

Fully Funded PhD Opportunities in Geomechanics

Applications from students in Civil Engineering, Mechanical Engineering, Materials Engineering, and related disciplines are encouraged.

Two fully funded PhD positions are available in the Laboratory for Multiscale Geomechanics in the Department of Civil Engineering at McMaster University.

Preferred start dates: **January 2027** or **September 2027**. Some flexibility may be possible.

Research Focus

Our group develops advanced computational and theoretical methods for understanding the behaviour of geomaterials across multiple spatial scales and under coupled physical processes.

Our research lies at the intersection of:

- Continuum and solid mechanics
- Computational mechanics and numerical methods
- Constitutive modelling
- Multiscale mechanics
- Geomechanics

Potential research topics include *large-deformation modeling of geostructures, thermo-hydro-mechanical modeling of geomaterials, and small-scale simulations of porous multiphase materials.*

The positions are particularly suitable for candidates interested in mechanics-based modelling, numerical implementation, and the fundamental behaviour of soils, rocks, granular materials, or other geomaterials.

Who Should Apply

Applicants should have:

- A degree in civil engineering, mechanical engineering, materials engineering, or a closely related field

- Strong preparation in **continuum mechanics**, **solid mechanics**, **computational mechanics**, **numerical methods**, or a related area
- Evidence of research potential through a thesis, research project, publication, technical report, software development, or comparable experience
- An interest in applying mechanics and computational methods to geomechanics

Previous research experience in geomechanics is an asset but is **not required**. Applications from students with strong backgrounds in **continuum mechanics**, **computational mechanics**, or related areas who are interested in applying these skills to challenging problems in geomechanics are encouraged.

Experience implementing numerical methods such as FEM, DEM, MPM, SPH, or molecular dynamics (MD) is beneficial but not required.

How to Apply

Please email the following materials to eghbalm@mcmaster.ca:

- A curriculum vitae
- **Unofficial** academic transcripts
- A statement of **no more than 500 words** describing your research interests, relevant preparation, the types of problems you would like to investigate, and how this opportunity aligns with your academic goals
- The names of **two potential academic referees**; reference letters will be requested only from candidates who proceed to a later stage

Please use the following email subject:

PhD Geomechanics – Your Name – January/September 2027

Successful applicants will contribute to the development of a growing research program in computational geomechanics and tackle challenging problems at the intersection of mechanics, computation, and geomechanics.