

REDEVELOP trains graduate students to work across disciplines, distance and cultures. While the energy sector focuses on environmental sustainability and socio-economic stability, REDEVELOP shows students the value of flexible, transferable skillsets to prepare for Canada's transition to a low-carbon energy future. Graduate students from Geoscience, Engineering, Sustainable Energy Development, and Public Policy are invited to submit their applications by email to the [Program Manager \(redevelop.ucalgary@gmail.com\)](mailto:redevelop.ucalgary@gmail.com). Note that this Application must be signed by both you and your supervisor. **In addition to this application form, please include a letter of interest, CV, and transcripts.**

YOUR COMMITMENT:

The goal of REDEVELOP is to produce the next generation of science and engineering leaders and policy-makers to work in the energy sector. Experiential learning is a powerful tool used to push you outside of your comfort zone. You will be assigned to an interdisciplinary, multi-university team of your peers and to a project with a transitional energy theme, such as: Circular Economy, Critical Minerals, Geothermal, Nuclear Waste Disposal, or Variable Renewable Energy (e.g. solar and wind). All themes will include Indigenous consultation with technical, policy, environmental, and economic considerations. Teams of 4 students from universities across Canada will each **attend weekly meetings** using a platform such as Zoom or Google Meet. Your **time commitment** will be approximately equal to that of a full credit graduate course or 1.5 times the hours of a full TA position (**~150 hours total**). Each team will elect a Project Manager and be assigned a Faculty Mentor and Alumni HQP Advisor. **Project deliverables** include:

1. An **executive abstract** of your project in a format suitable for submission to an academic conference.
2. A **scientific/technical poster** in a format suitable for submission to an academic conference.
3. A **project paper** discussing policy, technical, and social aspects of the topic.
4. A **journal report**, documenting Agendas and Minutes from weekly virtual meetings completed by your team.
5. An **oral presentation** (PowerPoint) and a **90 second video** to be judged in *Dragon's Den* format at our annual conference in **Spring 2023**.

BENEFITS FOR YOU:

1. Scholarship for 1 year.
2. Certificate in [REDEVELOP Training](#), presented upon completion of the program. Refer to the website for details.
3. Certificate in [Indigenous Relations Training](#) (4-day workshop offered in November).
4. Participation in the Annual REDEVELOP Conference, hosted by the University of Calgary. This 7-day event is held in Downtown Calgary and attended by subject matter experts (SMEs) from industry, government, and Indigenous communities. Teams showcase their work in *Dragon's Den* format, and attend field tours, Subject Matter Expert panel discussions, and workshops.
5. Participation in an Academic Conference (e.g. GeoConvention) where technical posters will be presented by the teams. This option changes each year and is subject to acceptance by the conference host and available funding.
6. Development of professional profiles on the REDEVELOP website and LinkedIn, as well as numerous networking opportunities. You will have the opportunity to form relationships with a wide range of SMEs in western Canada.
7. Exchange Workshops and Internship Assistance are offered to REDEVELOP students after they complete the program. **Internships or other jobs during REDEVELOP training are NOT recommended.** Networking for post-graduation employment is a strong thrust in this program.



APPLICATION (PART 1)

To be completed by the student and their **thesis supervisor**.

Last Name:		First Name:		Student Number:
Email Address:		Mobile:	Home Address:	
Level of Study: <input type="checkbox"/> Bachelor <input type="checkbox"/> Masters <input type="checkbox"/> PhD <input type="checkbox"/> PDF	Program of Study: <input type="checkbox"/> Geoscience <input type="checkbox"/> Engineering <input type="checkbox"/> Policy	Program Duration: Start date (mmm yyyy): _____ (Expected) Graduation: _____ Gender: <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> NB	University: <input type="checkbox"/> Alberta <input type="checkbox"/> Calgary <input type="checkbox"/> Toronto <input type="checkbox"/> Waterloo <input type="checkbox"/> Western	Status in Canada: <input type="checkbox"/> Canadian Citizen <input type="checkbox"/> Indigenous <input type="checkbox"/> Permanent Resident <input type="checkbox"/> International Student from: _____
Signature of Supervisor (may or may not be a PI):		Sub-discipline (eg., Geophysics, Geochemistry):		Signature of Student Applicant:
Thesis / Research Project Title (preliminary):				Date Signed:

----- DO NOT SEPARATE -----

CONTRACT (PART 2)

To be completed by the student and their **REDEVELOP mentor**.

Upon acceptance of your Application, this document will be signed by you and your REDEVELOP Mentor at a group meeting, where each aspect of the Contract will be explained. By signing below, you are entering into a Contract, where you agree to be an active team member and acknowledge the following:

- _____ Initials

1. This is an NSERC-funded program, with accountabilities by you, your supervisor, and your REDEVELOP mentor. Scholarships will be paid to you at intervals, and may be withheld if you fail to complete all aspects of the program.
- _____ Initials

2. You recognize the course-equivalent time commitment, will attend regular meetings with your team, and will conduct yourself in a professional manner (honouring scheduled meeting times/places).
- _____ Initials

3. As part of your training, you will attend the 7-day REDEVELOP Conference (including the field trip) in Calgary in Spring 2024 AND the 4-day Indigenous Relations Training workshop (in November, in Calgary). Both of these will be in person, if possible.
- _____ Initials

4. Team projects, including co-authorship of all members, will be submitted to the REDEVELOP Program Manager by the deadline, on a date TBD in 2024, for review by the REDEVELOP Panel of Judges two weeks prior to the conference.
- _____ Initials

5. You will provide a head shot and biography paragraph to the REDEVELOP Program Manager by October 23, 2023. Bios may include details of academic degrees and career preferences (such as working in research, consulting, modelling, or the field), languages spoken, interests, athletics, and community involvement. Are you willing to relocate? Do you have a LinkedIn profile? Refer to website.
- _____ Initials

