The Mines geochemistry graduate program educates students whose interests lie at the intersection of the geological, environmental and chemical sciences. This interdisciplinary program consists of two subprograms, administering both MS and PhD options. The geochemistry degree track pertains to the history and evolution of the Earth and its features, including the chemical evolution of the crust and mantle, geochemistry of energy and mineral resources, aqueous geochemistry, fluid-rock/fluid-mineral interactions and chemical mineralogy. The environmental biogeochemistry degree track pertains to the coupled chemical and biological processes of Earth’s biosphere and the changes in these processes caused by human activities.

DEGREE OPTIONS

- Doctor of Philosophy (geochemistry or biogeochemistry tracks): 72 credit hours, comprised of at least 18 hours of coursework and at least 24 hours of research credit.

- Master of Science (geochemistry or biogeochemistry tracks): 36 credit hours, including 24 hours of coursework and 12 hours of research credit.

- Professional Master’s in environmental geochemistry (non-thesis): 30 credit hours with 3 core courses (9 credit hours) and an additional 15 credit hours tailored to professional objectives.
RESEARCH AREAS

- Biogeochemical cycling
- Environmental microbiology
- Environmental remediation
- Geochemistry of the crust and mantle
- Geochemistry of economic minerals
- Geochemical hydrology
- Hydrothermal geochemistry
- Isotope geochemistry

CORE/ELECTIVE EXAMPLES

- Introduction to Geochemistry
- Isotope Geochemistry
- Geochemical Thermodynamics and Kinetics
- Groundwater Engineering
- Principles of Environmental Chemistry
- Molecular Microbial Ecology and the Environment

PROGRAM ADMISSION REQUIREMENTS

- Entering students will have an entrance interview with members of the faculty. A placement examination in geology and/or chemistry may be required. Credit toward a graduate degree will not be given for undergraduate courses taken to fulfill deficiencies.
- Bachelor's degree in engineering, science or related field with a grade-point average (GPA) of 3.0 or better on a 4.0 scale.
- Biogeochemistry track: Bachelor’s degree in science or engineering with coursework including multivariable calculus, two semesters each of physics and chemistry and one semester each of biology and earth science.
- Graduate Record Examination (GRE) is required. The GRE requirement may be waived for Mines undergraduate students.

ACCEPTING APPLICATIONS

TO LEARN MORE, VISIT:
gradprograms.mines.edu/geochem or contact geochemistry@mines.edu