

Course Outline for Geography 2130Y and Earth Sciences 2130Y
Field Geography and Geology of Southwestern Ontario 2015

Course Information:

Lecture: Tuesday 9:30-11:30 Location: **Social Sciences 3006**

Prerequisites: none

Transportation fee: yes

Instructor Information:

Dr. Desmond Moser

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Calendar Description:

A field-trip based course exploring the history and patterns of the geology, physical landscapes and resources of southwestern Ontario. Usually offered in the first half of the Fall semester; four mandatory, full day field excursions (transportation fee required, tbd in first week of class) supported by a weekly lecture.

Course Objectives:

The main objective of this course is to provide field-based education in the natural history of the landscapes, geology and natural resources of southwestern Ontario while conveying basic technical skills beneficial to field studies and research. The course is also intended to increase the number of potential field education experiences for students early in their undergraduate programs, and perhaps attract new students to join the study of Earth processes in either or both departments.

Learning Outcomes

Technical learning outcomes will be map and air photo interpretation, field orientation skills (hand-held compass and Global Positioning System unit), awareness of basic field safety protocols, rock and mineral identification, soil and landform identification, distance estimation skills, and basic water quality measurements. This skill set is deemed beneficial to all field-based study and research. A broader learning outcome will be an increase in general knowledge of the geography and geology of southwestern Ontario, as well as an appreciation of how the features studied in these two disciplines are related in nature.

Activities and scheduling:

The main course activity will be the four full-day field excursions. These will be run on Friday's in the first half of the Fall semester and will depart and return from a clearly designated location on the UWO main campus. A typical trip will depart at 9AM sharp and return late afternoon. Participation on all trips is mandatory (details concerning alternative weighting of course materials due to severe illness, dire personal circumstances etc. are included in the course outline), and students must use the class transportation provided. Each trip will have a main theme around which sub-themes will be developed.

Friday field trip dates for 2015 are:

Sept. 18th

Sept. 25th

Oct 16th

Oct 23rd

Weekly, 120-minute, classroom lectures in 2015 will begin Tuesday, Sept 8th. Lectures will introduce background material supporting the field trips, and allow review of written assignments related to the previous field excursion. Course end-course evaluation in 2015 is scheduled for Nov 7th.

Evaluation:

Course performance will be evaluated on the basis of; a) written assignments mainly completed on field trips, b) take-home assignments related to field excursions (e.g. downloading and plotting geospatial data collected in field exercises), and c) quizzes on lecture and field course content written in the classroom.

Field trip assignments will be handed out at the outset of each trip and returned to the TA upon return to UWO. They will consist of short questions accompanied by maps and air photos. They will be of 'questionnaire' format with questions coordinated in sequence with field trip sites. The successful completion of the assignment will require basic, independent, and sometimes group, problem solving. Completed answers on field questionnaires may require, for example, provision of a definition of landform features accompanied by clear and proper field sketches (i.e. scale, oriented perspective), distinguishing features of minerals, soil or plants, correct identification of field locations on maps and airphotos as well as features such as outcrops, old shorelines or channels, vegetation types. During the course of the excursion, and the preceding classroom lecture, the instructor will provide information required to assist problem solving and questionnaire completion.

For certain field trips, a take-home tutorial assignment will be due the week following the field excursion. This may consist of compilation and review of data collected during the excursion by the student (e.g. compiling and plotting GPS locations using web-based resources).

Classroom written evaluations will require a mixture of multiple choice, short-answer and longer format written responses as well as completion of brief map-based questions. A Mid-course evaluation will serve to alert the students to the level of field excursion content for which they are responsible in addition to familiarizing the students with the style of questioning they will see in the final, comprehensive course evaluation.

Evaluation structure

Field excursion assignments: 60% (4@15% each)

Mid-course written evaluation: 5%

End-course written evaluation: 35%

Field trip dates and tentative themes for 2015 are:

Sept. 18th – Crustal structure of SW Ontario; Niagara gorge and escarpment

Sept. 25th – OGS core library, petroleum resources, St. Mary's quarry, rock and drill core examination, Quaternary sediments, modern hydrology

Oct 16th – Postglacial and Modern Shorelines, Canadian Shield detritus; Lake Erie Bluffs

Oct 23rd – Lake waters, soils and Carolinian forest biogeography Walpole Island

Field trip safety

Students will be required to wear appropriate field safety equipment at all times. Details will be given in class. **Signed field trip safety waivers are prerequisite.** This form is available on the Geography Health and Safety website (<http://geography.uwo.ca/health-safety/fieldwork.htm>).

Classroom topics in chronologic order for 2015

- 1) Sept. 15th: INTRODUCTION; Course introduction, examples of Geographic and Geologic field research, overview of field excursions and their relationship to SW Ontario natural history and resources, nature of the field work, explain data collection and recording tasks
- 2) SW ONTARIO AT DEPTH AND THROUGH TIME; overview of the subsurface geology, structure and paleogeography of the region, timescale of events in the landscapes and subsurface of SW Ontario, introduction to types of maps/ DEM of SW Ontario.
- 3) SW ONTARIO LITHOSPHERE; EVOLUTION AND RESOURCES Unconsolidated and consolidated sediments, crystalline rock types in the context of the rock cycle; A vertical cross-section of SW-Ontario from surface to base of lithosphere; Synopsis of tectonic, eustatic and glacial history of the region; Fossil fuel resources of SW Ontario related to subsurface structure and history, e
- 4) Oct 7th: Mid-course written evaluation in class
- 5) CRYOSPHERE PROCESSES AND SW ONTARIO. Glacial and Post-glacial history of SW Ontario, Isostatic rebound – process and consequences for SW Ontario post-glacial topography; coastal processes of erosion, sediment transport and deposition, coastal landforms; lacustrine stratigraphic records of climate and post-glacial change,;
- 6) SW ONTARIO EXOSPHERE. Soil types related to bedrock and quaternary deposits; Introduction to biogeographic change and flora of SW Ontario; Limnology of hydrology of SW Ontario, Carolinian forest types
- 7) SYNOPSIS. Overview of natural history of SW Ontario; Review class
- 8) Nov 3rd: Final written evaluation in class

NB:

An excuse from a field trip or evaluation is only allowed in cases of serious medical illness. If UWO requirements are completely met (see below), an alternate work assignment may be arranged.

For UWO Policy on Accommodation for Medical Illness see: http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

For a downloadable Student Medical Certificate (SMC) see: <https://studentservices.uwo.ca> under the Medical Documentation heading.

Statement on Use of Electronic Devices

No electronic devices will be allowed during tests and examinations.

Statement on 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 .

Helpful link for area of study:

http://www.mndmf.gov.on.ca/mines/ogs_earth_e.asp