6. You agree to the inclusion of your photo and biography on the REDEVELOP website and networking handouts.

CREATE Program Privacy Notice (For Office Use Only): This is to inform you that NSERC requires CREATE Programs to collect certain personal information from participants. The purpose of gathering this information is to generate statistics that enables NSERC to report on program performance. The information collected, used and disclosed is in accordance with the federal <i>Privacy Act</i> will be shared with the CREATE Program Committee and/or contractors hired to conduct data analysis, surveys or interviews on NSERC's behalf. The <i>Privacy Act</i> gives individuals the right to access their personal information and request changes to incorrect information. For more information or to access your personal information or notify us about incorrect information, contact NSERC at CREATE@nserc-crsng.gc.ca .		Participation in REDEVELOP Start date (mmm yyyy): _____ 2023 Funding Received: \$ _____
Signature of REDEVELOP Mentor (must be a PI):	Date Signed:	
Signature of Student Applicant:	Date Signed:	

APPLICATION CHECKLIST

- Fill out **Application (Part 1)** form at top of page 2
- Get **degree supervisor's signature in Application (Part 1)** form at top of page 2 (for MPP and SEDV applicants, please speak to your program coordinator or a REDEVELOP PI such as Jennifer Winter or Sara Hastings-Simon)
- Read **Contract (Part 2)** at bottom of page 2 and contact the Program Manager (redvelop.ucalgary@gmail.com) with any questions
- Write a **one-page letter of interest** that details why you are interested in the program, what you hope to get out of it, and the skills that you feel would make you a good fit for the program – effectively a cover letter
- Include a **current CV** or resume
- Include a copy of your **transcripts** – unofficial copies are fine
- Email** a copy of the completed and signed *Application (Part 1)*, letter of interest, CV, and transcripts to the Program Manager by **October 6, 2023** (redvelop.ucalgary@gmail.com)
- Select a time slot for a short interview** with the REDEVELOP team between **October 11 and 13** using this link: <https://calendar.app.google/hXcnfxuU5ERTZ1e27>
Be prepared to tell us about yourself, discuss your interest in the program, give a highest to lowest ranking of preference between the five available topics this year (see page 4), share past experience with leadership, teamwork, and Indigenous communities, and describe any potential time conflicts or commitments that may affect your full participation in the program

APPLICATION RESULTS






Applicants will be **notified** of the status of their application on **October 18, 2023**.

NEXT STEPS FOR SUCCESSFUL APPLICANTS

Successful applicants will be required to **complete Contract (Part 2)** with a REDEVELOP PI and **submit it** to the Program Manager via email by **October 20, 2023**.

Successful applicants must also **attend orientation** on **October 20, 2023** via **Zoom** (time will be announced closer to the date and a Zoom link will be shared) and **submit** their short (150 words) **bios and headshots** by **October 23, 2023**.

Successful applicants will be **expected** to make every reasonable effort to **attend the Indigenous Relations Training Program** in person **on the main University of Calgary campus** on **November 14-17, 2023**. Students are responsible for booking their own transportation and accommodations. Failure to attend the workshop without prior discussion with the Program Manager may result in financial penalties (withholding of scholarship payments) or other consequences. It is likely that there will be a **follow-up event** on **November 18** as well, so travel plans should be made such that students **arrive no later than November 13** and **depart no earlier than November 19**.

	<p>The circular economy concept is gaining ground in Canada. In contrast to the traditional linear "take-make-use-dispose" model, a circular economy promotes continuous resource use through strategies such as recycling, reusing, and remanufacturing. The goal is to extend the lifespan of products and materials, keeping them within the economy for as long as possible. This approach aims to conserve resources, reduce pollution, and create a more sustainable and resilient economic system. With a focus on sustainable practices, collaborative efforts between various sectors are driving innovative solutions for product longevity and minimized environmental impact. This shift towards a circular economy aligns with Canada's commitment to waste reduction, resource conservation, and long-term economic resilience.</p>
	<p>Critical minerals such as lithium, cobalt, nickel, and various rare earth materials are required for the production of renewable energy and related technologies. Critical minerals are used in batteries, permanent magnets, solar panels, wind turbines, and most modern technology, such as smart phones. Responsibly and sustainably sourcing and extracting these materials are increasingly important as the world moves towards renewable energy sources.</p>
	<p>Geothermal energy in Canada shows promising potential as a renewable resource. By tapping into the Earth's heat, this form of energy can both generate power and provide heating. Particularly in British Columbia, active geology offers opportunities for geothermal development, aiding electricity generation and direct heating projects. While still in its early stages, geothermal is a potential avenue for reducing carbon emissions and ensuring a greener future for Canada and the world.</p>
	<p>Nuclear energy has been used for many years. Public perception surrounding this energy source is mixed, and there have been highly publicized examples of things going wrong. However, it is a reliable and safe energy source, given the right precautions and technology. Smaller, more modular nuclear plants would allow for power generation in remote areas with less infrastructure, but these smaller units are less efficient and produce more waste per unit of power generated than the larger, more permanent installations. In both cases, there remains a significant challenge in safely and ethically disposing of waste produced during the power production process.</p>
	<p>Variable renewable energy (VRE) sources are non-dispatchable sources that fluctuate, such as wind and solar power. Both wind and solar are generating an increasing share of power over time, as both become increasingly cost-competitive energy sources. However, integrating large amounts of non-dispatchable generation into the power grid requires a different approach to ensuring reliability. Improvements in energy storage, load balancing through increased use of dispatchable power sources such as geothermal energy, demand response, and interconnection across larger regions through new grid infrastructure are at the forefront of advancing utilization of VRE sources.</p>