Mineral Exploration and Resource Management

This section presents the requirements for programs in:

- **M. Mineral Exploration and Resource Management**

M. Mineral Exploration and Resource Management (4.0 credits)

Requirements:

1. 4.0 credits in:		4.0
MERM 5001 [0.5]	Magmatic Mineral Systems	
MERM 5002 [0.5]	Fluid-Dominated Mineral Systems	
MERM 5003 [0.5]	Exploration Methods	
MERM 5004 [0.5]	Mining, Beneficiation, and Waste Management	
MERM 5005 [0.5]	Mineral Resource Estimation	
MERM 5006 [0.5]	Mineral Exploration Finance and Economics	
MERM 5007 [0.5]	Best Practice in Mineral Exploration	
MERM 5008 [0.5]	Program Management and Logistics	
Total Credits		**4.0**

Regulations

See the General Regulations section of this Calendar.

Admissions Information

The normal requirement for admission to the program is an Honours B.Sc. degree, with at least high Honours standing, in geology or a related discipline, and which meets the Professional Geoscientists of Ontario knowledge requirements for an undergraduate degree. Applicants judged to be generally acceptable but deficient in some aspect of preparation may be asked to complete coursework in addition to the program requirements.

Mineral Expl & Rsrc Mgmt (MERM) Courses

MERM 5001 [0.5 credit]
Magmatic Mineral Systems
Systematic review of source, generation, concentration, migration, separation, enrichment and preservation of major magmatic and derived orthomagmatic hydrothermal ore deposit types including base metal sulfide, precious metal sulfide, porphyry Cu, vein-hosted Sn, Ag, W, etc., chromitite, Fe-Ti oxide, kimberlite-hosted diamond, rare metals, carbonatites.
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5002 [0.5 credit]
Fluid-Dominated Mineral Systems
Systematic review of source, generation, concentration, migration, separation, enrichment and preservation of major fluid-generated ore deposit types including Carlin-type and orogenic gold, IOCG, VMS, MVT-Irish Type, SEDEX, IOCG, unconformity and roll-front U, sediment-hosted Cu-Co, residual soil deposits (e.g., laterite), chemical sediments (e.g., iron formation).
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5003 [0.5 credit]
Exploration Methods
Methods overview including application of mineral systems framework, data synthesis, GIS, methods and synthesis of geophysical, remote sensing, mapping, geochemical, drilling, assay and geometallurgy. Target selection at all scales from regional to deposit. Cost-benefit analysis for data collection (e.g., mapping vs drilling, operations efficiencies).
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5004 [0.5 credit]
Mining, Beneficiation, and Waste Management
Methods and environmental burdens of open cast and underground mining, geometallurgy, comminution, mineral separation, concentration, refining and smelting of major and minor commodities; waste rock and tailings management, impoundment stability and environmental geochemistry.
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5005 [0.5 credit]
Mineral Resource Estimation
Data types and QAQC, geological modeling and domaining, implicit modeling for wireframing (theory and practice), statistics, compositing, capping and declustering, variograms, block modeling, estimation theory and examples, validation and classification, mineral reserves and reporting.
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5006 [0.5 credit]
Mineral Exploration Finance and Economics
Sources of funding for mineral exploration and development, corporate structure and financing, balance sheets, commodity markets, net present value, and reconciliation of projected and realized profits.
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5007 [0.5 credit]
Best Practice in Mineral Exploration
Professionalism, ethics, professional practice, law for professional practice, corporate governance, social license, Indigenous relations, labor relations, corporate and operational risk management, environmental stewardship, responsibility to shareholders.
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.

MERM 5008 [0.5 credit]
Program Management and Logistics
Capstone course where groups of students use a real case study to plan a fully costed exploration program, including a detailed mineral systems analysis, which fully considers operational and corporate risk management, economic and financial constraints, environmental stewardship, and stakeholder engagement.
Includes: Experiential Learning Activity
Prerequisite(s): reserved for students of the Master of Mineral Exploration and Resource Management program.