

## Earth Sciences ES4450y: Regional Field School

**Instructor:** Dr. A. Guy Plint

A ten-day field trip to study aspects of the Appalachian Orogen in Nova Scotia and New Brunswick. 1<sup>st</sup> September to 10<sup>th</sup> September, 2017.

**Prerequisites:** Earth Sciences 3350Y and registration in the Honors Specialization in Geology, or the Honors Geology or Honors Environmental Geoscience Programs for Professional Registration, or permission of the Department. Partial cost of the field trip (\$650 in 2016) must be borne by the student, and is payable to the Department by May 30<sup>th</sup> 2017.

**If you intend to take this field course, you must inform the Academic Co-ordinator (Jennifer Heidenheim) of your intention to participate by April 30<sup>th</sup> 2017.**

*Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary requisites.*

**Travel & Accommodation.** Air Canada flights between London and Halifax, minivan transport between field localities. Motel accommodation & restaurant meals; picnic lunches. Students pay for breakfast and supper; Department pays for picnic lunches.

### Syllabus

Currently this Field School is run to Maritime Canada (New Brunswick & Nova Scotia). The trip usually occupies nine working days, with a half day travel at each end. The main points of the trip are as follows:

In **Maritime Canada**, the trip involves rocks that record the opening of the Iapetus Ocean in the Late Precambrian, represented by the passive margin succession of the Meguma Group; eventual closure is represented by various island arc volcano-sedimentary successions. The Acadian Orogeny is represented by major granite plutons (South Mountain Batholith) and attendant thermal metamorphic aureole. A post-orogenic Mississippian strike-slip basin is represented by evaporites and limestones of the Windsor Group, and by lacustrine deposits of the Horton Group. A Pennsylvanian strike-slip basin is represented by the Joggins Formation. Late Triassic rift basins related to early opening of the Atlantic Ocean are represented by playa-lacustrine-braided river deposits of the Scots Bay, Wolfville and Blomidon formations. Triassic axial and marginal alluvial fan systems are also seen in New Brunswick in the context of complex compressive-extensional fault reactivation and unconformity development near St. Martins. Earliest Jurassic rift-related basaltic vulcanism is represented by several hundred metres of stacked lava flows of the North Mountain Basalt, seen north of Wolfville N.S. and at Five Islands, N.S. The Minas Geofracture (plate-scale strike-slip fault zone) that separates the N American (Avalon Terrane) from Gondwana (Meguma Terrane) is seen near Parrsboro N.S., including exotic mega-blocks of deep crustal rocks. The effects of strike-slip transpression are also seen in paleo-earthquake features in Pennsylvanian strata and in an inverted stratigraphic succession seen in a flower

structure near Saint John N.B., and in recumbent folds and thrusts near Tynemouth Creek, N.B. Precambrian gneissic basement underlying Cambrian sediments are seen in Saint John. Every stop (about 25 in total) involves observation and description of the rocks on hand, followed by local and 'big-picture' interpretations. Mapping and/or stratigraphic exercises are conducted in at least three localities, involving structural/sedimentary relationships, graphic logging and intrusive-host rock mapping.

**Evaluation:**

- 10% Attitude & Participation
- 30% Quality of Field Notes
- 20% Field Mapping Exercises
- 40% Final Exam (2 hours, held in Saint John on the last morning).

**Text.** A custom-prepared field guide will be issued.

**Learning Outcomes:**

Upon successful completion of this course, will be able to:

1. Synthesize theoretical knowledge of igneous, sedimentary and metamorphic rocks to guide the observation, description and interpretation of a wide range of rocks seen in a field situation.
2. Integrate concepts of plate tectonics and basin-forming mechanisms to interpret varied rock types in their field context.
3. Apply graphic logging techniques to document sedimentary successions in selected outcrop sites, and use that information as a basis for the reconstruction of depositional environments.
4. Construct structural-stratigraphic cross-sections in deformed rocks, from which geological history will be deduced.

**Academic Offences:**

“Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: [http://www.uwo.ca/univsec/handbook/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf)

**Absence from Exams**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see: <http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>

**Accommodation due to Illness**

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)  
(which includes a link to the [Student Medical Certificate](#))

### **Emotional/Mental Health Distress**

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

### **Accessibility**

Please contact the course instructor if you require material in an alternate format or if you require 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 x 82147 for any specific question regarding an accommodation.

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_disabilities.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf)

### **Support Services**

Students who are in emotional or mental distress should refer to mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

Registrarial Services are available at : <http://www.registrar.uwo.ca/>, and Student Support Services are listed at <http://westernusc.ca/services/>

### **Religious Holidays**

Please see this link for University policy on accommodation for Religious Holidays.

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_religious.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf)