

ARCHAEOLOGY 3700
GEOARCHAEOLOGY AND LANDSCAPE ANALYSIS
Fall 2019

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Office Hours: T / R 12:00-1:00 pm
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Lecture: T / R 1:40-2:55 pm
Lab: T 3:00-6:00 pm (or later)

Room: C756
Room: C756 / C710 / Field Sites

Course Description:

As archaeologists began to ask more complex questions regarding the formation history of their sites, a demand grew for more sophisticated interpretations of the field data. This led to the creation of sub-disciplines, one of which is geoarchaeology. Geoarchaeology is the application of the concepts and methods of the geosciences to archaeological research. Geoarchaeologists study the formation processes active at a site by analysing the sediments/soils and their stratigraphic context. Moreover, the environment and surrounding landscape played a key role in site selection, use, and preservation. By performing geoarchaeological research we can significantly enhance our interpretation of human history.

Through lectures, assignments, field trips, and class discussions we will cover the major aspects of geoarchaeology: stratigraphy, site formation processes, and landscape analysis. You will learn how to answer questions such as: Where did the sediments at the site come from? What is the significance of a soil at the archaeological site? How did changes in climate affect the local population? What are the taphonomic agents responsible for the preservation or destruction at the site? You will also learn how to take good field notes, use the Borden System of site recording in Canada, make a basic site location map, and carryout a basic sediment/soil lab analysis.

It is important to acknowledge that we study the archaeology at an institution located on the lands of the Niitsitapi (Blackfoot) people past, present, and future. The archaeological sites we will visit throughout the semester are within these lands. Lethbridge is also home to Métis and many other Indigenous peoples. This is a critical acknowledgement because, as we will see throughout this course, all claims to knowledge are contextual; they are produced by, and (re)productive of, broader socio-historical contexts.

Required Reading:

The text *Principles of Geoarchaeology: A North American Perspective* by Michael R. Waters will be used for this class. Additional articles will be assigned throughout the semester (posted on Moodle). Class attendance is strongly suggested as lectures will include additional information.

Course Fee:

There is a **\$150** dollar lab fee to cover the costs of the field trips; we use a school bus to travel to archaeological sites across southern Alberta. This fee will be charged to your student account. Field equipment will be supplied but students must purchase a hard covered notebook for field notes.

Course Components and Grading:

You will be evaluated on the basis of two exams, three assignments, and your field notes. You are required to attend all field trips and actively participate in all elements of the course. Late assignments and field books will not be accepted unless there are documented extenuating circumstances. No make up exams will be given except in the case of serious illness as verified by a doctor's note. You must discuss these circumstances with me on or prior to the assignment due date or exam date.

Assignment 1:	10%	Due: October 8 – at the beginning of class
Assignment 2:	10%	Due: November 26 – at the beginning of class
Assignment 3:	5%	Due: November 26 – at the end of class
Field Notes:	25%	Due: November 19 – at the beginning of class
Exam 1:	25%	October 12 – in class
Exam 2:	25%	Scheduled during the Exam Period

Grading Scheme:

A+ 90-100	B+ 77-79	C+ 67-69	D+ 56-59
A 85-90	B 73-76	C 63-66	D 50-55
A- 80-84	B- 70-72	C- 60-62	F 0-49

Assignments:

Assignment 1 focuses on the hands-on analysis of sediments and soils in the lab. You will work your way through a series of lab stations at which you will analyse and classify sediment and soil samples, including your samples from the Taber Child site.

Assignment 2 involves the interpretation of a profile and field notes. This assignment brings together the elements of geoarchaeology you have learned throughout the semester. You will write a double-spaced, 4-5 page report based on the field notes and drawings you will be given.

Assignment 3 compliments your field notes. Your grade for this assignment is based on the map you create using the coordinates you recorded in the field using a handheld GPS unit.

Field Notes:

A large component of this course involves field trips to archaeological sites spread across southern Alberta. You are required to keep a field journal documenting each site. Your field notes should convey as much information as possible based on observations made at and in the area of the site. Good field notes are essential to archaeological research.

Field trip sites and Assignment Dates (subject to change)

Sundial Butte	September 10	Assignment 1	October 1
Head-Smashed-In	September 17	Assignment 2	November 19
Taber Child	September 24	Assignment 3	November 26
Paradise Canyon	October 8		
Noble Point Effigy	October 15		
Fincastle	October 22		
Writing-on-Stone	October 29		
Wally's Beach	November 5		

Course Outline

I. Introduction

II. Geoarchaeological Foundations

- Sediments
- Soils
- Stratigraphy
- Site Preservation
- Formation of the Archaeological Record

VII. The Postburial Disturbance of Archaeological Site Contexts

- Cryoturbation
- Argilliturbation
- Bioturbation (Flora and Fauna)
- Deformation

III. Alluvial Environments

- Streamflow
- Alluvial Landscape Evolution and the Archaeological Record
- Alluvial Landscape Reconstruction
- Sediment Erosion, Transport and Deposition

IV. Aeolian Environments

- Sediment Erosion, Transport and Deposition
- Sand Dunes
- Loess and Dust
- Stone Pavements
- Volcanic Ash (Tephra)
- Aeolian Erosion

V. Springs, Lakes, Rockshelters and Other Terrestrial Environments

- Springs
- Lakes
- Slopes
- Glaciers
- Rockshelters and Caves

VI. Coastal Environments

- Coastal Processes
- Coastal Environments: Erosional, Submerged, and Depositional Coastlines
- Coastal Landscape Evolution and the Archaeological Record
- Coastal Landscape Reconstruction
- Late Quaternary Sea Level Changes

VIII. Geoarchaeological Research