

## **EESC32H3: Mineralogy and Petrology 2008**

### Grading Scheme

Lab/tutorial assignments: 30%

Lab tests: 20%

Mid-term test: 20%

Final exam: 30%

### Assignments

One assignment per week is due at the beginning of the following class

### Office Hours

Tuesday 1-2 pm SW410

Email: [spreece@utsc.utoronto.ca](mailto:spreece@utsc.utoronto.ca)

Week 1: Lecture: Fundamentals of mineralogy-definitions, physical properties, crystal systems

Lab: Hand specimen mineralogy-physical properties

Week 2: Combined lab and lecture: Fundamentals of optical mineralogy-properties of light, how polarizing microscopes work, wave interaction, refractive indices, Becke lines, birefringence, sign of elongation, anisotropic mineral features, uniaxial mineral features, biaxial features, indicatrix, optical sign

Week 3: Lecture: Mineral Chemistry- bonding and relationship to physical properties, chemical composition and classification, polymorphism, isomorphism, substitution, twinning, zonation, Bowen reaction series

Lab: Hand and Optical Mineral Identification Set 1

Week 4: Lecture: Intrusive and extrusive igneous rocks and their classification

Lab: Hand and Optical Mineral Identification Set 2

Week 5: Lecture: Part 1-Phase diagrams, magma generation and magma modification

Part 2- The Mantle

Lab: Lab test 1

Week 6: Lecture: Plate tectonics and igneous rocks

Lab: Igneous Rocks Ultramafic and Mafic compositions

Week 7: Lecture: Sedimentary rocks

Lab: Intermediate and Silicic Igneous Rocks

Week 8: Lecture: Sedimentary Rocks: Part 2

Lab: Clastic sedimentary rocks

Week 9: Lecture: midterm test

Lab: Carbonate Rocks and other Sedimentary Rocks

Week 10: Lecture: Metamorphic Rocks

Lab: Lab test 2

Week 11: Metamorphic Rocks: Mineral assemblages and reactions

Lab: Non-foliated Metamorphic Rocks

Week 12: Lecture: Metamorphic Rocks: Protoliths and mineral assemblages

Lab: Foliated metamorphic rocks