

Graduate / Modular Course in

# Exploration for Magmatic Ore Deposits

GEOL 5606

APRIL 8-17  
2026

In-person  
or online

Register for this 10-day intensive course in magmatic Ni-Cu-(PGE), PGE, Cr, and Ti-V deposits including 3 days of theoretical material, 5 days of case studies, and 2 days of exploration methods.

**Topics include:** S and Cr solubility and metal partitioning in mafic-ultramafic magmas; generation of fertile magmas; applications of stable and radiogenic isotopes (including mass-independent S isotopes) in identifying S and metal sources; sulfide transport and localization mechanisms; textures and deformation of Fe-Ni-Cu sulfide ores, sulfide recalculation and plotting methods; geology/genesis of and exploration for Ni-Cu-(PGE) deposits in mafic-ultramafic lava channels, feeder sills/dikes, and magma conduits; geology/genesis of and exploration for PGE deposits in mafic-ultramafic layered intrusions; geology/genesis of and exploration for stratiform and podiform Cr deposits and Ti-V deposits in anorthosites and mafic-ultramafic intrusions (including those in the "Ring of Fire" district of northern Ontario).

**Case studies and laboratory practicals will include:** Alexo (Ontario), Duke Island (Alaska), Duluth (Minnesota), Kambalda (Western Australia), Noril'sk-Talnakh and Pechenga (Russia), Jinchuan and other deposits in China, Thompson (Manitoba), Raglan (Nunavik), Voisey's Bay (Labrador), and Sudbury (Ontario) Ni-Cu-PGE; and Bushveld (South Africa) and Stillwater (Montana) PGE and Cr; and "Ring of Fire" (Ontario) Cr.

Exploration methods include geological, mineralogical, lithochemical, and geophysical applications to greenfields, regional, and brownfields targeting.

## Prerequisites

Advanced undergraduate-level courses in Geochemistry, Igneous Petrology, and Ore Deposits.

## Course Format

Lectures presented by multiple instructors, including academic and industry subject experts. Laboratory exercises include a combination of spreadsheet calculation and modelling, and hands-on sample examination and interpretation. Online students will receive virtual materials to support lab learning.

## Course Credit

3 credits applicable toward course- and thesis-based MSc and PhD programs. Registered professionals can apply course hours to meet accreditation requirements.

## Grading

Laboratory practicals and problem sets comprise 100% of the final grade.

## Software and Equipment

Laboratory exercises will be completed as Microsoft Excel® and Word® documents. Participants must bring a laptop with appropriate software.

## Course Notes

Notes will be provided to all registered participants. The notes for this course remain the intellectual property of the presenter and may contain unpublished and/or confidential information and copyrighted figures. They must not be copied or given to anyone else under any circumstances.

## Course Enrolment

Industry participants and students at other universities pursuing degree credits must use the registration form and follow the process posted online at the links below. Laurentian University students follow standard course registration procedures.

Industry Participant Pricing	IN-PERSON		ONLINE	
	Full course	Per day	Full course	Per day
Regular	\$3,600	\$420	\$2,700	\$310
MERC Member	\$2,880	\$336	\$2,160	\$248

Prices in Canadian dollars. 13% HST will be added.



Learn more:  
[hes.laurentian.ca/modular-courses#5606](https://hes.laurentian.ca/modular-courses#5606)

## For more information and registration:

Roxane Mehes, 705-673-6575 [rmehes@laurentian.ca](mailto:rmehes@laurentian.ca)

## Course Coordinator:

Dr. Pedro Jugo, Harquail School of Earth Sciences [pjugo@laurentian.ca](mailto:pjugo@laurentian.ca)



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Université Laurentienne

HARQUAIL School of Earth Sciences  
École des sciences de la Terre

MERC

Mineral Exploration Research Centre  
at the HARQUAIL School of Earth Sciences