

EASC 401
D. Marshall
(604) 291-5474
Rm: P9308
marshall@sfu.ca

TA: Laura Hubbard
(604) 268-6664
Rm: SCB7652
lhubbard74@hotmail.com

ORE DEPOSITS

Prerequisites: EASC 201, 204, 208 and 301

Course Topics

Principles

- ❖ Elementary Mineral Economics
- ❖ Nature and Morphology of Principal Ore Deposit Types
- ❖ Major Theories of Ore Genesis
- ❖ Textures and Structures of Ore and Gangue Minerals, Fluid Inclusions, Wall Rock Alteration.
- ❖ Geothermobarometry, Paragenetic Sequences, Zoning and Isotopic Studies of Ore Deposits

Examples of Major Ore Deposits Types

- ❖ Historical Classification of Ore Deposits
- ❖ Syngenetic
 - Volcanogenic Massive Sulphide (VMS)
 - Sedex
 - Mississippi Valley Type (MVT) – Irish Type
- ❖ Felsic Igneous Associated
 - Porphyries
 - Epithermal Deposits
 - Pegmatites / Greisens
 - Skarns
- ❖ Mafic Igneous Associated
 - Cu-Ni-PGE (Sudbury-Norlisk)
 - Kimberlites
- ❖ Metamorphic Related Deposits
 - Au veins
 - Ag veins
 - Emerald veins
 - Sapphire veins
- ❖ Residual Deposits and Supergene Enrichment
 - Laterites / Placers

Mineralization in Space and Time

- ❖ Global Distribution of Ore Deposits: Metallogenic Provinces, Epochs and Plate Tectonics
- ❖ Ore Mineralization Through Geological Time

Course Text: Selected Readings. This will be **partially a seminar based** course and students will be expected to read, ask questions on and make presentations on various papers throughout the course.

Course Grade

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|------------------------------|------------|
| • Midterm examination | 15% |
| • Laboratory assignments | 15% |
| • Microscopy exam | 10% |
| • Final lab examination | 15% |
| • <u>Poster</u> | 15% |
| • Final exam / Participation | <u>30%</u> |
| | 100% |

LECTURES: AQ4115: Mon 12:30-13:20
LAB: C9015A Wed 14:30 - 17:20