UNIVERSITY OF TORONTO | Committee on the Environment, Climate Change & Sustainability

Sustainability Catalyst Internship Program

Graduate student opportunity: Summer 2025

The Sustainability Catalyst Internship Program offers University of Toronto graduate students paid opportunities to work with partners on real-world sustainability solutions faced by their organizations. The internships run part-time from May to September and are managed by the President's Advisory Committee on the Environment, Climate Change, and Sustainability (CECCS) for students in the Greater Toronto Area. Students will move through the internship as a cohort and will receive career development and project management support from a dedicated mentor within the partner organization, as well as from the CECCS Sustainability Catalyst Project Manager.

The pay rate for the summer 2025 program is $32.31/hour for a 250-hour project. Internships are open to all graduate students enrolled in a full-time program in the 2024-2025 academic year at U of T. This is a non-appointed role with the University of Toronto.

Visit sustainability.utoronto.ca/catalyst to learn how the program works and be sure to confirm your eligibility before applying.

Applications close at 11:59 PM on Sunday March 30, 2025.

Project Title: *Exploring and Evaluating Carbon Capture Technologies for Sequestering Process Carbon Emissions*

Organization: Algoma Steel

Work Location: Hybrid – remote and onsite at 5515 North Service Road, Suite 301, Burlington, ON. There may be occasional travel to Sault Ste Marie for field visits, for which the Company will reimburse travel expenses.

Work term:

This is a 250-hour position. The intern is expected to work an average of 15 hours per week between May 1 and August 29, 2025 with core office hours from 9:00 AM to 5:00 PM, Monday-Friday, or as agreed upon between the intern and their project mentor. Algoma Steel has an office location in Burlington, Ontario and the intern will be expected to attend regular in-person meetings and assignments as determined by their project mentor.

Project Description:

This project explores the use of steel slag products as a carbon capture solution to sequester industrial process emissions. Steel slag, a byproduct of steel manufacturing, can react with carbon dioxide (CO_2) to form stable carbonates, offering a sustainable method for permanent carbon sequestration. The goal is to assess the feasibility, efficiency, and scalability of technologies to support industrial decarbonization. Algoma has over 3 million tonnes CO2 capture potential. With growing pressure to reduce carbon emissions, industries need viable, cost-effective sequestration solutions. Steel slag provides a circular economy approach, repurposing waste while capturing CO_2. By optimizing its reactivity and application in industrial settings, this research aligns with global climate objectives and enhances the sustainability of steel production.

The research will provide data-driven recommendations for implementing steel slag-based carbon capture in industry. By leveraging this approach, the host organization can reduce emissions, create value from byproducts, and contribute to sustainable steel production. Findings will support the development of scalable, low-cost carbon capture solutions, aligning with broader decarbonization efforts.

Project Activities:

The intern will investigate steel slag's carbon capture potential through lab testing, process modeling, and data analysis. As part of this project, the intern will:

- Conduct a literature review on steel slag-based carbon capture technologies
- Perform lab experiments to assess the reactivity of steel slag with CO_2 under different conditions
- Analyze reaction kinetics, efficiency, and scalability of slag-based sequestration methods
- Develop process models to evaluate industrial feasibility and integration potential
- Collaborate with engineers and sustainability experts to refine methodologies
- Assess regulatory and economic considerations for real-world implementation. Collaboration with engineers and sustainability experts will ensure practical application.

Project Deliverables:

- Technical report summarizing findings, including lab results, process models, and recommendations
- Process feasibility assessment outlining industrial application potential
- Presentation of key findings to stakeholders
- Guidelines for integrating steel slag-based carbon capture into industry practices

Required Background and Skills:

- Academic background in Materials Engineering, Chemical Engineering, or Process Kinetics
- Demonstrated research and writing skills
- Experience conducting stakeholder engagement events, including facilitation skills
- Familiarity with research methodologies and survey techniques
- Statistical analysis
- Strong analytical skills
- Project management and organizational skills

- Familiarity with benchmarking methods and tools
- Familiarity preparing feasibility studies
- Experience with financial modelling and analysis

Sustainability Catalyst Internship Program Requirements:

- Students are enrolled in a full-time graduate program at U of T in the 2024-2025 academic year
- Students are in good academic standing and not on academic probation
- Students are legally entitled to work in Canada and will be residing within the Greater Toronto Area during the internship
- Students have confirmed their eligibility to work the required hours by checking the guidelines of any graduate student funding they hold. It is the award recipient's responsibility to comply with the rules and regulations of their award(s).

Application Procedure:

Applicants should email their cover letter including why this internship is of interest to them, and their resume highlighting relevant skills and experience, as a single PDF document to keagan.urbanowicz@utoronto.ca no later than 11:59 PM on March 30, 2025, noting the project title in the email subject line. Only applicants selected for an interview will be contacted. Applications will be reviewed on a rolling basis. Early applications are encouraged.

If you are applying for more than one Sustainability Catalyst Internship position, you must also fill out this internship project ranking form by the application deadline to indicate your preferred projects.

Resources:

CECCS and U of T Career Exploration & Education invite prospective Catalyst intern applicants to participate in the following workshops (participation in the workshops is not a requirement to apply):

- **Friday March 21, 1:00-2:30 PM - Job Applications Workshop (online)**. This workshop will provide students with tips on how to highlight relevant skills and experience and tailor your application to the position(s) you are applying for. Please register for the March 21 Job Applications workshop here.

- **Monday April 7, 12:00-1:30 PM – Job Interviews Workshop (online)**. This workshop will provide students with the opportunity to practice their interview skills and prepare for the internship roles they have applied to. Please register for the April 7 Interview Workshop here.

Diversity Statement

The University of Toronto embraces Diversity and is building a culture of belonging that increases our capacity to effectively address and serve the interests of our global community. We strongly encourage applications from Indigenous Peoples, Black and racialized persons, women, persons with disabilities, and people of diverse sexual and gender identities. We value applicants who have demonstrated a commitment to equity, diversity and inclusion and recognize that diverse perspectives, experiences, and

expertise are essential to strengthening our academic mission.

Accessibility Statement

The University strives to be an equitable and inclusive community, and proactively seeks to increase diversity among its community members. Our values regarding equity and diversity are linked with our unwavering commitment to excellence in the pursuit of our academic mission.

The University is committed to the principles of the Accessibility for Ontarians with Disabilities Act (AODA). As such, we strive to make our recruitment, assessment and selection processes as accessible as possible and provide accommodations as required for applicants with disabilities. If you require any accommodations at any point during the application and hiring process, please contact hruniversityoperations@utoronto.ca.