Earth Sciences 4462A Course Outline

Title: Glacial and Quaternary Geology


Prerequisites: one of ES 2260a/b or 3314a/b or Geography 214a/b, 316a/b, 317a/b, 318a/b, 319a/b, 321a/b or permission of the Department. Be sure to check prerequisites.

Antirequisites: the former Earth Sciences 462a/b, 463b

Lectures: M, W 1030-1130 in PA 117

Labs: W 230-530 in BGS 1053; readings suggested

Instructor: Bethany Dean, bdean8@uwo.ca; see instructor with official note if you miss a test or lab; no electronic devices allowed in tests; no texts, manuals or electronic devices required for course

Marks: labs 30%; midterm 20% (mid Oct); term paper 20% (early Dec); final exam 30%

Grads: labs 20%; midterm 20% (mid Oct); term paper 20% (early Dec); oral presentation 10%; final exam 30%

Topics:

- Glaciology: glaciers - how they form, move, entrain, erode, transport, and deposit
- Glacial theory: brief history and erosional evidence
- Glacial systems, past and present: supraglacial, proglacial, subglacial processes, deposits, and landforms
- Till: genesis, classification, properties, and uses
- Drift prospecting: principles, methodology, case studies
- Applied glacial geology: ground stability, drainage, waste disposal, aquifer contamination, placer and aggregate exploration
- Global sea level and glacial isostatic changes
- Deep-sea and ice cores and oxygen isotopes
- Terrestrial evidence of glacial-interglacial cycles: caves, pluvial lakes, loess, paleosols, tephra markers
- Quaternary history of North America
- Causes of glaciations: orbital (Milankovitch) cycles, hemispheric synchroneity, greenhouse effect, atmosphere-hydrosphere-biosphere interactions

Laboratory: map, air photo, stratigraphic, applied and environmental exercises

Scholastic offenses are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense, at the following Web site: http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf

Accommodation for missed work worth less than 10% of the total course grade due to illness will not require medical documentation; instead, contact the professor and refer to the Policy on Accommodation for Medical Illness at https://studentservices.uwo.ca/secure/index.cfm

Please contact the professor if you require material in an alternate format, or any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x82147 about an accommodation.