

ANTH 4240/5240 **GeoArchaeology** Fall 2009 Hale 240 T Th 8-9:15 am.
 Payson Sheets, office Hale 160. Office hrs. 12-1:30 pm M, W.

Geoarchaeology is the application of geological science methods and techniques to help solve archaeological problems. The geological methods used are diverse in scope, in scale, and in form. This course is designed to present an introduction to the most important and pertinent of those methods. After the first two weeks of introduction, history and cultural processes, we look at extreme geophysical events and how they have been encoded in oral history, myth, and religion. Then we turn to soils and sediments, and different kinds of natural environments, paleoenvironments, and paleoecology. We then focus on dating, remote sensing, and geophysical applications to archaeological problems. We end by considering what domains of research could be explored beyond the usual boundaries of GeoArchaeology.

<i>Week</i>	<i>Dates</i>	<i>Topics</i>	<i>Required Readings</i>
1	25, 27 Aug	Intro, cult & nat.site fm. processes	Waters Ch 1, Schiffer
2.	1, 3 Sep	Hist of Geoarch, & Cult. processes	Rapp ch. 1, Cameron, Tomka chaps, Hayden
3.	8, 10 Sep	Extreme Events & Oral History; Sediments and Soils.	Krajick, R ch 2 (skim 35-60) 257-265, Stein, Cunningham
4.	15, 17 Sep	Stratigraphy, contexts, a problem.	R ch 3, Steen-McIntyre
5.	22, 24 Sep	Paleo environments, Isotopes	R ch 6, Dincauze, Pasotti.
6.	29 Sep	Paleoecology, Materials, Resources	Kirch, R ch 7 (1 Oct prof. on AIA lecture tour in Reno NV)
7.	6, 8 Oct	Sourcing	R ch 8
8.	13, 15 Oct	Sourcing	R ch 8, Braswell
MIDTERM EXAM Thurs 15 Oct. 100 points.			
9.	20, 22 Oct	Sourcing, Isotopes.	Day, Buikstra, Muller

10. 27, 29 Oct Relative & Quantitative dating **R** p 132-144
11. 3, 5 Nov Quantitative dating **R** p 144-164, Perkins
12. 10, 12 Nov Remote Sensing **R** p 103-111
13. 17, 19 Nov Remote Sensing at Arenal Sheets & Sever 07
Geophysics **R** p. 111-131.
14. 24, 26 Nov Fall Break, Thanksgiving Vacation
15. 1, 3 Dec Geophysics at Ceren Conyers 2002
Geoarchaeology issues **R** ch 4 & Epilogue
16. 8, 10 Dec “MetaGeoArchaeology”: landscape, memory. Ashmore,
Snead. Review for Final Exam.

FINAL EXAM is Tuesday 15 December, same room, 7:30--10 am.

REQUIRED READINGS:

TEXT: George “Rip” Rapp and Chris Hill 2006 GEOARCHAEOLOGY: THE EARTH SCIENCE APPROACH TO ARCHAEOLOGICAL INTERPRETATION. New Haven, Yale Univ. Press. 2nd edition.

PHOTOCOPIED (The Reader):

Waters, Michael 1992 Principles of Geoarchaeology: A North American Perspective. Tucson, University of Arizona Press. (Chapter 1)

Schiffer, Michael 1987 Formation Processes of the Archaeological Record. Albuquerque, UNM Press. Chapters 1 & 2.

Cameron, Catherine 1993 “Abandonment and Archaeological Interpretation” In C. Cameron and S. Tomka (Eds.) Abandonment of Settlements and Regions: Ethnoarchaeological and archaeological approaches. Cambridge Univ. Press, Cambridge.

Tomka, Steve 1993 "Understanding Abandonment Processes: Summary and Remaining Concerns." In C. Cameron and S. Tomka (Eds.) Abandonment of Settlements and Regions: Ethnoarchaeological and archaeological approaches. Cambridge Univ. Press, Cambridge.

Hayden, B. and A. Cannon 1983 "Where the garbage goes: Refuse disposal in the Maya highlands." Jour of Anth Archaeol. 2: 117-63.

Krajick, Kevin 2005 "Tracking Myth to Geological Reality" SCIENCE 310:762-4.

Stein, Julie 1985 "Interpreting Sediments in Cultural Settings." In Archaeological Sediments in Context, Ed. By J. Stein and Wm Farrand, pp. 5-20. Peopling of the Americas, Edited Volume Series, Vol. 1, Center for the Study of Early Man [sic], Institute for Quaternary Studies, University of Maine, Orono.

Cunningham, Aimee 2006 Gritty Clues. Science News 169:362-4

Steen-McIntyre, V. Roald Fryxell, and Harold Malde 1981 "Geologic Evidence for Age of Deposits at Hueyatlaco Archaeological Site, Valsequillo, Mexico." Quaternary Research 16:1-17.

Dincauze, Dena 2000 Environmental Archaeology. Cambridge Press. Pp 169-173.

Pasotti, Jacopo 2007 Deciphering Ancient weather reports drip by drip. SCIENCE 317:448.

Kirch, Patrick 1997 Microcosmic Histories. American Anthropologist 99:30-42.

Braswell, Geoffrey, John Clark, Kazuo Aoyama, Heather McKillop, and Michael Glascock. Ms 1999. "Determining the Geological Provenance of Obsidian Artifacts from the Maya Region: A Test of the Efficacy of Visual Sourcing."

Day, Charles 2004 "Isotopic Analysis of Teeth and bones solves a Mesoamerican mystery" Physics Today.org www.physicstoday.org

Buikstra, Jane et al. 2004 "Tombs from the Coan acropolis: a life history approach" In *Understanding Early Classic Copan*, Ed. By Ellen Bell, Marcello Canuto, and Robert Sharer. Phila: U Penn Museum. Pp 191-214.

Muller, Wolfgang et al. 2003 "Origin and migration of the alpine iceman" *Science* 302:862-6.

Perkins, Sid 1007 North by northwest. *Science News* 172: 392-4.

Sheets, Payson, and Tom Sever 2007 "Creating and Perpetuating Social Memory across the Ancient Costa Rican Landscape." In Wiseman and El-Baz, eds. *Remote Sensing in Archaeology*. Springer.

Conyers, Larry and Hartmut Spetzler 2002 "Geophysical Exploration at Ceren" chapter in Sheets, Payson Ed. *Before the Eruption: The Ancient Ceren Village in Central America*. Austin, University of Texas Press.

Ashmore, Wendy 2002 "Decisions and Dispositions: Socializing Spatial Archaeology" *American Anthropologist* 104:4: 1172-83.

Snead, James 2002 "Ancestral Pueblo trails and the cultural landscape of the Pajarito Plateau, New Mexico." *Antiquity* 76: 756-65.

EXAMS:

Midterm Thursday 15 October. 100 points. No makeups; you must be present and take the exam this day.

Final Tuesday 15 December 7:30 -- 10 am, same room as lectures. 200 points. The final is comprehensive, but with emphasis on the second half of the semester.

TERMPAPER: Due Tuesday 8 December.

Undergraduates will turn in their 5-8 page double-spaced term paper in to me by 8 December. All papers will be submitted electronically as email attachments. My email address is: sheetsp@colorado.edu. Please

be careful to cite the work of authors, as detecting plagiarism is easy to do electronically. The topic is some aspect of geoarchaeology; the choice is yours, but I heartily suggest you discuss the topic with me, as I almost always can be of assistance. 10% deducted per day late. You should use the anthropological system of parenthetical referencing (see the articles for examples). Your term paper should begin with a title and a one-paragraph **Abstract**; examples of abstracts are in the assigned articles. The abstract should be the last thing you write, as it emphasizes the results/accomplishments of your paper. Number your pages. 100 points.

Graduate students should follow the above instructions, with the following differences: Your theoretically oriented term paper should be 10 – 15 pages of text (not counting illustrations). I need to discuss each graduate term paper in detail with each student before you get started. 200 points.

Any student eligible for and needing academic adjustments or accommodations because of a disability is requested to speak with the professor no later than the end of January.

We will adhere to the CU Student Code of Ethics.