

## MSc position – As-Fe compound biogeochemistry in mine wastes



The McBeth Geomicrobiology Group in the Department of Geology at the University of Regina is recruiting for a full-time fully-funded MSc position to begin in May or Sept 2023. Our research group studies microbial communities and their influence on metal(loid) solubility in mine waste materials and contaminated environments.

The successful applicant(s) will primarily be based at the University of Regina in Regina, SK, where they will study geomicrobiological transformations of arsenic-iron compounds, in the context of mine waste reclamation. This project involves Fe-As phase synthesis and incubations of the synthesized Fe-As phases with cultures containing iron-reducing and/or sulfate-reducing microbes under various conditions to test the stability of the Fe-As phases. The successful candidate will participate in several visits a year to the University of Saskatchewan to work with collaborators in the Department of Geological Sciences. They will also visit the Canadian Light Source in Saskatoon, SK and learn how to use synchrotron analyses to assess the mineralogy and chemistry of the resulting materials. We will train the successful candidate in the microbiology and synchrotron analyses parts of the project so prior knowledge of these aspects are not required – you just need to bring a sincere interest and willingness to learn!

This project will be funded through a NSERC Alliance grant in partnership with the Giant Mine Oversight Board and associated with NSERC TERRE-NET, a network working to develop improved, cost-effective, socially acceptable strategies for managing mine wastes and mitigating contamination. <https://terre-net.ca/> Dr McBeth will apply for additional stipend support for the student through the NSERC CREATE INSPIRE program:

<https://artsandscience.usask.ca/synchrotron-sciences/> The student on this project will also have opportunities to interact with a dynamic and collaborative community of researchers at USask and Queen's during their program. The successful candidate will be provided with opportunities to network and gain transferable skills to prepare them for the job market after graduation, and there is potential for the student to participate in an industry internship as part of their program. For further information on the McBeth Geomicrobiology group and other grad positions open within the group please visit our website here: <https://uregina.ca/~jma414/>

### Qualifications and Eligibility Criteria:

#### General:

- The applicant is required to be legal and available to study in Canada by May 1, 2023 (preferred) or Sept 1, 2023.

#### Education:

- The applicant is required to have an undergraduate science degree in Geology/Earth Science with an undergraduate average of at least 70% and ideally above 82%.
- The applicant is required to have above average grades in geochemistry and mineralogy undergraduate coursework.
- Refer to the URegina Faculty of Graduate Studies and Research webpage for further information on educational requirements for application to URegina: <https://www.uregina.ca/gradstudies/future-students/index.html>

**Experience:**

- Demonstrable interest in environmental remediation and interest in the influence of microbes on biogeochemical cycles
- Basic laboratory experience or field experience would be beneficial but is not required
- Industry experience would be an asset but is not required

**Skills:**

- Motivated, reliable, and well-organized
- prepared to work in a team-oriented and multidisciplinary research environment
- Fluent in written and oral English communication. If English is not the applicant's first language the graduate school requires a minimum IELTS score of 6.5 overall
- Ideally, the student will have a Canadian driver's licence

**To apply:**

Enquiries about the project and applications should be addressed to Dr Joyce McBeth and sent to: [mcbeth.geomicro @ uregina.ca](mailto:mcbeth.geomicro@uregina.ca). Please begin subject line with "GMOB Position Grad Applicant [your name]". Please ensure you meet the required eligibility criteria above before applying; those who do not meet the required eligibility criteria will not be considered for this position. Applications should contain the following documents (pdf format):

- Cover letter (1-2 pages) including:
  - (1) your undergraduate and other postsecondary educational background with in-major average(s) for final two years of program(s);
  - (2) description of your career interests, goals, and educational background and how they match up with the project,
  - (3) what do you hope to achieve during graduate studies, both personally and professionally;
  - (4) your availability to begin MSc studies (e.g., available to begin May 1, 2023 or Sept 1, 2023),
  - (5) indication of whether you are a domestic (Canadian Citizen or PR) or international applicant and what your present status is for studying in Canada;
  - (6) where you saw the advertisement for the position.
- Transcript(s) (official transcripts not required for initial application)
- Resume or CV
- List of three references (letters from references are not required up front).

Application consideration will begin immediately and will continue until the position is filled. Incomplete applications may not be considered. Shortlisted applicants may be asked for additional documents (e.g., language test scores where applicable, examples of written work).

**Diversity statement:**

The University of Regina is committed to an inclusive workplace that reflects the richness of the community that we serve. The University welcomes applications from all qualified individuals, including individuals within the University's employment equity categories of women, persons with disabilities, members of visible minorities, Indigenous persons, individuals of diverse gender and sexual orientation and all groups protected by the Human Rights Code.