This course introduces scientific and technological applications, and analytic issues relevant to archaeology. This includes map construction and interpretation, the application of pedology and sedimentology interpreting archaeological sediments, geomorphology, site transformation, artifact typology and serriation, remote sensing, and understanding archaeological deposits in a regional and palaeo-environmental context. There is no assigned textbook, but there is an extensive reading list that students are expected to consult. PDF copies of the ‘powerpoint’ lectures will be available (D2L) for use as a study guide. You are encouraged to download, review and print them prior to each class.

**Late assignments are strongly discouraged.** If your work is going to be unavoidably late contact me prior to due date. With acceptable explanations, extensions may be granted. Papers overdue more than 1 week (without an extension) will not be graded. Student’s performance will be evaluated as following:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab exercises (5 exercises @ 10%)</td>
<td>50</td>
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<tr>
<td>Mid term Test</td>
<td>20</td>
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<tr>
<td>Take Home Exercise/Paper</td>
<td>30</td>
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The lab exercises develop analytic skills useful for the final take home exam. The final exam will be distributed about 2 or 3 weeks prior to due date. This is a challenging assignment that takes thought and time. Do not delay starting it. You are encouraged to share ideas and debate strategies with classmates when doing the assignments. However, work will be graded individually. Put you individual perspective into these assignments. Plagiarism is readily identifiable and students with unduly similar/identical answers will be penalized.

**Week 1 (Sept 5)**
Introduction to GeoArchaeology
Archaeological sediments and its context
Geological Time Scales... terms and definitions
Problems with mapping.
**No lab week 1**

**Week 2 (Sept 11)**
Using mapping instruments (Compass, Plane Table, theodolite, laser level, total station)
Global Positioning Systems in archaeology.

**Lab:**
Using topographic and thematic maps
Grid systems and their application.
**Lab Assignment 1**
Week 3 (Sept 18)
Geomorphology and archaeology
Glacial/deglaciation deposition
Fluvial deposition
Lacustrine environments
Aeolian deposition
Volcanic deposition
Cave studies
Lab 1 due (map reading) (10%)
Lab: Map interpretation cont’d
Using optical surveying instruments
Construction of topographic maps. (Lab assignment 2)

Week 4 (Sept 25)
Emerging UAV Photogrammetry, 3D modeling applications in Archaeology,
Lab: Map instruments (outside demonstration)

Week 5 (Oct 2)
Archaeological context and association.
Lab: Map instruments (outside demonstration)
Week 6 (Oct 16)
Lecture: Mid Term Test (20 %)
Lab Site Taphonomy, turbation and weathering
Site Structure, horizontal and vertical stratigraphy
Lab 3 Interpreting a sediment cross sections

Week 7 (Oct 23)
The process of site discovery, sampling, probability statistics
Site investigations sequences
Lab 4 Soil Chemistry interpretation
Lab 3 Due (soil profile) (10%)

Week 8 (Oct 30)
Surface and subsurface remote sensing
Lab 4 due Soil Chemistry exercise (10 %)
Lab Geophysical Remote Sensing

Week 9 (Nov 6)
Surface and subsurface remote sensing cont’d
Paleo-environmental reconstruction
Lab Take home exam distributed and discussed (30 %).
Lab 5 due Proton Magnetometer assignment

Week 10 (Nov 13)
Introduction to Palynology
Lab Artifacts, attributes, typology, serriation and artifact analysis
Questions regarding Take Home Exam

Week 11 (Nov 20)
Introduction to electronic cartography, graphics, and data presentation
Geographic Information Systems
Lab Questions regarding Take Home Exam

Week 12 (Nov 27)
Take Home Exercise Due Dec 4 (30%)

List of Readings


Davidson, Donald A., Stephan P. Carter and Timonthy A. Quine


Lasca, N.P. and J. Donahue (ed)

Leute, Ulrich

Limbrey, Susan.

Mandel, Rolfe D. (editor)
2001 *Geoarchaeology in the Great Plains,* University of Oklahoma Press, Norman, Oklahoma

Michlovic, M. G., Hopkins, D. G., and Richardson, J. L.

Odum, Eugene P.

Olsen, S.R. and L.E. Sommers

Parkes, P.A.
1987 *Current Scientific Techniques in Archaeology.* St. Martin’s Press, New York

Rapp, G. Jr. and J.A. Gifford

Rapp G. Jr and J.A. Gifford (ed)
1985 *Archaeological Geology* Yale University Press, New Haven, Conn.

Sillen, A., J.C. Sealy, and N.J. van der Merwe

Stein, J.K.

Tamplin, M.J.
1969 “The Application of Pedology to Archaeological Research” In *Pedology and Quaternary Research* edited
by S. Pawluk pp 153-161 The University of Alberta Printing Department, Edmonton.

Trenhaile, A. S.  
1990. **The Geomorphology of Canada: An Introduction**.  

Turnbaugh, W.A.  

Tuttle, S.D.  
1980 **Landforms and Landscapes** William C. Brown Co, Dubuque, Iowa.

Villa, P.  

Waters, Michael R.  
1992 **Principles of Geoarchaeology** The University of Arizona Press, Tuscon