

GEOGRAPHY 5712

Paleoenvironmental Field Methods for Geographers

3 credit hours

SUMMER SEMESTER 2021 SYLLABUS

Class Meetings: June 7-16 field course in Range Creek Canyon, Utah

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Recommended Text: *Reconstructing Quaternary Environments* (2nd edition) by J. J. Lowe and M. J. C. Walker, Pearson Prentice Hall, 1997. ISBN: 0582101662. (\$49 new; \$22 used on Amazon.com)

Catalog Description of Course

GEOG 5712 Paleoenvironmental Field Methods for Geographers (3) Prerequisite: GEOG 3200 or instructor consent. This course will be conducted in conjunction with the University of Utah's summer program in archaeological field methods (ANTH 5712), held at Range Creek Canyon, Utah. This ten-day field course is designed to teach methods used by paleo-researchers for reconstructing past environments on a local to regional scale. Students will receive training in a variety of field techniques including survey, mapping, site description, and soil identification. Paleoenvironmental methods currently being applied in Range Creek include packrat midden analysis, bog and sediment coring, dendrochronology/dendroclimatology, and alluvial stratigraphy, and students will participate in actual data collection contributing to the current project.

- (a) Participants must provide their own health insurance, work gloves, a journal notebook, basic personal camping equipment ([scroll down to Personal Equipment](#)) you DO NOT need to purchase the required equipment for Paleo Field Methods, and transportation to the [Utah Museum of Natural History](#). A signed waiver of liability is required.

Introduction Students in this course will work with archaeologists and archaeological students to understand paleoenvironmental changes over the past ~1500 years that may have influenced the Fremont Culture in Range Creek Canyon and the region at large. Emphasis will be focused on developing high-resolution records that can track demographic and technological shifts in Fremont populations that are revealed by archaeological research. Students will participate in real-world exercises and data collection that will add to the existing database of climatic and environmental change records in Utah and the desert Southwest. The course will include instruction in the tools and concepts that paleoenvironmental researchers use to reconstruct past environments, such as collection of packrat middens, sediment coring of bogs and lakes, coring of trees, examination of alluvial stratigraphy, archaeological excavation, and more.

Course Suggestions and Objectives

This class is a graduate-level class and should provide a solid grounding in the techniques of Quaternary investigations for students to apply to their own field sites and research. In addition to learning discipline-specific information, I expect that you will practice all your well-developed academic skills including the following: 1) using critical thinking skills to assess the validity and applicability of information we discuss, 2) getting the most out of readings, 3) finding information on your own, 4) sharing your thoughts and insights with the group in every class period, and possibly most importantly 6) developing your own research questions.

Students should expect comfortable but relatively primitive living conditions. We will be camping at the Wilcox ranch, which was a working ranch until a few years ago. Students are expected to provide their own camping equipment (personal tents, sleeping bags and pads, etc.). Meals during the ten-day work sessions will be prepared by a professional cook. Water, toilets, and field equipment will be provided by the field program. All students will be expected to assist in the daily camp chores required to keep a field camp running smoothly. For more information on living arrangements, physical requirements, and logistical arrangements please see the [University of Utah Anthropology Department Field School website](#).

Grading

Grading for Geog 5712 will be based on the following:

- (b) Participation in all field activities, including operation and maintenance of all field equipment, and recording of site data;
- (c) Completion of a daily field journal, with students recording details on what they learned and how these principles could apply the day's activity (see guiding questions below);
- (d) Participation in group discussions, with assigned readings, demonstrating sound understanding of concepts and techniques of paleoenvironmental research;
- (e) Completion of an assigned field problem, including mapping, plans for data collection, preparation, and processing to obtain actual paleoenvironmental data.
- (f) Creation of a hypothesis-driven research proposal, including a testable hypothesis(es), methods for data collection, analytical methods to employ, and implications of results on hypothesis validity.

TENTATIVE FIELD COURSE SCHEDULE

DAY DATE

M	6/7	Orientation to Range Creek Canyon & paleoenvironmental problems
T	6/8	Field notes, site description, writing exercises
W	6/9	Maps & mapping, orienteering, GPS, GIS
Th	6/10	Total stations & data loggers
F	6/11	Site survey & data collection- packrat middens
S	6/12	Site survey & data collection- bog coring
Su	6/13	Site survey & data collection- dendroclimatology
M	6/14	Site survey & data collection- plant survey
T	6/15	Paleoenvironmental problem (site to be selected)
W	6/16	Wrap-up & camp breakdown

Guiding questions for journal responses: As you work through your learning process about the rationale behind paleoenvironmental methods, your journal responses should reflect your growing understanding of the following guiding questions. As the course progresses, you should be able to address these questions in greater detail and with deeper understanding. Your instructors will always be available to discuss these concepts with you as you develop your personal models of the processes involved.

1. Describe in detail all the geomorphic processes in action in Range Creek Canyon. What forces are in action? How constant or episodic are these actions? What is the relative rate of these various processes? How do you know?
2. Within this geomorphic setting, where can paleoenvironmental data be archived? Describe the process by which these data are preserved. How do we determine a chronology? What are the limitations/ advantages of these various data? How do we interpret past environments from these archives?
3. What human actions can change geomorphic processes in Range Creek? How do these actions modify the processes? Which of these actions could have taken place prehistorically? Historically?
4. Concerning alluvial sediments, what do data about clastic size fraction, shape, sorting, stratification, imbrication, cross-bedding, and other details tell us about stream processes?
5. Concerning biogeography, describe the floral communities in Range Creek. How do they vary throughout the Canyon?

University of Utah Attendance Policy

The University expects regular attendance at all class meetings. **You are not automatically dropped from your classes if you do not attend.** You must officially drop your classes by the published deadline to avoid a "W" on your record.

You are responsible for satisfying the entire range of academic objectives, requirements and prerequisites as defined by the instructor. If you miss the first 2 class meetings, or if you have not taken the appropriate requisites, you may be required to withdraw from the course.

If you are absent from class to participate in officially sanctioned University activities (e.g. band, debate, student government, intercollegiate athletics), religious obligations, or with instructors approval, you will be permitted to make up both assignments and examinations.

University of Utah Standards of Academic Conduct

In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating.

University of Utah definition: "Plagiarism" means the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation. Plagiarism includes, but is not limited to, representing as one's own, without attribution, any other individual's words, phrasing, ideas, sequence of ideas, information or any other mode or content of expression.

University of Utah Center for Disability Services

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services (<http://disability.utah.edu/index.htm>), 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.