

MSc Opportunity

Geochemical Interactions Related to Geological Carbon Storage (GCS)

The Departments of Earth Science and Process Engineering, Memorial University of Newfoundland are seeking a strong Masters candidate for research related to geological carbon storage beginning either September 2025 or January 2026. The position is in person at Memorial University, St. John's, NL, Canada under the supervision of Dr. Karem Azmy and Dr. Lesley James.

Project Description

Activities:

- Evaluate and characterize reservoir properties using petrographic, mineralogical facies analysis tools to understand controls on dissolution/cementation and porosity distribution
- Identify most porous, permeable and sealing horizons.
- Identify & quantify CO₂ storage geochemical reaction risks and the efficiency of different trapping mechanisms.
- Reservoir evaluation may/will involve;
 - o modeling through the use of a software such as PHREEQC or TOUGHREACT, and
 - o laboratory analyses for dissolution and precipitation experiments at ambient and/or geological storage conditions.

Please submit applications as a single pdf file containing Curriculum Vitae including publication list, a statement of interest, copies of degrees certificates and transcripts, English language proficiency certificate (if applicable), a copy of thesis/publications (may send a list to a link of downloadable documents), and names and contact information of three referees to: hiberniaadmin@mun.ca.

Deadline to receive applications is **July 18, 2025**. Maximum attachment file size is 8 MB. If larger, please send a link.

We thank all applicants for their interest, however, only those selected for an interview will be contacted.

Required Selection Criteria

You must possess a professionally relevant background (BSc) in Engineering (Petroleum, Chemical, Geological) or Science (Geochemistry, Geology, Chemistry, Surface Chemistry) with specialty in experimental or modelling and simulation approaches. Exceptional other backgrounds will be considered.

For candidates with degrees from schools where English is not the primary teaching/research language, a recent English language proficiency certificate with strong scores in writing and speaking modules is necessary.

All the degrees certificates and transcripts should be in English language.

You must meet the admission requirements set forward by the School of Graduate Studies, Memorial University of Newfoundland: <https://www.mun.ca/become/graduate/>

Preferred Selection Criteria

We are seeking qualified candidates with relevant background in engineering and science, and strong knowledge in fundamentals and applications.

Industry experience is an asset.

We are particularly interested in interviewing candidates with working experience and knowledge in including geology, diagenesis, chemistry of minerals, high-pressure high-temperature lab environment, and capable of operating rock and fluid characterization equipment (coreflooding, IFT/wettability, porosimetry and permeametry with He and Hg, capillary centrifuge, PVT, SEM-MLA, rheometer, XRD, XRF, and AFM, among other equipment).

Familiarity with engineering software applications, simulation packages and programming language(s) is an asset (PHREEQC, PFLOTRAN, TOUGHREACT, ChemStation, ECLIPSE, PETREL, CMG, Python, MATLAB, COMSOL Multiphysics, among other software packages).

Personal Characteristics

- Ability to work independently as well as in teams
- Good communication/networking skills and strong writing capabilities
- Motivated and able to engage in theoretical and practical research and interdisciplinary collaboration

Equity, Diversity and Inclusion (EDI) Statement

Memorial University is committed to employment equity, diversity, inclusion and anti-racism, and encourages applications from all qualified candidates, including: women; people of any sexual orientation, gender identity, or gender expression; Indigenous Peoples; visible minorities, and racialized people; and people with disabilities. Memorial is committed to providing an inclusive learning and work environment. If there is anything we can do to ensure your full participation during the application process, please contact equity@mun.ca directly and we will work with you to make appropriate arrangements.

About the Faculty of Engineering and Applied Science and Department of Earth Sciences

This is a multidisciplinary project. Depending on your background, you can be accepted into The Faculty of Engineering and Applied Science (FEAS) or Earth Sciences.

FEAS offers accredited undergraduate programs in civil engineering, computer engineering, electrical engineering, mechanical engineering, ocean and naval architectural engineering and process engineering, following a fully integrated co-operative education model. At the graduate level, the department of process engineering offers thesis-based master's and doctoral programs in oil and gas engineering, and process engineering, as well as course-based master's programs in oil and gas engineering and safety and risk engineering. For more information, please visit <https://www.mun.ca/engineering/>. For more information about the Hibernia Research Group, please visit <https://www.mun.ca/engineering/research/eor/>

Similarly, the department of Earth Sciences offers thesis-based MSc and PhD programs in geology and geophysics as well as environmental sciences. For more information, please visit

<https://www.mun.ca/earthsciences/>

About Memorial

Perched on Canada's North Atlantic coast, Memorial University of Newfoundland is a destination for discovery. A beacon for the 21st-century explorer, Newfoundland and Labrador's university is a unique learning community founded in 1925 as a living memorial to those who lost their lives in the First World War – "that in freedom of learning their cause and sacrifice might not be forgotten." Today more than 18,000 students from nearly 110 countries come together to discover. From the classics to advanced technology, the comprehensive university offers certificate, diploma, undergraduate, graduate and postgraduate programs across five campuses, numerous locations and online. A global network of almost 95,000 accomplished alumni throughout the world strengthens Memorial University's capacity and reputation for leadership in world-class research, teaching and public engagement. To take a closer look, visit www.mun.ca.

Land Acknowledgement

We acknowledge that the lands on which Memorial University's campuses are situated are in the traditional territories of diverse Indigenous groups, and we acknowledge with respect the diverse histories and cultures of the Beothuk, Mi'kmaq, Innu, and Inuit of this province.