

All Lectures and Labs are delivered on campus in the Executive Learning Centre (Fraser Building, FA-386) and via Zoom

| DAY                                | START | END   | TOPIC  | SPEAKER   |
|------------------------------------|-------|---|--|---|
| <b>5-Dec-24</b><br><b>Optional</b> | 0900  | 1030  | <b>Introduction to ioGAS</b>   | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1200  | <b>Working with ioGAS</b>  | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 1200  | 1300  | Break  |   |
|                                    | 1300  | 1430  | <b>Practical Exercise: Analysis of a Silicate Litho geochemistry Database</b>  | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 1430  | 1500  | Break  |   |
|                                    | 1500  | 1700  | <b>Practical Exercise: Analysis of a Sulfide Geochemistry Database</b>   | <b>Michael Lesher (HES/MERC)</b>                                  |
| <b>6-Dec-24</b>                    | 0900  | 1030  | <b>Analytical methods</b>  | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Analytical methods: pXRF, LIBS, NIR/SWIR</b>  | <b>Ben Vautour (SciAps)</b>                                       |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1430  | <b>QCQA (Standards, Reference Materials, Precision/Accuracy, Failure Monitoring)</b>   | <b>Stefanie Brueckner (HES/MERC)</b>                              |
|                                    | 1430  | 1500  | Break  |   |
|                                    | 1500  | 1700  | <b>Lab 1 - QAQC</b>  | <b>Stefanie Brueckner (HES/MERC)</b>                              |
| <b>7-Dec-24</b>                    | 0900  | 0930  | <b>Data preparation</b>  | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 0930  | 1030  | <b>Preliminary considerations in data analysis, litho geochem data, censored data, data transformations</b>  | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Sampling &amp; geostatistics, sampling theory, geostatistical overview</b>  | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1500  | <b>Major/trace element geochem, basic litho geochem, conserved element diagrams, discriminating lithologies, classification, strategy for analysis</b> | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1500  | 1530  | Break  |   |
|                                    | 1530  | 1700  | <b>Lab 2 - Litho geochemistry</b>  | <b>Cliff Stanley (Acadia)</b>                                     |
| <b>8-Dec-24</b>                    | 0900  | 1030  | <b>Molar element ratio analysis theory 1, closure, theorem of geochemical material transfer, diagrams and projective geometry</b>                      | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Molar element ratio analysis theory 2, calculations, testing cogenetic hypotheses, PER &amp; GER diagrams and examples</b>                          | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1500  | <b>Molar element ratio analysis theory 3, hydrothermal alteration, custom norms</b>  | <b>Cliff Stanley (Acadia)</b>                                     |
|                                    | 1500  | 1530  | Break  |   |
| 1530                               | 1700  | <b>Lab 3 - Pearce element ratio analysis and general element ratio analysis</b> | <b>Cliff Stanley (Acadia)</b>  |   |
| <b>9-Dec-24</b>                    | 0900  | 1030  | <b>Alteration mass balance</b>   | <b>Michael Lesher (HES/MERC)</b>                                  |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Stable isotopes</b>   | <b>Alexandre Voinot (GSC)</b>                                     |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1500  | <b>Radiogenic isotopes</b>   | <b>Alexandre Voinot (GSC)</b>                                     |
|                                    | 1500  | 1530  | Break  |   |
|                                    | 1530  | 1700  | <b>Lab 4 - Stable and radiogenic isotopes</b>  | <b>Stefanie Brueckner (HES/MERC) &amp; Alexandre Voinot (GSC)</b> |
| <b>10-Dec-24</b>                   | 0900  | 1030  | <b>Till geochemistry &amp; indicator minerals</b>  | <b>Grant Hagedorn &amp; Chris Beckett-Brown (OGS)</b>             |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Stream sediments</b>  | <b>Chris Beckett-Brown (OGS)</b>                                  |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1500  | <b>Lake sediments</b>  | <b>Chris Beckett-Brown (OGS)</b>                                  |
|                                    | 1500  | 1530  | Break  |   |
|                                    | 1530  | 1700  | <b>Lab 5 - Surficial Geochemistry</b>  | <b>Chris Beckett-Brown (OGS)</b>                                  |
| <b>11-Dec-24</b>                   | 0900  | 1030  | <b>Primary (igneous) and secondary (alteration) litho geochemistry in VMS exploration</b>  | <b>Stefanie Brueckner (HES/MERC)</b>                              |
|                                    | 1030  | 1100  | Break  |   |
|                                    | 1100  | 1230  | <b>Hydrothermal sediment geochemistry/isotopes</b>   | <b>Stefanie Brueckner (HES/MERC)</b>                              |
|                                    | 1230  | 1330  | Break  |   |
|                                    | 1330  | 1530  | <b>New developments and future trends in VMS litho geochemistry/mineral chemistry</b>  | <b>Stefanie Brueckner (HES/MERC)</b>                              |
|                                    | 1530  | 1600  | Break  |   |
|                                    | 1600  | 1700  | <b>Lab 6 - VMS deposits</b>  | <b>Stefanie Brueckner (HES/MERC)</b>                              |

