

## **Earth Science 4450y Course Outline**

The trip involves rocks that record the opening of the Iapetus Ocean in the Late Precambrian, represented by the rift-related, sedimentary and volcanic succession of the Meguma Supergroup. The Acadian Orogeny is represented by regional folding and 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.

### **Learning Outcomes:**

Upon successful completion of this course, students should 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 can be deduced.

## **4. Course Materials**

**Text.** A custom-prepared field guide will be issued when we depart for Nova Scotia.

All participants must bring a **hand lens** and suitable, hard-back **field notebook**. A convenient size is 4.5 x 7" but a larger format is also suitable. A book with pages less than 4 x 6 inches is too small.

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: <http://owl.uwo.ca>.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

## 5. Methods of Evaluation

Attitude & Participation	10%
Quality of Field Notes	30%
Field Mapping Exercises	20%
Final Exam (2 hours, on last day)	40%

## 6. Student Absences

### Assessments worth 10% or more of the overall course grade:

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

The Student Medical Certificate is available at

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

If a student has been able to participate in at least five of the nine scheduled field days (1 to 9 September), but is prevented from attending one or more days, or from completing the final exam due to Covid-19 infection, then their work will be reweighted and assessed on the basis of a minimum of five day's work. If a student is unable to complete a minimum of five days of fieldwork, they will be considered not to have taken the course.

If a student is unable, due to Covid-19 infection, to sit the final exam on September 10<sup>th</sup> (in Saint John, N.B.) then an arrangement can be made for them to sit the final exam upon their return to UWO.

## 6. Accommodation and Accessibility

### Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

## **7. Academic Policies**

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely 12 0 612 792 reW\*nB2nn0