

PhD Graduate Student
University of Calgary

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Posted Mar. 17, 2025, set to expire Jul. 16, 2025

Job Title	PhD Graduate Student
Department	Department of Chemical and Petroleum Engineering
Institution	University of Calgary Calgary, Alberta
Date Posted	Mar. 17, 2025
Application Deadline	Open until filled
Position Start Date	Can be negotiated
Job Categories	Graduate Student
Academic Field(s)	Sustainable Engineering Mining/Minerals Chemical/Petroleum Bioengineering (all Bio-related fields)
Apply By Email	
Job Description	

Ph.D. Position in Biochemical Engineering

Background: Lithium is a highly reactive metal used primarily in the manufacture of energy-dense rechargeable batteries for computers, cell phones, and electric vehicles. Demand for lithium has tripled since 2017 and is projected to increase tenfold by 2050. Due to its prominent role in the energy transition, lithium has been identified as a critical mineral by the Government of Canada. Currently, lithium is extracted from hard-rock ores or from brines. The primary method for extracting lithium from high-quality brines is evaporative technology, which relies on open-air solar evaporation to concentrate the brine, and therefore the lithium. However, for dilute brines, this approach would be highly energy-intensive due to the large amount of water that must be removed per unit of lithium extracted, making it unsustainable. New direct lithium extraction technologies are being developed for dilute brines,

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including solvent extraction, adsorption, ion-exchange, electro dialysis, nanofiltration, and electrochemical techniques. Exciting recent evidence suggests that some microbes can selectively accumulate lithium ions from dilute brines, providing a more sustainable avenue for lithium extraction from dilute brines.

The Opportunity: We are seeking a highly motivated, full-time Ph.D. student to join our collaborative biochemical engineering research team in the Department of Chemical and Petroleum Engineering at the Schulich School of Engineering. In this position, the successful candidate will work on an innovative project aimed at developing microbially focused solutions to concentrate lithium from various brines, and isolate the concentrated lithium for practical applications. This project offers a unique opportunity to contribute to sustainable energy solutions and advance the field of biochemical engineering.

Qualifications: We are inviting applications from interested individuals who have the following:

- B.Sc. and M.Sc. degrees in biochemical engineering, chemical engineering, or a related discipline.
- Experience in designing and conducting laboratory experiments.
- A strong background in microbiology, with skills in isolating, culturing and characterizing microbes.
- Experience working with microbes isolated from industrial fluids will be viewed as an asset.

Key Responsibilities will Include:

- Conducting research in a responsible, ethical, and sustainable manner.
- Maintaining accurate records of experimental procedures and results.
- Leading the preparation of scientific manuscripts for publication in reputable peer-reviewed journals.
- Presenting research findings at scientific conferences.
- Actively managing collaborative work with other research groups.
- Contributing to laboratory operations.
- Supporting efforts related to Equity, Diversity, Inclusion and Accessibility.

How to Apply: We welcome applications from anyone with the requisite qualifications. Interested candidates should submit the following application materials to both Dr. Sen at asen@ucalgary.ca and Dr. De la Hoz Siegler at hdsiegl@ucalgary.ca:

- A cover letter highlighting their motivation for applying and their relevant qualifications for this position.
- An up-to-date CV.
- Contact information for at least two references.

We are committed to fostering an inclusive and supportive research environment and look forward to receiving applications from enthusiastic candidates eager to contribute to sustainable energy

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innovations.

Application Deadline:

Review of applications will begin March 21, 2025, and applications will continue to be accepted until the position is filled. Please note that only short-listed applicants will be contacted for interviews. The anticipated start date for this position is May 1, 2025, but can be negotiated.

About the Schulich School of Engineering

The Schulich School of Engineering, founded in 1965, is home to six engineering departments, nearly 200 faculty members, over 4000 undergraduate students, and more than 2000 graduate students. Guided by its strategic plan ([Schulich Momentum](#)), the school continues to pursue its vision of recognition for enhancing its global research impact and driving innovation, for expanding access to and inclusivity in engineering, for contributions towards Truth and Reconciliation, and for enriching student success and experience.

About the University of Calgary

UCalgary is Canada's entrepreneurial university, located in Canada's most enterprising city. It is a top research university and one of the highest-ranked universities of its age. Founded in 1966, its 36,000 students experience an innovative learning environment, made rich by research, hands-on experiences and entrepreneurial thinking. [Start something](#) today at the University of Calgary. For more information, visit ucalgary.ca.

The University of Calgary has launched an institution-wide [Indigenous Strategy](#) committing to creating a rich, vibrant, and culturally competent campus that welcomes and supports Indigenous Peoples, encourages Indigenous community partnerships, is inclusive of Indigenous perspectives in all that we do.

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As an equitable and inclusive employer, the University of Calgary recognizes that a diverse staff/faculty benefits and enriches the work, learning and research experiences of the entire campus and greater community. We are committed to removing barriers that have been historically encountered by some people in our society. We strive to recruit individuals who will further enhance our diversity and will support their academic and professional success while they are here. In particular, we encourage members of the designated groups (women, Indigenous peoples, persons with disabilities, members of visible/racialized minorities, and diverse sexual orientation and gender identities) to apply. To ensure a fair and equitable assessment, we offer accommodation at any stage during the recruitment process to applicants with disabilities. Questions regarding [diversity] EDI at UCalgary can be sent to the [Office of Equity, Diversity and Inclusion \(equity@ucalgary.ca\)](mailto:equity@ucalgary.ca) and requests for accommodations can be sent to Human Resources (hrhire@ucalgary.ca).

The University of Calgary is Canada's leading next-generation university – a living, growing and youthful institution that embraces change and opportunity with a can-do attitude. Located in the nation's most enterprising city, the university is making tremendous progress on its Eyes High journey to become one of Canada's top five research universities, grounded in innovative learning and teaching and fully integrated with the community it both serves and leads. Ranked as the top young university in Canada and North America, the University of Calgary inspires and supports discovery, creativity and innovation across all disciplines. For more information, visit ucalgary.ca.

About Calgary, Alberta

Ranked the 5th most livable city in the world, Calgary is one of the world's cleanest cities and one of the best cities in Canada to raise a family. Calgary is a city of leaders - in business, community, philanthropy and volunteerism. Calgarians benefit from a growing number of world-class dining and cultural events and enjoy more days of sunshine per year than any other major Canadian city. Calgary is less than an hour's drive from the majestic Rocky Mountains and boasts the most extensive urban pathway and bikeway network in North America.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Dr. Arindom Sen
 Chemical and Petroleum Engineering

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Contact E-mail asen@ucalgary.ca