| DAY              | START | END  | TOPIC  | SPEAKER   |
|------------------|-------|------|--|---|
| <b>12-Dec-24</b> | 0900  | 1030 | <b>Porphyry</b>  | <b>Pete Hollings</b> (Lakehead)                               |
|                  | 1030  | 1100 | Break  |   |
|                  | 1100  | 1230 | <b>Exploration geochemistry of unconformity U deposits</b>                     | <b>Kevin Ansdell</b> (USask)                                  |
|                  | 1230  | 1330 | Break  |   |
|                  | 1330  | 1500 | <b>Case studies: Porphyry and geochronology</b>                                | <b>Chelsea Sutcliffe &amp; Carmina Jorquera Zuniga</b> (Teck) |
|                  | 1500  | 1530 | Break  |   |
| <b>13-Dec-24</b> | 1530  | 1700 | <b>Lab 7 - Geochronology</b>   | <b>Chelsea Sutcliffe</b> (Teck)                               |
|                  | 0900  | 1030 | <b>Transport through cover</b>   | <b>James Kidder</b> (GSC)                                     |
|                  | 1030  | 1100 | Break  |   |
|                  | 1100  | 1230 | <b>Aqueous geochemistry</b>  | <b>James Kidder</b> (GSC)                                     |
|                  | 1230  | 1330 | Break  |   |
|                  | 1330  | 1500 | <b>Aqueous isotope geochemistry</b>  | <b>James Kidder</b> (GSC)                                     |
| <b>14-Dec-24</b> | 1500  | 1530 | Break  |   |
|                  | 1530  | 1700 | <b>Lab 8 - Aqueous geochemistry</b>  | <b>James Kidder</b> (GSC)                                     |
|                  | 0900  | 1030 | <b>Case study: Machine Learning</b>  | <b>MacLean Trott</b> (ALSGoldspot)                            |
|                  | 1030  | 1100 | Break  |   |
|                  | 1100  | 1230 | <b>Case study: Machine Learning</b>  | <b>MacLean Trott</b> (ALSGoldspot)                            |
|                  | 1230  | 1330 | Break  |   |
| <b>15-Dec-24</b> | 1330  | 1500 | <b>Case study: Exploration geochemistry of orogenic Au deposits</b>            | <b>Stephane Perrouty</b> (HES/MERC)                           |
|                  | 1500  | 1530 | Break  |   |
|                  | 1530  | 1700 | <b>Lab 9 - Orogenic Au deposits</b>  | <b>Stephane Perrouty</b> (HES/MERC)                           |
|                  | 0900  | 1030 | <b>Design and implementation of effective geochemical exploration programs</b> | <b>Ross Sherlock</b> (HES/MERC)                               |
|                  | 1030  | 1100 | Break  |   |
|                  | 1100  | 1200 | <b>New trends in exploration geochemistry</b>                                  | <b>Aleksandra Mloszewski</b> (GSC)                            |
|                  | 1200  | 1315 | Break  |   |
|                  | 1315  | 1420 | <b>Course evaluation</b> (via D2L)   |   |

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