Thinking
- Climate Data Analysis

MEREDITH FRANKLIN

- Environmental & Spatial Statistics
- Remote Sensing
- Environmental Epidemiology

JESSICA F. GREEN

- Climate Policy
- Carbon Markets
- Global Governance
- NGOs

HAMED IBRAHIM

- Hydrologic Variability & Ocean Basin Dynamics
- Land and Sea Hydrological Processes
- Water Resources

KAREN ING

- Environmental Education
- Ecosystem Services & Well-being

FACULTY

ALSTAN JAKUBIEC

- Sustainable Design
- Low energy Design

KARIUKI KIRIGIA

- Climate Policy & Politics
- Ecology & Biodiversity
- Food & Agriculture
- Social & Environmental Justice

TERESA KRAMARZ

- Environmental Accountability
- Partnerships in Environmental Governance
- Renewable Energy & Just Transitions

VIANEY LEOS BARAJAS

- Statistical Ecology
- Environmental Statistics

HANNA E. MORRIS

- Climate Change Journalism & Communication
- Media, Democracy, & Climate Justice

M.MURPHY

- Environmental Justice
- Indigenous Science, Technology, & Environment Studies
- Feminist & Queer Ecologies
- Environmental Data Justice

KATE NEVILLE

- Resource Governance & Energy Transitions
- Social Movements & Resistance
- Fracking & Biofuels

HUI PENG

- Environmental Chemistry
- Analytical Chemistry
- Toxicology

SCOTT PRUDHAM

- Climate Policy & Politics
- Ecology & Biodiversity
- Food & Agriculture
- Social & Environmental Justice

FACULTY

JOHN ROBINSON

- Sustainable Buildings & Cities
- Community Engagement & Futures Studies
- Sustainability Transitions & Transformations
- Philosophy of Sustainability

RANAIVO RASOLOFOSON

- Human & Natural System Health
- Social-ecological Systems
- Impact Evaluation

NJAL ROLLINSON

- Animal Life Cycles
- Ecology
- Evolution

STEPHEN SCHARPER

- Environmental Ethics
- Worldviews and Ecology
- Liberation Theology

ROBERT SODEN

- Human-computer Interaction
- Participatory Sensing
- Crisis Informatics
- Critical Computing

NICOLE SPIEGELAAR

- Environmental Psychology
- Indigenous-environment Relations
- Food Systems

CLARE WISEMAN

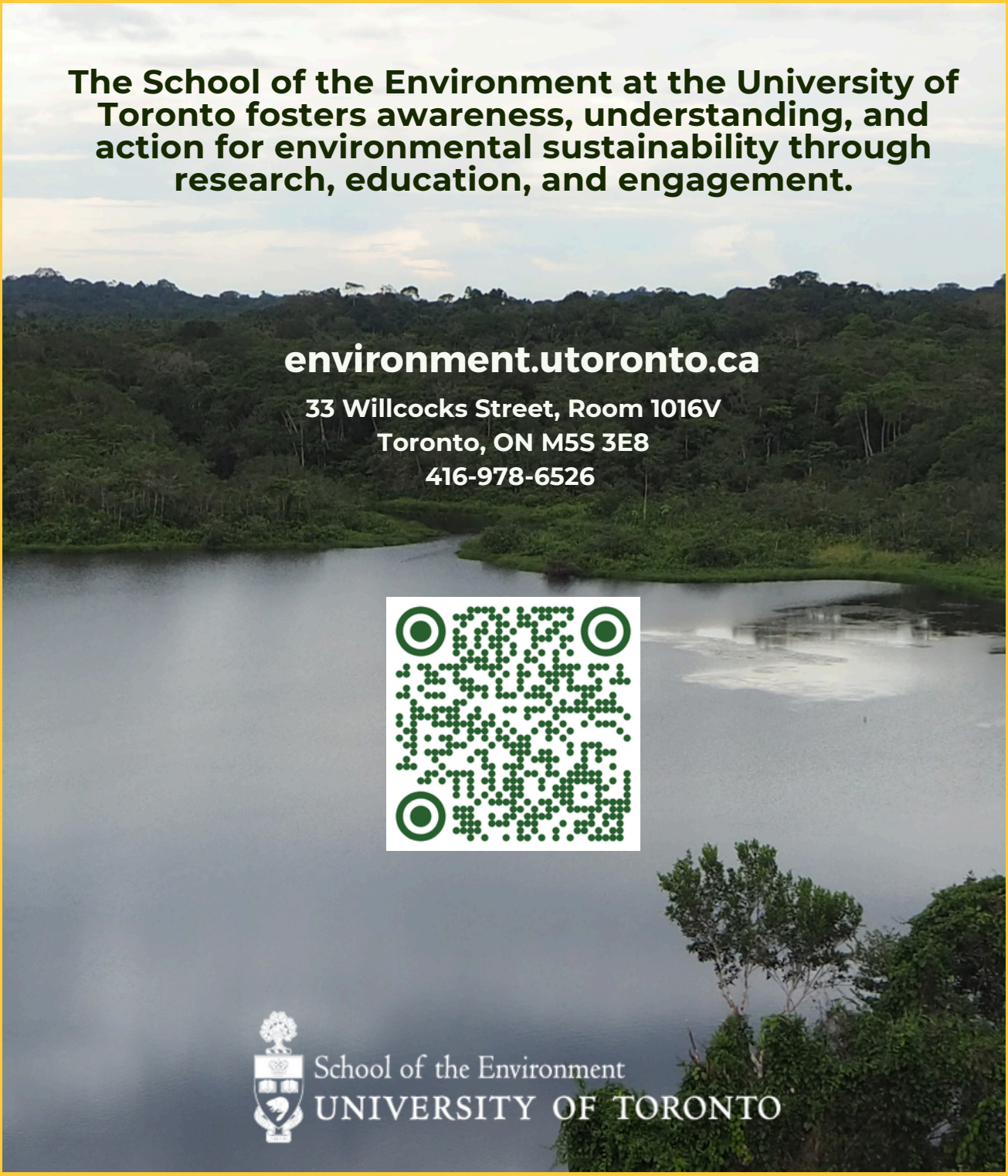
- Urban Health
- Traffic-related Air Pollution
- Metal Exposures & Impacts

DEBRA WUNCH

- Earth's Carbon Cycle
- Atmospheric Greenhouse Gases

TANHUM YOREH

- Religion & Environmentalism
- Environmental Humanities
- Faith-based Environmental Ethics



We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Islad and we are grateful to have the opportunity to work on this land.

Cover: Sea Lion, Galapagos Islands, Ecuador
Cover photos & interior uncredited photos: Kiran Champatsingh.